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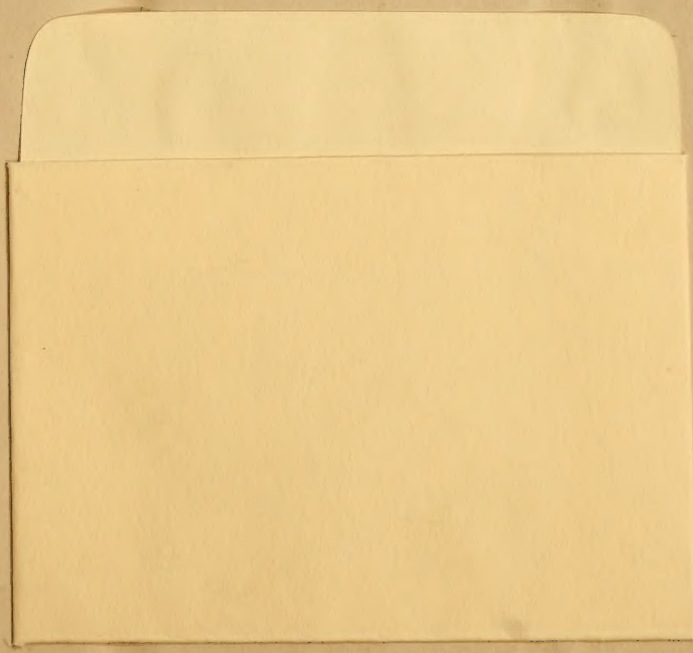

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INDEX TO GLEANINGS IN BEE CULTURE.

VOLUME XXXV.

TO THE READER:—In looking for an item it is well to remember that it may be found under the head of "Illustrations," if it is illustrated; or it may be found under the author's name; and it is certainly indexed under the general index under the phrase usually used by bee-keepers; for example, more than one queen in a hive will be found under three heads; *viz.*, "two-queen system," "plurality of queens," and "plural queen system."—W.K.M.

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GLEANINGS IN BEE CULTURE

VOL. XXXV. JAN 1, 1907 NO. 1

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Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Markets.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel stain, or otherwise; all the cells sealed except an occasional cell, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CINCINNATI.—The honey market is in a healthy condition, particularly extracted honey, the demand being better than one year ago. This is probably due to the excitement among those holders who are trying to inflate prices. Quote amber extracted honey in barrels at 6 to 7, according to the quality; fancy table honey in barrels and 60-lb. cans, 8 to 9. The demand for comb honey has decreased somewhat, owing to the season of the year, when the sale of that article suffers. Offer fancy white comb honey in a wholesale way at 15 to 16. The above are our selling prices. For choice yellow beeswax we are paying 30 delivered here.

THE FRED W. MUTH CO.,
Dec. 19. 51 Walnut St., Cincinnati, O.

KANSAS CITY.—The demand for comb honey is fair, but the market is almost bare of extracted, and the demand is very good. We quote fancy white comb, 24-section cases, $3.25; No. 1 white comb, 24-section, $3.00. Extracted, white, per lb., 7½ to 8; amber, 7 to 7½. Beeswax, 25.

Dec. 28. C. C. CLEMONS & CO.

MILWAUKEE.—The market on honey is in quiet condition, and the demand has dropped off much during this month, as the season is full of attractions of another sort, and honey sweet is neglected. The supply is not large but below the usual quantity this season of the year. Values remain fairly steady. We quote: Fancy 1-lb. sections, 16 to 17; fair to good, 15 to 16. Extracted, barrels, cans, and pails, white, 8½ to 9; amber, 7½ to 8. Beeswax, 28 to 30.

Dec. 28. A. V. BISHOP & CO.

ATLANTA.—Our market is very quiet now on all grades of honey, partly due to offerings of new cane syrup. The holidays find us about cleaned up, and we expect very little trade till new crop begins to move. Prices are like last quoted. JUDSON HEARD & CO.,

Dec. 27. Atlanta, Ga.

BUFFALO.—Honey is moving very slow for this time of the year. Dark and No. 2 white is harder to sell than best grades of white. Fancy white comb, 16 to 17; A No. 1, 16 to 17; No. 1, 15 to 16; No. 2, 13 to 14; No. 3, 11 to 12; No. 1, dark, 11 to 12; No. 2, 10 to 11. White clover, extracted, 7 to 8; amber, 6½ to 7; dark, 6 to 6½. Jelly-tumblers, 90 cts. per doz. Beeswax, 30 to 32.

W. C. TOWNSEND,
Dec. 28. Buffalo, N. Y.

CHICAGO.—At this writing the market is quiet, most of the retailers having taken on a stock early in the month to carry them through the holidays. There is no surplus of fine comb honey, hence there is no change in prices. Extracted honey and beeswax also remain unchanged, there being a good demand in prospect.

R. A. BURNETT,
Dec. 18. 199 So. Water St., Chicago, Ill.

INDIANAPOLIS.—Fancy and A No. 1 white comb sells for 16 to 17, and demand is good; fancy amber, 11 to 12, with slow demand; No. 1 white, 13 to 14, demand not good. Best grades of extracted honey in 60-lb. cans bring 8 to 9, and demand is good, but higher prices will retard the market; amber extracted brings 6½. Good average beeswax sells here at $33.00 per 100 lbs.

WALTER S. POUDER,
Dec. 19. 513 Mass. Ave., Indianapolis, Ind.

ZANESVILLE.—Fancy white comb honey brings at the present time $3.85 to $4.00 per case of 24 sections, with a rather light demand. There is some demand for extracted in small retail packages. Beeswax, 30.

Dec. 19. E. W. PEIRCE, Zanesville, Ohio.

SCHENECTADY.—Very little demand for honey during the holiday rush, and we do not look for any improvement before the middle of January. No change in prices.

CHAS. MACCULLOCH,
Dec. 20. Schenectady, N. Y.

ST. PAUL.—Supply of honey is limited. Fancy white, No. 1, in 1-lb. sections, new, 15 to 16; No. 2 white clover, 1-lb. sections, 13 to 14; extracted white, in 60-lb. cans, per case, 9 to 10.

W. H. PATTON,
Dec. 18. Sec. Bd. of Trade, St. Paul, Minn.

NEW YORK.—Comb honey in good demand, and No. 1 and fancy white stock seems to be pretty well exhausted. Buckwheat is in sufficient supply, also off grades of white, to meet all demands, but there is no overstock as yet. We quote fancy white at 15; No. 1 at 13 to 14; No. 2 at 12; buckwheat and amber at 11, according to quality and style of package. Extracted firm at unchanged prices. California white sage, 8c; light amber at 7 to 7½; buckwheat, 6 to 6½. Beeswax steady at 30.

HILDRETH & SEGELKEN,
Dec. 15. 265-267 Greenwich St., New York.

Honey and Wax Wanted and For Sale. See Classified Ads. on pages 63–64.

BEESWAX WANTED
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CHOICE YELLOW BEESWAX
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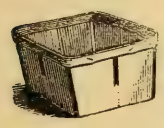

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Devoted to Bees, Honey, and Home Interests

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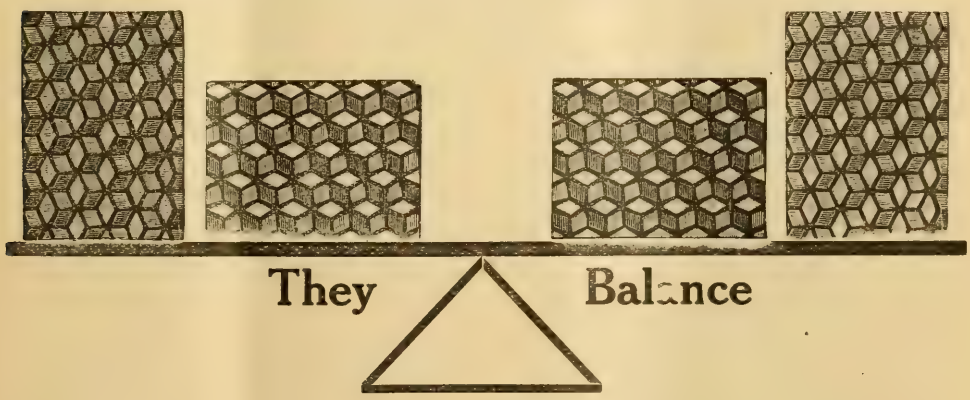

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"A SQUARE DEAL"

We believe that every advertisement in this paper is backed by a responsible person. But to make doubly sure we will make good any loss to paid subscribers sustained by trusting any deliberate swindler advertising in our columns, and any such swindler will be publicly exposed. We protect subscribers against rogues, but we do not guarantee to adjust trifling differences between subscribers and honest responsible advertisers. Neither will we be responsible for the debts of honest bankrupts sanctioned by the courts. Notice of the complaint must be sent to us within one month of the time of the transaction, and you must have mentioned GLEANINGS IN BEE CULTURE when writing the advertiser.

A year ago we reminded the readers of our advertising pages that they could get some valuable information by reading the Page Fence Age. The winter edition of that paper, which is sent free to any of our readers, gives some particularly valuable information regarding materials in fence construction.

H. J. Mercer, Los Angeles, who has been advertising his honey in our classified columns, writes Dec. 15:

Reduce quantity from 350,000 to 50,000 lbs. Stock going fast at 6½ and 7 cts

Use our columns to dispose of your honey at good prices.

A VALUABLE BOOK FREE.

Mr. H. C. Phelps, president of the Ohio Carriage Manufacturing Co., Station 293, Cincinnati, O., who is the originator of the famous free trial plan of selling vehicles from factory to consumer, has just published a remarkable book giving the factory secrets of buggy-making. He has sent out over 150,000 of these valuable books to interested people, and will gladly send you one free if you are interested to learn how buggies are made. Write Mr. Phelps for one of his famous books to-day, on a postal card, and you will get it free by return mail. Write him at the above address.

There are very few of the readers of GLEANINGS who are not interested in the question of telephone service. We think it very fortunate that the Swedish-American Telephone Co., Department 20, Chicago, Ill., have agreed to furnish, free of charge, a very practical 80-page book, explaining and illustrating telephones and their parts with wiring diagrams and full instructions. Whether you are a subscriber to a telephone system or intend to put in a private line, you will be equally interested in the contents of this book. Please mention that you saw this notice in GLEANINGS and they will send the book at once.

CATALOGS RECEIVED.

The 1907 annual catalog of the Planet Jr. people is before us. Every farmer and gardener (and who is there who doesn't have a garden?) should send for this book. It shows their lines of tools in operation on a large variety of crops, and in many different countries; 56 pages. Sent free on request by S. L. Allen & Co., Box 11065, Philadelphia, Pa.

WOODWORK PRICES REDUCED.

Here is an illustration how Gordon, Van Tine & Co., who operate the biggest woodwoork, sash, door, and general mill-work factory in the country, cut prices in two for the consumer.

In the first place they sell direct from their factory to the individual user or contractor, or builder.

Compared with this system just look how sash, doors, and woodwork is generally sold. Take for instance a four-paneled door of high quality; the dealer's price is $2.00—the retailer pays his jobber $1.15 for this door—the jobber pays the average maker 87c for it. Gordon, Van Tine & Co. sell direct from their immense factory the same door for 80c. In other words, they sell a door of warranted quality, fine white pine, to the consumer for less than the jobber pays the average small maker for it. You save, therefore, the jobber's profit of 28c, and the retailer's profit of 85c, besides the difference between Gordon, Van Tine's low factory price and that of the average factory, a total difference of $1.20.

Now, this factory is located in Davenport, Iowa—almost the center of the United States, and shipments are made to every city in the Union, safe delivery guaranteed. Every item in their immense free catalog is as great a bargain for the very same reason as the door just mentioned, and remember that better quality goods are not made nor sold by anybody.

Mention this paper and you will get prompt attention and the best treatment. Address Gordon, Van Tine & Co., Station B77, Davenport, Iowa.

Please discontinue our advertisement of second-hand honey-cans, as we have orders for all we have. GLEANINGS certainly reaches the bee-keepers.

Dec. 19, 1906. E. R. PAHL & CO.

The above is another expression of the value of our classified columns. Read those in the present issue and send us an order if you want to sell something, or to buy or exchange.

BOOKS RECEIVED.

Farm Poultry. A Popular Sketch of Domestic Fowls for the Farmer and Amateur. By George C. Watson, M. S., Professor of Agriculture in the Pennsylvania State College.

341 pp.—95 illus.—$1.25—(postage, 11c).—(The Macmillan Co.)

The Principles of Fruit-growing. By L. H. Bailey, Professor of Horticulture in the Cornell University.

The standard book on the general principles of managing a fruit plantation.

5th ed.—516 pages—120 illustrations—$1.25—postpaid (The Macmillan Co.).

ADVERTISING - RATES

Twenty cents per agate line flat.

Classified columns—bona-fide exchange or want ads.— 20c a line.

Discount for cash in advance, 5%; if paid in 10 days, 2%.

No objectionable advertising accepted.

Forms close 10th and 25th of each month.

Guaranteed circulation per issue, 30,000.

GLEANINGS IN BEE CULTURE
MEDINA, OHIO

A Bee-keepers' SOUVENIR POSTAL CARD

(IN FOUR COLORS)

Sent Free to New Subscribers

— TO THE —

Weekly American Bee Journal

which is better than ever these days. Every reader of GLEANINGS should have it.

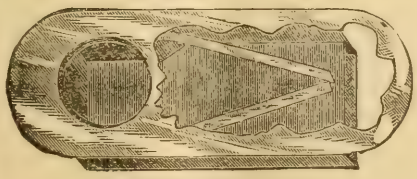
(Both Gleanings and the Weekly American Bee Journal, one year, for only $1.60.)

PRICES, postpaid: 1 card, 5 cents; 3 for 10 cents (stamps or silver); 10 for 25 cents. There is a blank space on the card about 2x2½ inches in size for writing.

Or we will send to a *new* subscriber 10 of these Souvenir Postal Cards and the *Weekly* American Bee Journal from the time the order is received to the end of 1907, for only $1.00. This is a great chance to get some of these Postal Cards and also the only weekly bee-paper in America. Or a "trial trip" of 3 months and 2 souvenir cards for 20 cents. Sample of the Bee Journal FREE on request. Address

334 Dearborn St. GEORGE W. YORK & CO. Chicago, Ill.

PORTER BEE-ESCAPES



HIVE ESCAPE

When taking off surplus this is the greatest saving device. It does away with the shaking of the heavy supers, the cruelty of excessive smoking which causes the bees to uncap their honey and start robbing. You can as well afford to be without a smoker as without the Porter Bee-escape.

PRICES—Each, 20c; dozen, $2.25; postpaid. With board, 35c; 10, $3.25; by express or freight.

HOUSE ESCAPE

To be used over the doors and windows in the extracting-house, or any place you wish to clear of bees. Some bee-keepers make a practice of taking off the filled supers and stacking seven or eight in a pile. The Porter Honey-house mounted on a board makes the best kind of escape.

PRICES—Each, 25c; dozen, $2.75; postpaid.

For Sale by Dealers Everywhere!

R. & E. C. Porter, Patentees

SEND - ORDERS - TO - YOUR - DEALER

Swarthmore Books!

BABY NUCLEI (2d ed.)—The second edition of this popular treatise is off the press. This book thoroughly covers the field of small mating under management. The experience of twenty years in mating young queens in baby nuclei is given. A delightful little book—good printing, enjoyable reading, and easy understanding. Price 25 cts. postpaid.

SIMPLIFIED QUEEN-REARING.—A revised edition of this book just out. It tells the honey-producer how to rear queens by the very simplest method ever published. Good queens for little money and little trouble, in just an effective and economical plan for the bee-keeper who works for profit. Price 25 cts. postpaid.

INCREASE.—Don't depend entirely upon swarming for your increase. It's too slow and uncertain. Swarthmore tells of a way in his delightful little book entitled "Increase"—a natural way, simple and safe, no labor, little trouble. Colonies formed on this plan will work like prime swarms, and store a surplus. Price 25 cts. a copy postpaid.

CELL-GETTING.—The plan that has revolutionized queen-rearing throughout the world. The entire process is fully explained and illustrated by photos from actual life. Price, postpaid, 50 cts.

SWARTHMORE QUEEN-REARING TOOLS.—Complete outfits or separate parts. Write for price list.

FOR SALE BY

The A. I. Root Company

ALL BRANCHES AND AGENCIES

Gleanings in Bee Culture Clubbing Offers

ALL OF THE FOLLOWING OFFERS INCLUDE *GLEANINGS* ONE YEAR.

			Our Price with GLEANINGS
Sunday School Times	1 yr.	$1 00	$2 70
Rural New-Yorker	"	1 00	
Delineator	1 yr.	$1 00	$3 75
McClure's Magazine	"	1 00	
World's Work	"	3 00	
Review of Reviews	1 yr.	$3 00	$3 60
Success Magazine	"	1 00	
Woman's Home Companion	"	1 00	
Or any class A magazine.			
Cosmopolitan or Success	1 yr.	$1 00	$4 00
Yachting, or any class B	"	3 00	
Field and Stream	"	4 00	
Or any class 4 magazine.			
American Boy	1 yr.	$1 00	$3 30
Cassell's Little Folks	"	1 50	
Metropolitan Magazine	"	1 00	
Any class A may be substituted.			
Recreation or Appleton's	1 yr.	$1 50	$4 65
Metropolitan Magazine	"	1 50	
Review of Reviews	"	3 00	
Woman's Home Companion	"	1 00	
Or any class A magazine.			
Scribner's Magazine	1 yr.	$3 00	$6 65
Suburban Life	"	1 50	
House and Garden	"	3 00	
Any class 8 may be substituted.			
Independent	1 yr.	$2 00	$4 70
Recreation or Appleton's	"	1 50	
Outing or Reader Magazine	"	3 00	
Or any class B magazine.			
Ainslee's Magazine	1 yr.	$1 80	$4 50
Metropolitan Magazine	"	1 80	
Outing Magazine	"	3 00	
Or any Class B Magazine.			
Outing Magazine	1 yr.	$3 00	$6 40
Metropolitan Magazine	"	1 80	
Harper's or Leslie's Weekly	"	5 00	
Or Scribner's or Kermaic Studio.			
American Boy	1 yr.	$1 00	$3 30
Pearson's Magazine	"	1 50	
Pictorial Review	"	1 00	
Or any class A magazine.			
American Inventor	1 yr.	$1 00	$4 80
Scientific American	"	3 00	
Automobile Magazine	"	2 00	
Or any class A magazine.			
World To-day	1 yr.	$1 50	$3 65
Etude (for music lovers)	"	1 50	
Recreation or Pearson's	"	1 50	
Or any class 4 magazine.			
Century Magazine	1 yr.	$4 00	$7 65
Current Literature	"	3 00	
Cassell's or Appleton's	"	1 50	
Or any class 4 magazine.			
Putnam's Magazine	1 yr.	$3 00	$7 15
Country Life in America	"	4 00	
Good Housekeeping	"	1 00	
Or any class A magazine.			
Children's Magazine	1 yr.	$1 00	$3 65
Etude (for music lovers)	"	1 50	
Appleton's or Pearson's	"	1 50	
Or any class 4 magazine.			
Harper's Magazine or Weekly	1 yr.	$4 00	$7 40
Reader or Outing	"	3 00	
Lippincott's Magazine	"	2 50	
Or any class 6 magazine.			

			Our Price with GLEANINGS
Outing Magazine	1 yr.	$3 00	$4 15
World To-day	"	1 00	
Ainslee's Magazine	"	1 80	
Home Needlework Magazine	1 yr.	$0 75	$2 65
Pictorial Review	"	1 00	
Modern Priscilla	"	50	
Or any class C magazine.			
Good Housekeeping	1 yr.	$1 00	$3 00
Cassell's or Recreation	"	1 50	
Ladies' World	"	50	
Or any class 2 magazine.			
Independent	1 yr.	$2 00	$4 70
Musician	"	1 50	
Outing magazine	"	3 00	
Or any class B magazine.			
Outdoor News (illustrated)	1 yr.	$2 00	$5 00
Burr McIntosh	"	3 00	
Woman's Home Companion	"	1 00	
Or any class A magazine.			
Little Folks (new subscriber)	1 yr.	$1 00	$2 65
Woman's Home Companion	"	1 00	
Modern Priscilla	"	50	
Or any class C magazine.			
World To day	1 yr.	$1 50	$3 30
Recreation or Pearson's	"	1 50	
Woman's Home Companion	"	1 00	
Or any magazine in class A.			
Musician or Etude	1 yr.	$1 50	$3 00
Home Magazine	"	1 00	
McCall's Magazine	"	50	
Or Housekeeper or any class C.			
The Reader or any class B	1 yr.	$3 00	$4 00
Keith's or any class 4	"	1.50	
Success Magazine	"	1 00	
Or any class A magazine.			
What To Eat	1 yr.	$1 00	$2 95
Harper's Bazar	"	1 00	
Pictorial Review	"	1 00	
Or any class A magazine.			
American Boy	1 yr.	$1 00	$3 40
National Magazine	"	1 00	
Cassell's Little Folks	"	1 50	
Or any class B magazine.			
Cassell's or Quiver	1 yr.	$1 50	$3 65
American Magazine	"	1 00	
Broadway Magazine	"	1 50	
Or any class 4 magazine.			
Children's Magazine	1 yr.	$1 00	$2 30
Home Needlework Magazine	"	75	
Or any class A magazine.			
Burr-McIntosh	1 yr.	$3 00	$6 65
Scribner's Magazine	"	3 00	
Metropolitan Magazine	"	1 80	
Or any class E magazine.			
Suburban Life	1 yr.	$1 50	$4 30
McClure's	"	1 00	
Delineator	"	1 00	
World's Work	"	3 00	
Suburban Life	1 yr.	$1 50	$3 65
Woman's Home Companion	"	1 00	
Review of Reviews	"	3 00	
Suburban Life	1 yr.	$1 50	$2 95
World To-day	"	1 50	
Cosmopolitan	"	1 00	
Suburban Life	1 yr.	$1 50	$2 30
Woman's Home Companion	"	1 00	
Cosmopolitan, American Magazine, Harper's Bazar, or Success may be substituted.			

ALL OF THE ABOVE OFFERS INCLUDE *GLEANINGS* ONE YEAR.

SEND ALL ORDERS TO THE A. I. ROOT CO., MEDINA, O.

Make Up Your Own
Subscription - Combinations - for - 1907

For the Convenience of Thosewho do not Find Such a Club as They Want on Page 3.

Class A

American Agriculturist $1 00
American Boy 1 00
American Inventor 1 00
American Magazine 1 00
American Primary Teacher.... 1 00
Automobile Magazine 2 00
Baby 1 00
Boston Cooking School 1 00
Browning's Indust'l Magazine. 1 00
Business Man's Magazine 1 00
Camera Craft 1 00
Children's Magazine 1 00
Cosmopolitan 1 00
Cycle and Auto Trade Journal . 1 00
Educational Gazette 1 00
Engineering Review 1 00
Farming (Doubleday-Page).... 1 00
Garden Magazine (Dou.-Page). 1 00
Gleanings in Bee Culture..... 1 00
Good Health 1 00
Good Housekeeping 1 00
Health 1 00
Health Culture 1 00
Hints 1 00
Home Magazine 1 00
Home Needlework (bi-m)..... 75
Interior Decoration 1 00
Inventor 1 00
Kindergarten Magazine 1 00
Kindergarten Review 1 00
Little Folks, Salem 1 00
Metropolitan 1 50
National Magazine 1 00
Ohio Farmer 75
Orange Judd Farmer 1 00
Out Doors 1 00
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Physical Culture 1 00
Pictorial Review (with pattern) 1 00
Pilgrim 1 00
Popular Educator 1 00
Primary Plans 1 00
Primary Education 1 00
School Arts Book 1 00
Strawberry 1 00
Style and Amer. Dressmaker... 1 00
Suburban Life 1 50
Success 1 00
Suggestion 1 00
Sunset Magazine 1 00
After Jan. 1 add 35 cts.
Table Talk 1 00
Technical World 1 00
Teacher's World 1 00
Times Magazine 1 50
Travel Magazine 1 00
Waverly 1 00
What To Eat 1 00
Woman's Home Companion.... 1 00
World's Review 1 00
World To-day 1 50
Young's Magazine 1 00
Youth 1 00

Class B

Amer. Monthly Rev. of Reviews. 3 00
Automobile 2 00
Independent 2 00
Motor Way 2 00
Out Door News 2 00
Outing 3 00
Printer's Ink 2 00
Reader Magazine 3 00
Review of Reviews 3 00
Short Stories 1 00
Trained Nurse 2 80
Yachting 3 00

Any two Class A $1 65
Any three Class A 2 30
Any four Class A 2 95
Any one Class A, one Class C ... 1 35
Any one Class A, two Class C .. 1 70
Any two Class A, one Class C .. 2 00
Any two Class A, two Class C .. 2 35
Any two Class A, one Class B .. 3 00
Any one Class A, one Class 3 ... 1 75
Any one Class A, two Class 3 ... 2 50
Any two Class A, one Class 3 ... 2 40
Any two Class A, two Class 3 ... 3 15
Any one Class A, one Class 4 ... 2 00
Any one Class A, two Class 4 ... 3 00
Any two Class A, one Class 4 ... 2 65
Any two Class A, two Class 4 ... 3 65
Any one Class A, one Class 5 ... 2 25
Any one Class A, two Class 5 ... 3 50
Any two Class A, one Class 5 ... 2 90
Any two Class A, two Class 5 ... 4 15
Any two Class A, one Class 7 .. 3 40
Any two Class A, two Class 7 ... 5 15
Any one Class A, one Class 8 ... 3 00
Any two Class A, one Class 8 ... 3 65
Any two Class A, two Class 8 ... 5 65
Any two Class 3 ..... 1 85
Any three Class 3 ..... 2 60
Any one Class 3, one Class C ... 1 45
Any one Class 3, one Class A ... 1 75
Any one Class 3, one Class 4 ... 2 10
Any one Class 3, one Class 5 ... 2 35
Any two Class 3, one Class B ... 3 20
Any two Class 4 ..... 2 35
Any three Class 4 ..... 3 35
Any four Class 4 ..... 4 35
Any one Class 4, one Class C 1 70
Any one Class 4, one Class A ... 2 00
Any one Class 4, one Class 5 ... 2 60
Any two Class 4, one Class B ... 3 70
Any two Class 5 ..... 2 85
Any one Class 5, one Class C 1 95
Any one Class 5, one Class A ... 2 25
Any one Class 5, one Class 3 ... 2 35
Any one Class 5, one Class 4 ... 2 60
Any one Class 5, one Class B ... 3 00
Any two Class B 3 05
Any three Class B 4 40
Any four Class B 5 75
Any one Class B, two Class A .. 3 00
Any one Class B, two Class 3 ... 3 20
Any one Class B, two class 4 ... 3 70
Any one Class, B one Class 5 ... 3 00
Any one Class B, one Class 7 ... 3 45
Any one Class B, one Class 8 ... 3 70
Any two Class B, one Class C .. 3 40
Any two Class B, two Class C .. 3 75
Any two Class B, one Class A .. 3 70
Any two Class B, two Class A .. 4 35
Any two Class B, one Class 3 ... 3 80
Any two Class B, two Class 4 .. 5 05
Any two Class B, one Class 4 .. 4 05
Any two Class B, two Class 4 .. 5 05
Any two Class B, one Class 5 .. 4 30
Any two Class B, two Class 5 .. 5 55
Any two Class B, one Class 7 .. 4 80
Any two Class B, two Class 7 .. 6 55
Any two Class B, one Class 8 .. 5 05
Any two Class B, two Class 8 .. 7 05
Any two Class 7 ..... 3 85
Any three Class 7 ..... 5 60
Any two Class 8 ..... 4 35
Any three Class 8 ..... 6 35

Any one A
Any one B
Any one 4 } $3.35

Class C

American Poultry Journal.... $0 50
Housekeeper 60
Ladies' World 50
McCall's and Pattern 50
Modern Women 50
Modern Priscilla 50
New Idea Woman's Magazine.. 50
Vick's Magazine 50
World's Events 50

Class 3

American Education 1 00
Bob Taylor's 1 00
Carpenter and Building 1 00
Pathfinder 1 00
Red Book 1 00
Sunday School Times..... 1 00
Rural New-Yorker..... 1 00
Teachers' Magazine 1 00
Technical World 1 00

Class 4

American Botanist 1 00
Appleton's Magazine 1 50
Cassell's Magazine 1 50
Cassell's Little Folks 1 50
Cassell's Quiver 1 50
Breeder's Gazette 2 00
Broadway Magazine 1 50
Etude 1 50
Humorist 2 00
Keith's Magazine 1 50
Little Chronicle 1 50
Musician 1 50
Our Times (52 weeks) 1 20
Overland Monthly 1 55
Pearson's Magazine 1 50
Ram's Horn 1 50
Recreation 1 50
School and Home Education... 1 25
Table Talk with Cook Book.... 2 00
Watson's Magazine 1 50

Class 5

Jour. of Geography (10 mos.)... 1 50
Journal of Pedagogy 1 50
Junior Toilettes 1 50
Our Day 2 00
Out Door Life 1 50
Pennsylvania School Journal .. 1 60

Class 7

Current Literature 3 00
Out West 2 00
School Science 2 00

Class 8

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House and Garden 3 00
Indoors and Out 3 00
Journal of Education 3 50
School Journal 2 50

You May Add to Any Club

Ladies' Home Journal..(1 yr.).. 1 50
Saturday Evening Post " .. 1 50
Century ..... " .. 3 75
St. Nicholas ..... " .. 2 65
Harper's Weekly or Monthly ..... " .. 3 35
Leslie's Weekly ..... " .. 3 35
Atlantic Monthly ..... " .. 3 35
Scribner's Magazine ... " .. 3 00
McClure's Magazine ... " .. 1 00
Delineator ..... " .. 1 00
Gleanings in Bee Culture (if not selected as a Class A paper).. " .. 1 00

Send All Orders to **The A. I. Root Co., Medina, O.**

DANZENBAKER HIVE

"Facts About Bees," a 64-page book written by Mr. F. Danzenbaker, giving a complete description of his famous hive and directions for using. Full of valuable information. Sent on receipt of a two-cent stamp to pay the postage. **Send for it.**

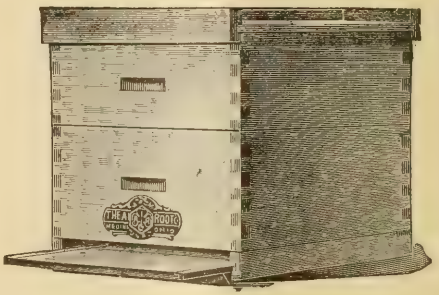
THE Danzenbaker Hive

THE COMB-HONEY HIVE.
Three points of Excellence:

QUALITY.
You can produce better-looking honey.

QUANTITY.
You can produce more of it.

PRICE.
You can get more per pound for it.



Special Notice.

The great popularity of the Danzenbaker hive has brought the shallow brood-frame and the tall plain sections into prominence. It must be remembered that no other hive contains the essential features of the Danzenbaker. The success of this system depends on having everything just right, so you should place your order for the Danzenbaker hive with our main office, or any of our branches or regular agents.

What Others Say About the Danzenbaker Hive.

The A. I. Root Co., Medina, Ohio.

Dear Sir:—Though rather late in the season, I send you report of my labors in the apiary the past season and my success with the bees. I started with 44 colonies in the spring and increased to 54 colonies. I made that much increase because I had purchased ten Danzenbaker hives to experiment with. I am highly pleased with the experiment. My Danzenbaker hives produced about 33⅓ per cent more honey than the eight-frame Dovetailed hives. Bees in this locality have done better than I ever knew them to do before. From my best hive I took off 116 well-filled sections. My average for the season was 60 nice well-filled sections to the colony, spring count. I want to increase next spring to 75 or 80 all Danzenbaker hives. J. H. McCARGO.

Arkansas, Nov. 17, 1906.

[We have permission to quote the following extracts from a private letter, which will show the opinion of a prominent bee-keeper.]

Dear Sir:— . . . I like the closed-end frames so well that I would prefer paying for them even if I could have Hoffman or loose-hanging frames for nothing. I can handle closed-end frames as rapidly as loose-hanging frames, and by proper manipulation very little handling of frames is necessary in this hive after the swarming season; and, as you know, we are not greatly troubled with propolis until after this period, so that the objections put forth by some of the older bee-keepers will not hold out. The Danzenbaker hive has proved so much better for me than the Langstroth or Chaff hive that I have discarded all other hives and now use the Danzenbaker hive exclusively. I have fifty of them in use at this writing, and expect to increase to 200. I will run one hundred in an out-apiary for extracted honey, as they have proved with me as good run for extracted as for comb honey. . . . It is a wonderful hive, and has many points of merit not found in any other hive on the market. I can tell you more about this hive but have confined myself strictly to your questions.

I am a user of the Danzenbaker hive, and can honestly say that I do not believe there is anything can equal it in the production of fancy comb honey. I took the first prize on comb honey this fall at our State fair, Trenton, N. J., the honey being in the Danzenbaker sections and off of the Danzenbaker hive. This season white clover gave only a light crop, but I averaged a little over 100 lbs. per colony, spring count.

Stanton, N. J., Dec. 7, 1905. LEVI K. COLE.

Gentlemen:—Let me tell you of the result secured from the three-frame nucleus purchased of you. This was received here May 23d. This was given good care and has made me 64 pounds of surplus honey and will yet have to its credit about 32 pounds more. Is not that good for a "greenhorn"? But it was all on account of the worth of that queen. An experienced bee-man tells me that this was an exceptioally good queen. When he saw the immense swarm busy at work, and was told that only a short time before it was only a small nucleus, he remarked, "Got them of Root, did you not?"

I give full credit to Root and the queen. I cared for them in a Danzenbaker hive according to Root's advice, and got the usual Root result.

Iowa Fs., Ia., Aug. 29, 1906. THOS. F. RIGG.

F. Danzenbaker, Patentee, Miami, Florida

For Sale by all Leading Dealers in Bee-keepers' Supplies

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests
Illustrated : Semi-monthly : One Dollar per Year
Published by The A. I. Root Company, Medina, Ohio

Vol. XXXV. JAN. 1, 1907. No. 1

YOU SAY Schenk publishes a Brazilian bee-paper. He was at the big convention in Germany, and I think he told them there he had sold out. [The last issue of his paper had his name at the head of the editorial page.—W. K. M.]

HOW WOULD it do to have baby nuclei in a fertilizing-tent? Then they could be supplied with food and do *all* their flying inside. [That would be just the place to put them if the general scheme would work with large colonies.—ED.]

IS NOT one reason why mosquito-netting is preferable to wire cloth for a fertilizing-tent because the bees can see mosquito-netting better? Wouldn't wire cloth be better if painted white? [There is something in this. If so, why not go a little further and use cheese-cloth instead of the mosquito-bar? If this be a fact, why would not a dome-shaped building without windows be suitable?—ED.]

YOU HAVE the better of me as to British prices for honey, Mr. Editor, p. 1556. Glad of it. Glad, too, that you, aided and abetted by W. K. Morrison, are doing some good work in helping to give an upward slant to prices in this country. Very certainly they have not gone up in proportion with prices of other commodities in general. I'm expecting them to.

"EIGHTEEN books in the Bible refer to honey," page 1564. Didn't some of them escape you, Stenog? I find the word "honey" in 22 of the books. In 4 of these 22 books also occurs "honey-comb," meaning honey; and "honey-comb" is also found in Luke. "Honey" occurs in the Authorized Version 52 times, and "honey-comb" 9 times. But in the American Revision "honey-comb" is stricken out of Luke.

SOME ONE ought to wake up in this country and get up a set of bee-keeper's souvenir postals. We're away behind Europeans. G. W. York has gotten up one that's very funny, and fine in its place; but the French have a number of different kinds, besides advertising envelopes. We're behind. [The Root Co., as soon as it is settled in its new printing-house, will doubtless make some attempt in this direction.—ED.]

HEARTY thanks to W. K. Morrison for calling attention to an error of mine in saying that excessive use of sugar leads to Bright's disease. Of course, it should be diabetes. There is no excuse for such a flagrant blunder. [But, doctor, you do not tell the rest of it. It was Prof. Cook who originally gave out the statement in one of his articles. He probably would be equally glad to have the correction made just the same. The two diseases are somewhat similar, and might temporarily become confounded in one's mind while writing.—ED.]

THE *Irish Bee Journal* protests against the word "quahking" as not a correct description of the sound made by a virgin in her cell—thinks "piping" the right term, whether the queen is in or out of the cell. Well, it's handy, anyhow, to have a separate word for each, Bro. Digges, and "quahking" has some rights by way of usage for the past half-century without previous protest. Perhaps my good brother will pardon me for saying that, to my ear, the sound made by a virgin in a cell is more like "quahk" (rhyming with "walk") than it is like "pipe."

ALLEN LATHAM, in *American Bee-keeper*, commends fused calcium chloride — costs $1.50 for 10 lbs., $10.00 for 100 lbs. — to dry

out bee-cellars. Get a dozen or so galvanized pans, and galvanized netting 6 mesh or so to the inch, to rest on each pan. Put a pound or so of the salt on each piece of netting; distribute the pans in the cellar, and as often as the salt is dissolved dry it out in the stove oven. May be good. [While I have not tried it, I should suppose this would be rather expensive, and that a stove or ventilator, or both, would be cheaper and better.—ED.]

W. H. CRAWFORD, referring to the Straw about my bees gathering pollen late, p. 1347, says that his bees, in October, 1904, gathered powder from cottonwood leaves after frost had turned them yellow; also rust from oats, and in February smut from shocks of Kaffir corn; and, strangest of all, the dry dust from sheep manure. Then he hands me this question: "Do you suppose this substance was a real benefit in brood-rearing?" I don't know; but I hardly think the bees would waste time gathering useless material. [Why could they not use it for next year's brood-rearing?—ED.]

ONE REASON Congress gave for sitting down on Roosevelt's spelling was that the printers would be confused in using the two kinds. I've been trying it a few years, and had no trouble from the first in writing "worked" for print and "workt" in private correspondence. [Personally I was sorry that Congress "sat down" on Roosevelt on this spelling reform. You may, then, ask why we do not adopt it. Simply because GLEANINGS is not big enough to blaze the way for the reform. If two or three of the large publications like the *Ladies' Home Journal* would adopt it, we should be glad to follow suit.—ED.]

STENOG, you're all right in saying "*pro*po-lis," p. 1564, but are you sure "the origin of the word would seem to show that that is the best way"? If so, wouldn't the first syllable be accented in "proboscis," "production," "prohibit"? [I am glad you have called in question the correctness of the definition of the word *propolis*—that is, "in front of the city." That could have no bearing in apiculture. You seem to think there was some misunderstanding as to which syllable we should accent. Certainly the first; but the point in dispute in England was as to whether that syllable should be called *pro*, with a long o, as in *pro*-bation, or short as in *prop*-er.—ST.]

"JACOB FUNK, winner of the grand prize at the International Stock Show, whose herd of Black Angus cattle brought the record-breaking price of $17 per hundred on the hoof, is a resident of Bloomington. In addition to the regulation corn and oats and pasture diet, the cattle were given molasses every afternoon. Mr. Funk maintains that sweets improve the beef and make it sweeter."—*Chicago Daily*. Think of $17.00 per 100, live weight! Sweets in right amount, no doubt, improve the human herd also. Two things we should take pains that they know: First, that no other sweet compares with honey in lusciousness; second, that honey stands in the front rank as an easily assimilated food. [I once reported the case of a bee-keeper, Mr. Frank Boomhower, of Gallupville, N. Y., who fed a hog on some unsalable buckwheat honey. I happened to visit him at the time, and I never saw a finer and nicer specimen of a pig than that, and he was very docile and gentle. I have heard since then that, if you want to make a horse or any other animal docile and kind, you should feed him sugar. Of course, honey would be better.—ED.]

D. LABERGE gives as a "fact" that, "if you make a hive queenless, the bees must move either eggs or larvæ in order to raise another queen." Oh, no! friend LaBerge, there's no "must" in the case; and if your bees did it, it was a very, very exceptional case. [Are you not going to the other extreme, doctor? In going over the index for several years back, I am surprised at the number of cases where bees moved eggs. While I grant that cells will usually be built around eggs laid by a queen, the cases are not so very exceptional where they will move an egg over to a cell already built, or partially so. In our queen-rearing apiary we see evidences of this more than you would in a comb-honey yard.—ED.]

DOOLITTLE keeps water in his apiary to wash honey off his hands, page 1563. Good thing. I don't always have it—not often, if you must know—and I scratch up a handful of soil, wash the honey off with it, and then wipe my hands on the grass. It feels clean in comparison with the honey, and is always at hand with no trouble. [I have tried this scheme of rubbing my hand in dust or loosened soil many a time, and have found it to be very effective. A little more rubbing will then remove the dirt as well as the honey, leaving practically nothing but a stain of mother Earth. Of course, the use of water and a towel is better; but very often at an out-yard such conveniences are not at hand.—ED.]

APROPOS of your plan of enclosing bees and giving them a flight on good days, Mr. Editor, page 1560, the French authority, Devauchelle, tried something of the kind with 30 colonies or more, and reports quite fully in December *L'Apiculteur*, page 448. One trouble was that he couldn't be sure of the weather in advance. When every thing was favorable and he opened up, there would come clouds and falling temperature, with heavy loss. Moreover, when the enclosed colonies were given their liberty they came out in more dense masses than the free colonies, with corresponding loss. I think he is still experimenting. But I think his hives are made dark, with special provision for ventilation, somewhat after the Gouttefange-as plan. [The more we test those cages for outdoor bees, the more we feel uncertain of their value. I am fearful that they may do more harm than good; but if the bee-keeper can be on hand at the right time, and take them off before the bees *know* they are confined, and keep them in at other times when

they ought not to come out, why, they should do more good than harm. We are trying them, however, on some of our hives, and will be able to know more about them next spring.—ED.]

I LEARNED at the Chicago convention that the crop of one of the Chicago bee-keepers (extracted) was sold at 50 cents a pound. It was not a large crop, and I suppose it was sold to neighbors who were willing to pay big so as to be sure of a pure article. There are not a few who will pay a fancy price for a fancy article guaranteed pure; and when the pure-food laws make it sure that what is sold for honey is honey, a lot more of the middle classes will be willing to purchase at a fair advance. [Every now and then we run across cases where the current belief in so-called manufactured comb honey has helped to boom prices on honey produced locally. In some cases bee-keepers have seemed to feel that it was to their advantage neither to confirm nor deny the canard, on the principle that it would be folly to make their customers wise when the willful ignorance that is bliss boosts the prices of their own home production. I question whether the policy is a wise one in the long run, but I suppose it is something as Prof. Cook said of one of his neighbors in Michigan. This man, probably the greatest raiser of plums in that State, said he was thankful for the curculio that killed all his neighbors' plums, but did not bother his fruit, as he knew how to destroy them before they did any harm. In the same way our deadly enemy, foul brood, sometimes freezes out the unskillful in a locality, leaving the man who knows how to handle the disease in undisturbed possession of the locality and the markets. There is no great loss without some small gain somewhere.—ED.]

THE following telegram on the way back to Washington explains:

FORT WAYNE, IND., Dec. 31, 1906.
ERNEST R. ROOT:—"This is my own, my native land." Happy new year. FRANK BENTON.

THE opponents and advocates of the divisible-brood-chamber hive will be glad to read the article by J. A. Green on the subject in his department in this issue.

IN the front cover design for this issue the reader may fail to note that the bells that are dropping out wreaths of live bees are also pealing forth the happy New Year (1907) to you all. Look again if you didn't see it.

THE RURAL BEE-KEEPER; BEE JOURNALISM AS A PROFESSION.

THE *Rural Bee-keeper*, an excellent publication, has sold out to the *American Bee-keeper*, which will take care of its unexpired subscriptions. As Mr. Hutchinson says in the *Review*, the *Rural* was one of the best of the lately started journals. In commenting on the demise of this journal Mr. Hutchinson says:

The plain fact is, the field of apicultural journalism is now pretty well covered; and a new journal, to succeed, will need to be different from the others, have an editor of most decided ability, and barrels of money. . . If I should sell the *Review* now for $5000, I would not, with that amount of capital and my twenty years of experience, think of such a thing as starting another journal. Do not think that I am not making money in publishing the *Review*. I am; but the same amount of money, time, and energy, put into straight honey-production, would bring me a much larger profit.

A SWARM IN DECEMBER AT THE HOME OF THE HONEY-BEES.

IT was a late swarm that issued from the parent hive on December 26. It took a long flight to New York city, where, according to last accounts, it had been successfully hived. Laying aside the figure, the contracting parties to the wedding were Miss Carrie Belle Root (the youngest daughter of Mr. and Mrs. A. I. Root) and Mr. L. W. Boyden, who for several years has been manager of The A. I. Root Co.'s office in New York. The groom is a brother of A. L. Boyden, the Secretary of the company, and who married Constance, the second daughter of A. I. Root.

The young couple will be at home after Feb. 1 at 1384 Bristow St., New York city, where they will be glad to see their friends, as well as those of The A. I. Root Co. Owing to ill health A. I. R. was obliged to leave for Florida earlier, and was therefore unable to be present.

THE NATIONAL-CONVENTION PICTURE.

ON the last day of the convention of the National Bee-keepers' Association at San Antonio, General Manager France called us all over to the steps of the city hall to have our pictures taken. An engraving of this picture is shown on pages 34 and 35. When we from the North left Chicago we wore our overcoats and had no trouble in keeping cool. But down in San Antonio our overcoats and even vests were laid aside, and then we suffered from the heat. It was like wearing winter clothes in August. So on the day that the picture was taken the sun was shining brightly (entirely too brightly for comfort), and the air was as warm as it often is in summer here in the North.

In a way this is a remarkable picture, for it represents a large number of bee-keepers, almost half of whom came from out of the State. While the attendance was not so large as at Chicago the year before, yet, in the full sense of the word, the convention was national in its character. Local meetings are valuable, but in some ways a national meeting is more so, for it is to the advantage of every bee-keeper to know how the work is done in other parts of the country

as well as in his own. Sixteen States were represented, the number from each being as follows:

Illinois, 8; Michigan, 2; Missouri, 7; Wisconsin, 11; Indiana, 5; New York, 3; Ohio, 2; Minnesota, 1; Kansas, 2; Utah, 1; Colorado, 1; Texas, 75; Nebraska, 1; Florida, 2; California, 1; District of Columbia, 1.

San Antonio is a good place to hold a convention. The welcome that was extended to us by the truly hospitable Texas people will never be forgotten. As one bee-keeper said, "The latch-strings always hang on the outside."

OUR INDEX FOR 1906.

THE index for 1906 GLEANINGS, inserted as a supplement in this issue, is very complete. One can form some idea of the number and variety of subjects discussed in our columns for last year when it is stated that there are something over 4000 distinct references. The increased size of the year's volume necessarily makes a voluminous index.

Some of our readers have objected to our custom of running the references all in together, instead of making a separate line for each reference. To follow the latter plan would make an index the size of a single issue of GLEANINGS, and a big one at that. It took a deal of time on the part of H. H. Root and the writer to prepare it; and if our readers find it helpful we shall be repaid.

By the way, you will find it interesting and highly instructive to go over this index, and look up some of the references to freshen the memory. As time goes on, one is liable to forget some of the conclusions arrived at, or the remarkable agreement on some propositions. As I prepare this index, or help to, I learn something by going over the subjects. In this way I get a bird's-eye view of the whole range of discussion for the year —that is, a review. Every one can do the same.

A FOUL-BROOD LAW FOR EVERY STATE IN THE UNION.

MANY of our State legislatures will be in session during this winter. It will then be in order for the bee-keepers of those States that have no foul-brood laws, or, better, a law against the diseases of bees, to get them enacted. It means a lot of hard work, time, and railroad fare for some two or three bee-keepers; but somebody has to do it.

The greatest obstacle that will be met will be the lack of funds to defray the salary and expenses of an inspector or inspectors. We met that same difficulty in Ohio, but solved it by suggesting that the law-makers put a tax of one cent on each colony of bees kept in the State. This will raise a fund all the way from five hundred to two thousand dollars a year; and there is not a bee-keeper who would object to this tax, provided he knew that it would be the means of protecting him from the disease. There are very few bee-keepers who have over 300 colonies; and a man with that amount of investment certainly would not object to paying $3.00 a year as a sort of insurance against disease. The larger the invested capital in bees, the more willing would the bee-keeper be to pay the tax of one cent per colony. The small bee-keepers certainly would not object to paying ten or fifteen cents as their proportion. When the bee-keepers themselves are willing to submit to a small tax, no legislator could object to voting for a bill providing for the appropriation of such a fund to protect the whole State. It ought to be easy to get a foul brood-law in every State in the Union if the cost of inspection be assessed against the bees at one cent per colony.

THE PRACTICAL WORKINGS OF THE NEW PURE-FOOD LAW ALREADY BEING FELT.

OUR readers will not forget that the new national pure-food law goes into effect the first day of this year, 1907. This is one of the greatest pieces of legislation that was ever passed by Congress. The chaps who have been selling adulterated or misbranded goods have been endeavoring by every means possible to dispose of their commodities before the beginning of this year; and now that it has begun, and some of the goods are not sold—well, they are up against it. To label them for what they are, will kill the sale of them.

The probable effect of this new law also will be to lessen the amount of bleached sugars on the market. Both beet and cane granulated sugars, as is well known, are bleached, and some of the substances used for the purpose are deleterious; and, rather than have this fact come out, the sugar-men will possibly substitute the pure cane sugars with their natural straw color. This will give the general public a cheaper and better sugar, with more flavor to it, and the bee-keeper a better food for his bees at less cost.

The fact is, the purveyors of all bleached, colored, or disguised foods of any kind are all agog. Like the senator, they are wondering "where they are at." Even the doctors must show what they put into their medicine when they give it to a patient. The candymen must not use any injurious substances either for coloring or for making candy. That means that commercial glucose, often with injurious sulphites, will have to be eliminated.

But the new law does not hurt any honest man. It may embarrass him until he knows its provisions; but it will be *mighty embarrassing* for the man who attempts to sell adulterated or misbranded goods.

WIRE-CLOTH SEPARATORS.

ON p. 1304, Oct. 1, I stated that our experience with the wire-cloth separator in the production of comb honey had not been very satisfactory; that the bees built brace-comb attachments to the wire, so that when the separators were removed it left bleeding gashes in the honey. This confirmed the experience of Mr. C. H. Dibbern. But since that time we have received a number of reports from various persons who have tested them with the greatest satisfaction. The sections are nicely filled out, they say, and

there are no attachments to the separators. Among the number is Mr. J. H. Albaugh, of Osage, O., who sent us a wire-cloth separator that he made himself—wire cloth four meshes to the inch, galvanized. This was as clean of attachments as it was the day he made it. He writes that he has used fifty of these without a single attachment of comb, and that out of the same number of wooden separators there were quite a few brace-combs.

Strange how experiences differ! The only way we can account for these is to charge them up to locality or to the particular strain of bees. Speaking of bees reminds me that some bees will build burr-combs in spite of any discouragements that may be put in their way.

BEESWAX IN THE ARTS; WHY USED FOR ECCLESIASTICAL PURPOSES.

Under the Hepburn pure-food law, paraffine for making candy, I am told, will be outlawed as deleterious to health. Beeswax, on the other hand, has never been regarded as an injurious food substance. From time immemorial it has been considered a constituent of one of the most delicious foods, as well as the most healthful, that the world has ever known. There is, therefore, no reason why it should not be a substitute for paraffine in some of the fancy candies. Whether confectioners will use it or not remains to be seen.

It is true that, the more legitimate uses we find for beeswax, the higher the price will be. This will tend to stiffen prices on foundation; yet if a bee-keeper can get more for the wax in the first place, he will be compensated.

By the way, that reminds me that beeswax has a great many uses in the arts; and although paraffine and other mineral waxes can be secured at one fourth the price, the article from the hive far surpasses them for some uses. For example, nothing is equal to beeswax for floor and all hard-wood finishes. I asked an expert the other day if it were not true that some of the mineral waxes were used. He said they were not to any great extent, because they could not take the gloss nor fill the pores as well. Beeswax, he explained, will give a hard dry gloss where paraffine would make a greasy daub.

It is well known that the Roman Catholic Church will not use any thing in place of beeswax for candles. Paraffine, ceresin, tallow, or any thing of that kind for candle service will not be tolerated. From a ceremonial point of view, beeswax is the essence of purity, while paraffine is a distillation from dirty mineral oils.

A candle of beeswax burns with a clearer flame than a candle of any other substance; and, what is more, it leaves a pleasant odor in the room. Paraffine or tallow has a greasy, sickening smell.

Perhaps some of our bee-keeping friends would like to try a beeswax candle. Take a piece of sheet wax or even a piece of foundation. Lay on one edge of it some candle-wicking; then roll up the wax and the wicking as one would roll up a cigar. Fit this into a suitable candlestick. Light it, and see what a beautiful light you get. Of course, such a candle would not equal by a long way a good kerosene-lamp or any of our modern lights; but for a candle it surpasses any other substance; and after it has burned a while you will notice a pleasant odor pervading the room.

THE NEW PURE-FOOD LAW; FURTHER QUESTIONS ANSWERED.

We are getting a good many inquiries in regard to the rules and regulations governing the new national pure-food law. Nearly all the questions are answered in our editorial explaining this law, on page 1350 of last year. There are one or two other questions, however, that are not there answered. One of them is this: Is it necessary to attach labels on bulk packages that are shipped to wholesalers? I find nothing in the law that makes any requirement *on pure food.* It is designed to stop misbranding and to prevent putting any deleterious substances into foods or drugs. Nowhere does it specifically require the use of a label on a commodity made of pure or harmless substances; but when a label *is* used it *must* state the facts. Any mixture of glucose and honey or any combination of a pure food with an injurious substance *must be labeled.* either for bulk or small packages, *showing the exact proportion used.*

A question is asked whether a package must contain the exact amount, by weight or measure, specified on the label. Most assuredly; but reasonable latitude is allowed, so that, if a comb-honey carton specifies on the outside of the label 1 lb., the dealer or bee-keeper selling such honey would not be liable if it contained 14 to 15 ounces or 17 or 18. The regulations state that the contents shall conform, as nearly as possible, to the exact amount specified on the label on the package. But, as I understand the law, any one who sells a bottle of honey and labels it 1 lb. would be liable if that bottle contained only 14 ounces. I presume the reason is that the bottler could just as well put in 16 ounces as a smaller amount. Food stuffs of every kind, where the amount can be exactly measured, if labeled to contain a definite quantity, must contain *exactly* that amount.

Referring to *comb* honey again, it would seem to me better to have labels not specifying any definite amount of honey, because it is almost impossible to make a single section come up to a certain required weight. Therefore, to be on the safe side I would advise leaving out the quantity and putting on the words "pure honey" or "pure clover honey," "pure alfalfa honey," etc.

Dr. Miller summed up the gist of the new law in a word when he said it only required that the whole truth and nothing but the truth should be told about food and drugs sold.

A small (say four-inch) pipe connecting through the ceiling above, or otherwise, with a pipe or chimney into which heat passes makes an excellent means by which foul and damp air can be carried from the bee-cellar. Some old carpet or bagging to cover the outside walls is often another profitable addition, and in these ways the wintering of bees is made a greater success, and the profits of the apiary greatly increased.

From the headings of the address of Dr. H. von Buttel-Reepen, page 1291, I judge we shall have some exceedingly interesting apicultural information in the translation which is to be published in GLEANINGS. I judge we may have the confirmation of a theory I have had for years, and which I have given to my students in the apiary as such. That is, that a colony long queenless is not robbed out more readily than others, because they have less of vim and energy, but because of unfavorable conditions. A queenless colony is energetic enough at stinging the apiarist making an examination; in fact, their reputation is a little above the average in this direction. My theory is that, if one kept giving them plenty of young brood, there would be no difference as to being robbed out, because the brood and perhaps the food imparts a peculiar odor to the hive, the absence of which is conspicuous when other colonies have it. Or in a long-queenless colony there are only old bees, and these are not so keen at detecting the strange bees. Of course, we understand this thought is speculative.

R. F. Whitesides, Victoria Co., Ont., suggests in a letter that the secretary of the Ontario Bee-keepers' Association be paid a salary in proportion to the number of members in the association as an incentive to work. Not a bad idea, only there is much more to do than to get members. Mr. Whitesides writes, "Alexander, in GLEANINGS, sends me a ray of sunshine in saying cappings should be washed and the sweet water used for stimulative feeding." Thanks —not any for me until foul brood is no more in the world. One known or unknown diseased colony in the apiary may infect all the sweet water, and the *ray of sunshine* become a very thunder-cloud to break over your head. I have known large apiaries ruined by one dose of feeding back honey. To feed back honey is *unwise* and *dangerous*. To feed back honey from cappings increases the danger of infection. I could name well-known bee-keepers who have bitterly regretted the action, and will never in their lifetime repeat the mistake.

At this date, Oct. 31, it has been announced that there will be a Franco-British Exhibition of science, arts, and industries in London, England, during 1908, which will be fully representative of every aspect, region, and people of the French and British nations. With a view of inviting Canadians to join in the organizing scheme, the organizers have asked that the name of Mr. Harry Cockshutt, Brantford, Ontario, President of the Canadian Manufacturers' Association, be added to the general committee. Canadian bee-keepers should see that a honey exhibit worthy of the industry and of them be prepared and placed at this Exhibition. The exhibit should be out of the crop of next season. We can properly keep the crop over; comb honey should be collected during the autumn of next year, and at one point be properly cared for. During the season of 1908 more can be collected and allowed to replace partially the earlier exhibit. How appropriate it would be for the French Canadians of Quebec to have a conspicuous amount of choice honey at this Franco-British Exhibition! The conductor of this department feels sure that fancy Canadian honey can find a good market in Great Britain, and at good prices.

Awards, if properly set forth, should help the demand for honey in our home market. This idea has not been used to any extent. At the Paris, France; Glasgow, Scotland; Buffalo Pan-American, and St. Louis Expositions, gold medals were obtained by Canada for honey exhibits.

If Canadian bee-keepers, with the help of the Government as to expenses, etc., make up their minds they will probably add another laurel to the number. It should be a display larger than has ever before been known.

ADULTERATED HONEY.

Here in Canada many of us as individuals, when we suspect adulteration, send the name and address to the Department of Inland Revenue, and there the matter is taken in hand. Of course, such a method is bound to make a bad *percentage showing*. We can, however, be proud of the following recent record from that department at Ottawa, upon examining 54 samples of honey collected during March and April last, in different parts of Canada. Of this number 10 were found to be adulterated. None in the Maritime Provinces; three were adulterated in Quebec, three in Manitoba, two in Ontario, one in Alberta, and one in British Columbia. Some years ago it occurred to me it would be an excellect plan to pass a resolution condemning a firm or party (giving their name) that had adulterated honey, adding that it had shaken our confidence in all other goods they put up. This was done, and a copy sent to the offenders and the press. I know of no more effectual way of dealing with this matter.

SWARMING AND LARGE HIVES.

The very fact that Holtermann has a queen-cell detector to his hive as described in GLEANINGS proves that it does not entirely prevent swarming. See Mr. E. F. Atwater's remarks, page 1237. The supers have to be managed properly; the entrance, ventilation, and the brood-chamber. There will be less swarming under proper management, but it can not be depended on absolutely, even then. I did not have two per cent of my bees with the swarming impulse this last season. Let me tell Mr. Atwater that the countryman of mine he refers to allowed his stocks to get so crowded that, through lack of room, entrance, and ventilation, I have seen the entire front of the hive covered with bees; he used (or, rather, abused) my hive, but that is not my system.

PLACING HIVES OF BEES IN THE CELLAR.

The majority of bee-keepers, when placing bees in cellar repositories, set them upon stands, bringing the hives a greater or less distance from the ground. We are taught and we teach that the foul air, supposed to be largely carbonic-acid gas, is heavier than the air, and sinks to the bottom. In theory this is partially true; but such a tendency is overcome by air-currents more or less active in any ordinary cellar intensified by air-movements, the result of slight activity in the hive by the bees. Long observation has taught me that there is, as a rule, greater indication of moisture about hievs in proximity to the cellar floor. The reason, in my estimation, is that the temperature in a good cellar is, as a rule, lower close to the ground than it is further up, and the lower the temperature the more readily condensation takes place.

UNCOOKED FOOD.

On page 1196 Mr. A. I. Root tells us how he is living on uncooked food, nuts, grain, and the like; he has also been living in a log cabin up in Michigan. I should judge he was getting pretty close to a state of *savage splendor*. The savages, of course, kept no sabbath; and on another page Mr. Root tells us how, after a very short period on this diet, his grandson breaks out into this lack of observance of the sabbath. I fancy, brother Root, it would take some time longer for you to show the symptoms; but *better quit in time*. In any case I'll guarantee if you had a serious sickness it would not be *uncooked food* you would resort to, but Dr. J. M. Lewis, Rose Building, Cleveland, and the lean broiled-meat diet under his supervision. Boys and men will stray when they are well, but real sickness often brings them back home if they get able to get there.

BRANT COUNTY BEE-KEEPERS' CONVENTION.

The above association had a more than ordinarily interesting meeting at Brantford, Oct. 27. In the immediate vicinity, say a circle of two miles or a little over, and in the city, I counted up at least 1000 colonies of bees, and there are quite a few bee-keepers in the county, outside of this circle. Last year the president was Mr. Chris. Edmanson, and vice-president J. H. Shaver, both thoroughly good bee-keepers. This year the order is reversed.

OUTSIDE IDEAS SOUGHT.

The writer here suggested that a little surplus fund on hand be spent in bringing some good bee-keeper from the United States to give new ideas. New York State is in winter the nearest point, and he thought some one from there would come for actual expenses—all that the county society could afford. It would be well to have the event take place when the district convention took place, which would likely be the latter part of January. The plan was decided upon, and the matter left in the hands of the executive committee.

FEEDING BEES FOR WINTER STORES.

In the discussion upon this subject, Mr. Wm. McEvoy, inspector of apiaries, who was at the meeting, certainly gave some valuable suggestions as to how a colony might be fed late in the fall. He advocated, if feeding until late had been delayed, feeding from under the brood-chamber. He would remove the center combs in the hive—"pull the heart out of it," as he expressed it. So contracting the brood-chamber would increase the temperature and enable the bees to take up the feed in pretty cold weather. Even at the date of the convention the bees would yet ripen the honey, build comb if necessary, and cap the honey. The feeder would be a modified Miller feeder, so arranged that the bees would go into the feeder from the top. Where the bottom-board was attached to the brood-chamber, as in chaff-packed hives, he would take glass jars, such as the Gem (Mason), put a perforated zinc with a $\frac{1}{8}$-inch hole in place of the glass, the rubber band over this, and then the screw cap tightened over all, the jar being, of course, first filled with the syrup. An oil-cloth with three or four round holes is now placed on top of the frames; two sticks, $\frac{1}{4}$ inch thick, placed across the holes, and the jars inverted upon the sticks. Packing should then be placed about the jars and upon the oil cloth to keep all warm. A hive properly contracted could take up 15 lbs. of syrup in two feeds, and ripen the food as well. One member, Mr. John Clarke, stated he had fed a colony in this way in the depth of winter, and with success.

LARGE OR SMALL HIVES.

A discussion on large hives created a smile when the writer asked Mr. Edmanson to give his experience with a small hive and the twelve-frame Langstroth hive. Mr. Edmanson said he had the Richardson hive (capacity between eight and nine frame Langstroth hive), and his son, Gladstone, had in the same apiary a dozen of the twelve-frame Langstroth-Holtermann hives. The flow had been very poor, but the latter hives had aver-

aged more than the former by twenty to twenty-five lbs. per colony. Another member stated that the buckwheat honey-flow had really not been as good as last year, but it had been remarked by the small-hive men that, owing to less swarming, and, therefore, less broken-up stocks, they had secured more than the usual amount of buckwheat honey. It was admittedly an eye-opener to some.

NERVOUS SYSTEM OF BEES.

In our last article was given an account of the muscles of insects where the close similarity between those of insects and higher animals was pointed out. It was shown that, in a general way, there was very little difference, though the interesting fact was stated that, in insects, the muscles are very much stronger and more quick to act. They seem to show a perfection which is found in no other group of the animal kingdom. As was stated in the last article, sensation and voluntary motion are the exclusive function of animals; and where animals show a superiority in these functions we regard them higher in the scale of life. Of course, muscular action and voluntary motion are in close accord, and thus, in one sense, insects (and, of course, our bees, which stand at the head of the insect world) may be said to rank very high. Even man has not the muscular strength in proportion to quantity that the insects exhibit.

It will be interesting, also, to study the nervous system of insects and compare it with that of ourselves and the higher animals, and see if we come out any better in this comparison. The brain and nerves are, of course, the chief seat of sensation as well as of voluntary motion — in fact, of all motion. While the muscles are the real actors in motion, yet they must gain their stimulus in all normal action directly from the nerves; and, in case of voluntary motion, where the will and consciousness take part the brain is the great center of action. It is, then, of peculiar interest to study this part of the insect organism and note its development.

The nervous system of all *Arthropoda*, which includes all animals with a jointed structure, which also have jointed legs or feet, is different from that of any other of the great group of animals. High up in the head is the brain, which, for size and development, compares well with even the highest of animals. From this runs a double nerve cord which separates to surround the œsophagus, or gullet, and then runs to the under side of the body at the very front part of the thorax, or great division of the body just back of the head. It then extends the whole length of the body along the under side. The double cord here seems single, but the microscope reveals its true nature. In passing along from thorax to tip of the abdomen it passes through a number of ganglia. In the larvæ of all insects there are very many of these ganglia, which are merely collections of cells of gray matter, often one for every segment of the body. In the change to the mature insect the number of these always diminishes so that, while there are seventeen ganglia at first in the larva, the adult worker bee has only nine. This includes the brain, which may be said to be the first ganglion, and which, of course, is large and highly developed.

As in the higher animals, including men, the nerve system is made up of two kinds of tissues—the cells, or ganglia, which is gray in color, and nerves, or fibers, which are white. We may compare nerve action to the telegraph, the ganglia are the operators, while the nerves are the wires which convey the messages. There are also two great systems. One I have just described, while the other, consisting of scattered ganglia, in us is called the sympathetic system. It is more closely connected with the involuntary organs, and has to do with the stomach. intestines, etc.—those organs which move without our volition or knowledge. These influence the action of the involuntary or unstriped muscles. After we eat, the stomach and intestines move not a little. The stimulus to such motion evidently comes through these sympathetic nerves. In our own bodies we refer to the first system as the cerebro-spinal and the other as the sympathetic. In insects we refer to them as the brain and ventral nerve cord and the sympathetic system. We thus see that the nervous system in insects is in nowise peculiar except in position. It only remains to be said that the nerve fibers are, as in our own case, of two kinds—sensitive and motor. The sensitive fibers extend from the skin and sensitive membranes to the gray matter of the cord or brain. These then carry the sensation from the outside to the centers, and without them in healthy action we should not sense what is going on about us. The motor fibers, on the other hand, convey from brain to muscle, and carry the impulse which immediately causes action. A reflex act is where we act in response to a sensation received. Habitual action and also instinctive acts are probably reflex acts with the spinal cord as the center. As the brain must act to make us conscious, such actions probably have their center in the spinal cord. Some actions which are usually unconscious may, upon occasion, become conscious; and while such actions are usually involuntary, volition may come in as we notice in respiration. In all these respects we see little difference between the nerve action in insects and ourselves.

I referred to the brain or the cephalic ganglia of insects. When this is uncovered, as shown by Dujardin, it shows well-marked

convolution. That it is no inferior organ is shown from the fact that, in proportion to the body of the worker bee, it is as 1 to 174; while in the ant, which some have claimed to be the highest of insects, it is as 1 to 286. In man the proportion is about 1 to 40, so we see that the brain of the bee is no mean organ, even when size is considered. Its convolutions add to its effectiveness. As is well known, only the higher vertebrates have convolutions to the brain. The same is true of insects. The convolutions show most in ants, wasps, and bees. For this reason I have no hesitation in considering these animals the highest insects of the animal world, and so I feel there is good warrant for placing the order *Hymenoptera* as the highest of the orders in the insect world.

From what has been said of the anatomy of the nerve system, we are not surprised at the varied economy of our pets of the hive. As ws know, they have a wondrous life history. In habits and instincts, the bee and ant are in many ways the equal of even the highest of animals. Every working bee-keeper is so familiar with these in the bee that it is not necessry here to call attention to them.

I have had the same experience with "two-story" cells that Dr. Miller mentions on page 1416. In fact, I wrote of it in GLEANINGS some years ago. I have repeatedly exposed such combs outdoors when robbers were active, but never knew the under cell of honey to be uncapped. But his observation that cells with sunken caps will also be let alone is new to me.

Some have said that their experience with honey vinegar has been unsatisfactory because of its poor quality. It may be that a strong-flavored honey like buckwheat will not make good vinegar, or it may be that the poor quality has been due to getting the vinegar started with the wrong kind of ferment. It is well known to those who have investigated carefully the subject of butter, cheese, and other food products, that the flavor depends on the kind of bacteria developing it, and that often a good article is spoiled in spite of the maker's care, simply because he did not have the right kind of "seed" if we may use such an expression in regard to these bacterial ferments that develop flavor. The honey vinegar that I have made from alfalfa and clover honey, even that which has been boiled, is certainly of good quality —superior, in my opinion, to any cider vinegar.

HONEY OUTPUT OF COLORADO.

An article in a Denver paper claims for Colorado the lead in honey production this year, with 41 carloads, whereas California produced but fifteen. This honey was produced in the following localities. Fort Collins, one car; Berthoud one; Longmont five; Loveland one; Denver five; Sterling one; Platteville one; Boulder two, and the Arkansas Valley two, with scattering amounts sufficient to make up 23 carloads for the eastern side of the mountains. For the western slope, the estimate is as follows: Southwestern Colorado, one car; Montezuma Co., one; Montrose Co., five; Delta Co., five; Mesa and Garfield Counties, six cars—a total of 18 cars for the western slope. I can not vouch for the correctness of all these figures, but one dealer told me he had bought thirteen carloads of Colorado comb honey this season.

HORIZONTALLY DIVISIBLE BROOD-CHAMBERS.

The article by C. P. Dadant in the Sept. 1st issue stirred me up somewhat, and the editor's request for contributions on the subject made it an inviting field for discussion; but lack of time, owing to an accident to one of my eyes, that kept me from doing much work for nearly a month, made it difficult for me to keep "up to date." The testimony of an experienced bee-keeper like Mr. Dadant, with his father's experience before him, carries weight. To some it will appear more weighty than it really is, because they will consider that the elder Dadant had used the divisible-brood-chamber hives and had discarded them in favor of the deep frames. We must remember, though, that the hives he discarded were not movable-frame hives, and were open to nearly all the objections which the practical bee-keeper finds in the ordinary box hive. It is, possibly, owing to this cause that he did not learn to use the shallow hives satisfactorily. The objections urged to the divisible hive are not new, with perhaps one exception—that is, that the bees would often desert one of the stories of the hive entirely. As I have almost never had this experience with double brood-chambers I can not but think there was something in the construction of the hives that is responsible for this. Possibly it was the fact that three stories were used. I have seldom found any use for more than two stories, and three were generally unsatisfactory. It seems to suit the bees very well to have their brood-chamber divided into an upper and lower portion. This occurs quite naturally. But any further division of the lower part of the brood-chamber, except with very small hives, frequently results in a desertion of the lower part of the hive. This is the case not only with the shallow frames, but I used to have the same trouble when tiering up Langstroth frames without queen-excluders. I would frequently find in the fall that the brood-nest was in one of the upper stories, with

the lower ones containing only empty combs. His next objection is that there are more frames to handle. This looks plausible, but in practice it hardly holds good. Even when it becomes necessary to handle frames, when proper methods are used it is but seldom that any more frames have to be handled than with the larger ones, and these are so much smaller and easier to handle that it is really a saving of time and labor to have the hive divided into two sets of frames. Thus, early in the spring we know that nearly all the honey, the brood, and the queen are in the upper story. We may simply lift it off the lower story and examine it as if it were a complete hive, not paying any attention to the frames of the lower story. In the latter part of the season we know that most of the honey is in the upper half of the hive, and the most of the brood, with the queen, is in the lower story; and if we wish to examine the brood we simply lift off the upper story and set it aside, having to handle separately only the comparatively light frames of the lower story. If it were not for foul brood, I would but very seldom handle the brood-frames at all. I can find the queen by easier methods than by looking for her on the combs. It is an advantage here to inspect the brood frequently, in order to detect disease as soon as possible, so that I do not use these easier methods as much as I would otherwise, but hunt up the queen in the time-honored way. A proper knowledge of conditions in connection with a divisible brood-chamber enables me in most cases to find her without looking over more than one of the sets of frames. Queen-cells are found, to an extent sufficient for the requirements of most practical bee-keepers, very much easier in the divisible-brood-chamber hive by simply prying the stories apart and tipping the upper one back. It is but very seldom that I want to overhaul frames to look for queen-cells.

Next comes the question of wintering, and here Mr. Dadant falls into the common error of assuming that the divisible-brood-chamber hive is a shallow hive. On the contrary, it is a deep hive — as ordinarily used, deeper than the Langstroth. Mine, I believe, are exactly the same depth as the Dadant. Moreover, it is in the best possible shape for good wintering. Right through the center of the hive, and just below a sufficient amount of stores for wintering, is a passage giving free communication to all parts of the hive and making it easy for the bees to form and maintain the shape of a ball, which, as he says, is essential for the best wintering. For about twenty years I have had bees in both Langstroth hives and the six-inch double-brood-chamber hives, and those in the double brood-chambers winter best and build up better in the spring than those on Langstroth frames. There have been exceptions to this, of course, but that is the rule.

The argument that the queen is less hindered in her laying in a deep frame is all right theoretically; but in practice I find, as I said before, colonies build up better in the double set of shallow frames than in the Langstroth frame. I have never used on any extended scale the frame Mr. Dadant recommends, except for a part of one season, so I can not compare them with that. I can account for this partly in this way. The queen is, perhaps, held back slightly at one period of her laying, making her fill the upper story with brood more compactly than she otherwise would. Then when she breaks over into the lower story she has a good force of nurse bees to accompany her, and with an abundance of empty combs she soon makes up for lost time.

As to the argument that the single set of frames permits a more gradual enlargement of the brood-chamber, I want to say that I long ago quit fussing with the brood-chamber in this way. It may sometimes be made profitable, but in the long run it does not pay. But if one wants to do it he may, by the use of division-boards or dummies, enlarge or contract the double brood-chamber about as easily and even more gradually than he can the single one. I do not consider that I am any less indebted to Langstroth because I use a double brood-chamber. I am using the Langstroth principle in my frames, even though they are shallower than the ones he used, and at fixed distances instead of loose.

INSPECTORS' MEETING.

A Report of One of the Most Important Meetings ever Held in the Interests of Apiculture; the Scientific and Practical Side of Bee Diseases.

The meeting of bee inspectors, called at San Antonio, Texas, for November 12, by the committee consisting of N. E. France, W. Z. Hutchinson, and Dr. E. F. Phillips, has come and gone. The attendance of about fifty persons represented the whole country. No one who attended thought the time ill spent. On the contrary, every one there felt at the close of the afternoon session that it was a day most profitably passed; in fact, many expressed themselves that it was the best bee meeting at which it had ever been their privilege to be present.

Dr. Phillips, of the Bureau of Entomology, Department of Agriculture, Washington, D. C., called the meeting to order, and in his opening remarks gave the history of European foul brood in this country, and also gave a synopsis of the bee-disease work under consideration by the Bureau of Entomology. He then called upon Dr. G. F. White, of the Department of Agriculture, who gave an ex-

haustive description of the methods of working out disease germs. Beginning at the start he so carefully and fully explained his methods of work that all felt that he thoroughly understood every detail in the investigation.

Dr. White said, in part, "If your cattle were being poisoned in the pasture, and your neighbor's cattle were not, you would make a careful survey of your neighbor's farm and see what plants were growing in his pasture. Then you would make an examination of your own farm, and would subtract the plants found in your neighbor's pasture from those found in yours, and those left in your own lot you would suspect as being the ones causing the poisoning. It is so with the investigation of a disease. A germ is a plant, and we study the flora of the healthy apiary and also of the diseased apiary, and by this process of elimination, and by the examination of a great many specimens, we arrive at the cause of the disease."

The European foul brood is caused by *Bacillus alvei*, described by Cheyne, and published in 1885. The cause of American foul brood is found to be a germ hitherto undescribed, but called by Dr. White *Bacillus larvæ*. To isolate this germ Dr. White used a medium the foundation of which was a bouillon made from the larvæ of the bees. No one else ever used this medium, and so no one else ever discovered the cause of American foul brood.

These germs are slender rod-like bodies that grow in length and finally break into two individuals. This division occurs every 30 minutes, so that, beginning with one, in half an hour you will have 2; in one hour, 4; in one and a half hours, 8; in two hours, 16; two and a half hours, 32; three hours, 64; three and a half hours, 128; and in four hours, 256 individuals. When the larva dies the germ goes into the spore or resting stage. It begins to thicken in the center, or near one end, and finally becomes a spherical body. This spore form is the resistant form, and is the one which we have to fight in the field.

Dr. White then explained in detail the methods used in isolating one germ and in making cultures for study. He also explained how the different media, or soils, were made, and how one germ would show a certain character on one medium or soil (for the medium is to the germ what the soil is to the plant), while another germ would show an entirely different character. So by taking many different kinds of media, and studying each organism on each medium, it is possible to identify them.

Both American and European foul brood exist in Europe. These terms were given them because the European foul brood was worked out by Cheyne in Europe, and American foul brood was worked out in America. Many samples of pickled brood have been examined, but no cause has been found for it. This is also true of bee paralysis, and we are still in the dark as to the cause and treatment of these two diseases.

Dr. Phillips then gave a detailed description of American and European foul brood as it appears in the field. He stated that, when Cheyne made his investigations, he had, according to his own statement, but one specimen which was brought him by Cheshire. Since both diseases exist in Europe it is quite possible that the one specimen was what we now call European foul brood, especially since Cheyne describes the specimen as "watery." To the casual observer the diseases bear a similarity in appearance.

Dr. Phillips stated that, at the present time, European foul brood exists in New York, New Jersey, West Virginia, Connecticut, Massachusetts, Vermont, Pennsylvania, Ohio, Indiana, Illinois, and Michigan.

The European foul brood is usually the more virulent of the two diseases, but, on the other hand, sometimes disappears of its own accord. He then gave the history of bee-disease investigations, and, taking each investigator in turn, showed what was the probable cause which led him to arrive at his conclusions. It is interesting to note that the earliest theory was that a parasitic fly laid its eggs in the body of the diseased larva.

Dr. Phillips then announced three publications of the Bureau of Entomology: Technical Series, No. 14; "The Bacteria of the Apiary, with Special Reference to Bee Diseases," by Dr. G. F. White; Circular No. 79. "The Brood Diseases of Bees," by Dr. E. F. Phillips; and a reprint from Bulletin No. 61, Bureau of Entomology, entitled "State and Territorial Laws Relative to Foul Brood."

Mr. N. E. France, the veteran bee-disease inspector of America, then read a paper, the "History of Bee-disease Inspection in Wisconsin." This paper was one of the gems of the meeting. Mr. France stated that many apiaries where foul brood once existed, after having been treated, were the means of paying off the mortgage on the farm, or of building a new home for the owner. Other apiaries under different care, though once profitable, are now entirely wiped out or reduced to a few colonies.

Dr. Phillips read a paper from Mr. Charles Stewart, of New York, and also one from Mr. Fred Parker, of Lompoc, California. Both papers were valuable and interesting, and both clearly demonstrated the value of thorough and careful work on the part of the inspector.

Mr. J. M. Rankin, of the Bureau of Entomology, who is stationed at Chico, Cal., gave a short talk on the inspection on the Pacific coast. He stated that he did not know of a case of European foul brood in California, but that the American foul brood was much more virulent there than in the East or North. Few inspectors in California now recommend the shaking treatment, as the time required to treat the disease is of more value than the bees destroyed. The method fast coming into favor is that of boiling up the diseased bees and combs in a large tank. Bee inspectors, he said, are born, not made. It is an easy matter to learn to detect the disease and to effect a cure. Any man of ordinary intelligence can do this, but it is only a small

part of bee inspection. The difficult part lies in handling the bee-keeper, and, without antagonizing him, get him to comply with the law because he sees the advantage it brings him in so doing.

The practice of carrying an instrument with which to test the dead brood is not a good one. Such an instrument in the hands of an ordinary man is bound to spread infection. The best method is to carry a pocketful of wooden toothpicks, and, after testing a diseased cell, either push the toothpick into the comb to mark the spot, or drop it down the mouth of the smoker and dispose of it. "I do not yet know of one single inspector," said Mr. Rankin, "who is in the work for the money he is getting out of it. They have the good of the industry at heart, to the very last man. Some of them make mistakes, but they all deserve the hearty support of every bee-keeper and every journal. No one has a right to criticise them publicly. If he is incompetent, the law provides for his removal from office, and this should be done; but to publish criticisms on the mistakes of an inspector is to harm the industry willfully."

Mr. L. H. Scholl gave a talk on inspection in Texas and the methods employed. Shaking has not proved satisfactory, and the line they now work on is to sulphur the diseased colony at the entrance with a smoker and then burn the infected combs. Mr. Smith, inspector for Illinois, described his method of treatment which was, briefly, that of shaking once on starters of foundation, being careful not to allow any robbing or dripping of honey. He stated that, in nine out of every ten yards treated, he had been successful.

Mr. George W. York, editor of the *American Bee Journal*, then offered a motion that a telegram of thanks be sent to Dr. L. O. Howard, Chief of the Bureau of Entomology, as an expression of gratitude felt by the Inspectors of the United States for the assistance of his Bureau in the investigation of bee diseases. The motion was unanimously carried.

Dr. Phillips summed up the meeting in a few very interesting and instructive remarks. He stated that he thought it had been clearly demonstrated that no one treatment could be successful in all localities and under all circumstances. The treatment must be adapted to the locality and the surrounding conditions.

All who were privileged to attend the meeting felt that it was a day most profitably spent, and that such meetings should continue. Bee inspection must become a science, and the contact of one inspector with another, comparing methods and conditions, can not but broaden him and better fit him for one of the most important of all branches of apicultural work. J. M. R.

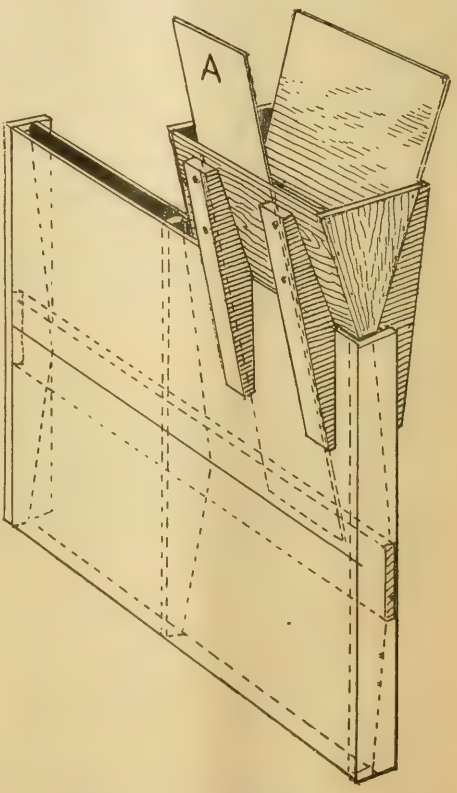
Chico, Cal.

[The intention of those in charge of this meeting was, I believe, to start a permanent organization of bee inspectors who should draw up a constitution, and hold regular meetings. The good resulting from such can hardly be estimated. GLEANINGS offers its columns for the use of the organization.—ED.]

HOW TO CONVERT A VENTILATED COVER INTO A CHAFF-PACKED COVER.

BY L. W. DARBY.

The ventilated gable cover, having only a $\frac{3}{8}$-inch board over the bees, with cold air passing through, is not warm enough in winter; the space between upper and lower boards also affords ideal homes for spiders which prey upon the bee. These objections can be easily overcome by filling in the space with chaff or other packing. When the covers are already nailed together it is a problem to get the chaff into them through the opening at the sides. I managed mine in the following way: First, nail a narrow strip of wood over the opening on one side. Then with a little trough made to fit the mouth of the cover, proceed to sift in the chaff; and as it chokes in the narrow opening, press it through with a thin board, A, about $24 \times 6 \times \frac{1}{8}$ inch. When one half is full, slide the trough along and fill the other partition. Nail a strip of wood over the opening, and the operation is complete.



Hahndorf, South Australia.

[The plan here shown would be perfectly feasible, and it would make the cover warmer in winter, no doubt. Whether it would be any better or worse in summer I could not say.—ED.]

CELLAR WINTERING.

Is Moisture a Detriment or a Benefit? a Case Where Many Colonies Died Because of a Lack of Moisture; Disturbance Detrimental; Mid-winter Flights not Advised; Essentials to Good Wintering in a Bee Cellar.

BY E. W. ALEXANDER.

During the last few years there has been quite a change in the opinion of many bee-keepers on this particular point in wintering their bees. There is one thing, however, that we can all agree on; and that is, a wet cellar, with poor ventilation and a low temperature, is the worst place that bees can possibly be put in to winter; and some of us have found out, from long and costly experience, that a wet cellar, if properly ventilated, and kept at a temperature varying only from 44 to 48 degrees, is the best place that can possibly be made for perfect wintering.

With these dearly learned facts fresh in our minds, a year ago we built a model bee-cellar, 24×40 feet in size, which will give ample room for 1000 colonies, and at the same time give us a walk through the center from one end to the other. This is very handy in putting them in, in the fall, or taking them out in the spring; but its principal value is allowing a circulation of fresh air through the center of the cellar. The accompanying photos show a part of this cellar with the hives in their place. In order to show the hives on each side of the alleyway we made two photos of it, and then it shows only about half the length of the cellar, as there were 25 hives in a row, or 100 hives in a tier. You will notice that we remove the bottom-boards from our hives, and set them directly over each other, with four one-inch blocks between the hives. They rest on racks 8 inches high from the floor, which is covered with about 3 inches of chaff or planer-shavings. This makes a nice covering to the floor, and enables us to walk among the hives without making any noise or jarring them in the least. It also prevents smashing any bees on the floor, which makes it much easier to clean up after they are taken out in the spring. The under course of hives rests on the cleats of a bottom-board turned wrong side up. This gives ten inches of space from the under part of the lower hive to the floor, which allows a fine chance for fresh air to circulate over the bottom of the whole cellar. You will also notice that, where we have left the under cover on, we raise it from the hive and put a piece of section under it, forming a little crack for the foul air in the hive to pass off. But we prefer a piece of light canvas over the top without the under cover on. In order to test this thoroughly, last winter we left some hives with both canvas and undercover on, as you will notice in the photo.

This cellar was built late last fall, and the walls were laid up with stone and Portland cement. It is 6½ feet between floors, and has about a foot of space under the floor, which is of matched lumber. Under this are two drains which convey water out all winter. The walls were very wet during the whole winter, as we had no time for them to dry, putting the bees in only one week after they were finished. Then in addition to these wet walls we put a building over it of green lumber, with a roof of galvanized iron. The floor over the cellar was of matched lumber, and double, with building paper between. This kept the cellar very warm with so many colonies in it; but with the perfect ventilation we gave it the bees came through the winter in as fine condition as I ever saw bees wintered, and only 2 hives out of 725 showed a spot of dysentery, although the bees were in the cellar from the 11th to the 14th of November until April 18th to the 26th before the last were taken out.

You may think this quite different from what I have recommended — that is, taking them all out at one time, and that at night; but from April 7 to April 16 I was not expected to live from one hour to another, and consequently the bees got but little attention during that time.

Last winter we had very changeable weather here. The temperature outdoors varied from 20 degrees below zero to 72 above — a variation of 92 degrees — while in the cellar it changed only from 44 degrees to 52, or a variation of 8 degrees. This 44-degree temperature inside lasted only about 24 hours, and was caused by a temperature of 20 below zero outside for two days, and the wind blowing a perfect gale. We kept a thermometer in the cellar, and could seldom find the temperature change more than one degree either way from 46.

In speaking of moisture in our cellar I often think of a bit of experience I had many years ago. I put 250 colonies in the driest cellar I ever saw. It was under a dwelling-house where two fires were kept burning nearly all the time. A short time after we put the bees in they became very uneasy, many leaving their hives and flying about the room. I had made a large tight room inside the cellar, of matched lumber, and put a plank floor in it. I kept the temperature about 45 degrees, but still the bees became more and more restless, and, when taken out in the spring, I shoveled up 14½ bushels of dead bees. That was the worst wintering I ever had, and it was a sight to see those that lived through the winter go to wet places after water as soon as they had a chance to fly. It seemed as if every bee went for water before it returned to its hive. Their honey was so dry and gummy that the bees could hardly eat it until it had been moistened with the water they got outside. The dead bees on the floor were so dry that, if you gave a handful a squeeze, they would crumble up almost as fine as corn meal.

Since my experience that winter I have changed my mind very much in regard to wintering bees in a dry cellar. The best success we have ever had was in cellars where there was running water, and the temperature kept at from 45 to 48 degrees. Many years ago, when father Quinby used to

meet with us at our conventions, this wintering question was frequently brought up; and it was the opinion of us all at that time that, if a hive were made with double walls, and well protected on the top so the bees could keep the inside of their hive warm at all times, then they would winter well in a cellar at a temperature just above the freezing-point. But if we used single-walled hives with their bottom-boards removed, and on top had only a piece of cloth over the bees, then we must keep our cellars at from 45 to 48 degrees temperature, otherwise we might expect to have our bees somewhat affected with dysentery long before spring; and I am still of the opinion that the construction of the hives we use has much to do with the necessary temperature of our bee-cellars. Two very important requirements are perfect quiet and total darkness. These we can have much better in a cellar built in a side hill, expressly for our bees, than we can possibly have under our dwelling-houses. I think the amount of honey that is saved where bees are kept perfectly quiet will go a long way in three or four years toward paying the expense of building a special cellar.

Shortly after putting our bees away last fall I noticed a small bunch had gathered on top of one of the upper hives directly over the cluster. There was only a piece of canvas between the cluster in the hive and this little bunch on top. The canvas was well coated with propolis on the under side, and was tight all around, and had no holes in it so one bee could feed another, but still they lived without any thing to eat until the 10th of January, when I disturbed them so that they scattered themselves over the hive, and some crawled down and in at the bottom. I think there were about 30 bees in this little bunch, and I am sure they had nothing to eat for nearly two months unless their honey-sacs were full when they clustered on top. I speak of this incident to show that, if our bees can be kept at a proper temperature, and perfectly quiet, and so dark that the whole winter seems like one long night, it requires but little honey to take them through the time that they are confined in the cellar.

Now in regard to giving them a mid-winter flight, I am not at all in favor of it unless they are suffering with the dysentery caused either by improper food or too low a temperature and bad ventilation. Several times I have set some out for a midwinter flight on a nice day, but usually lost about all that were so treated. The principal trouble is that, after they are returned to the cellar, they never again quiet down and form a compact cluster as they do if not disturbed.

Last winter, about Feb. 1, we thought it best to put mats on about 200 colonies that had been left with the under covers on; and, although we had the floor covered with about three inches of chaff, as we always do to prevent any jar or noise when going into the cellar, and we handled them as carefully as

E. W. ALEXANDER'S BEE-CELLAR: RIGHT SIDE.

possible with but little light, it disturbed these colonies so that they were quite uneasy for the rest of the winter, and wasted more than twice as much as the bees the other hives did that were not disturbed. Another thing I wish to speak of in connection with wintering is this:

Many leave their bees out too late in the fall. Last fall we put 300 colonies in our new cellar, Nov. 11, and they had had no good chance to fly for over two weeks. The 12th of November was a warm bright day, and the 425 colonies left in the yard had a good flight all day. These we put into the cellar on the 14th; and when taken out in the spring they were in no way any better than those put in on the 11th, although they had had a fine flight some three weeks later than the others; so don't leave them out to waste away, as they always do with these cold nights of early winter. If we would all realize the importance of having our bees well prepared for winter early in the season, and then be careful and not disturb them any more than can possibly be prevented until they are carried out of their winter quarters in the spring, our winter and spring losses will be much smaller than they usually are.

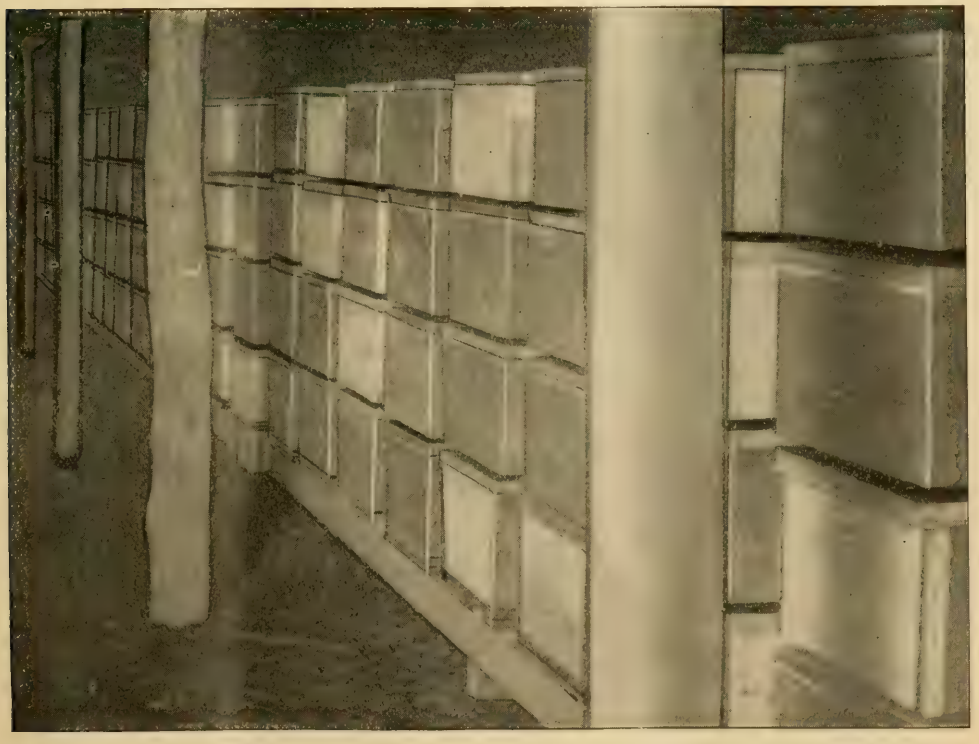
I shall have to make two articles of this wintering subject, and in my next I will give you some photos of the building we made over our bee-cellar, and will take up this subject of ventilation, showing how easily this cellar can be well ventilated, and at the same time not disturb the bees in the least. When our bee-cellars can be ventilated in the proper way it is one of the most essential things connected with successful wintering. But when done as it frequently is, it is the ruination of thousands of colonies, being one of the principal causes of spring dwindling in its worst form. So when you build a bee-cellar don't be afraid of a little extra labor or expense, but make both it and your storeroom for the thousand and one things necessary in a large apiary as near perfect as possible; then you will find that you can save many steps and receive better results in the end.

Delanson, N. Y.

[This is one of the best articles we ever published on cellar wintering, in my opinion; and I say this, even though some of its teachings may run counter to some things I have said on the same subject.

In the first paragraph Mr. Alexander speaks of the fact that a wet cellar with a low temperature, with poor ventilation, is the worst place bees can be kept for wintering, and we all agree with him on that proposition; and yet, knowing that fact, many bee-keepers are unable to control the temperature, and the result is disaster.

On the other hand our correspondent says a wet cellar, if properly ventilated, and kept



E. W. ALEXANDER'S BEE CELLAR, LEFT SIDE; THE WHOLE CELLAR WILL HOLD 725 COLONIES.

at a temperatere of from 44 to 48 degrees, is the very best place to winter bees. I agree with him in the matter of ventilation and temperature, and I also agree with him *if* he does not mean to have his cellar *too* wet. The term "wet" as applied to a cellar might mean one slightly damp, and another one with pools of water standing on a muddy floor. I can hardly believe that Mr. Alexander means this. The average cellar will not be absolutely dry, if under ground, where a lot of bees are confined. To my notion, if we specify a *dry* cellar we shall get one wet enough to conform to the requirements of our correspondent. A hundred colonies of bees, for example, in a cellar 15×20, will give off a large amount of moisture through their breath. This moisture will condense against the sides of the hives and against the sides of the cellar or any surface cooler than the cluster of bees.

It is not clear just how much ventilation Mr. Alexander allows. I infer, however, he does not change the air in the cellar very much, but leaves the hives themselves so open that there is a circulation of air in the cellar, or from within the hive to without the hive.

With regard to disturbance, what Mr. Alexander says is true, and yet it may be a little hard to harmonize his statements with the fact that our shop-cellar bees have all kinds of racket above them and yet they winter nicely. Right over our cellar where our bees are, there is the rumbling of machinery and the dropping every now and then of a heavy weight or the trundling of a heavy truck; and the vibration of the building, and I might say of the foundation, is continuous. But here is where the explanation lies: The *continuous* noise does not disturb bees nor human beings like a *sudden* shock after continuous quiet. I have been in cellars, which, on entering as carefully as I might, caused no little disturbance on the part of the bees; and on the other hand we could go into *our* cellar and wheel heavy trucks through it all day, and the bees would scarcely notice it, because they have become accustomed to it. I suspect the case is something like this: My dwellinghouse is located close to our factory, and only about 500 or 600 feet from the B. & O. Railroad, and 700 or 800 yards from an east and west road, the Northern Ohio, and on these roads trains are snorting through at almost every hour of the day, and at times in the night; and yet those of us who are accustomed to it very seldom notice or hear it. Another fact: Some thirty years ago I used to sleep in our factory when we were running night and day. My room was directly over several buzz-saws and a planer; but very soon I became accustomed to the noise so that it did not disturb me. Going back to the bees in the cellar, I suspect that the *occasional* romping of children directly over a bee-cellar would cause more disturbance than if the children romped on that floor every hour of the day.

I notice that Mr. Alexander does not advise winter flights except toward spring, and even then only when the bees become uneasy or affected with dysentery. I agree exactly with him here, and his recommendation has been right along with our recent practice. Whenever bees become uneasy it has been our experience that a good fly restores them to quiet.

This whole article is based on an extensive and long experience, and it will bear careful reading, both on the part of the veteran and the beginner in the business.—ED.]

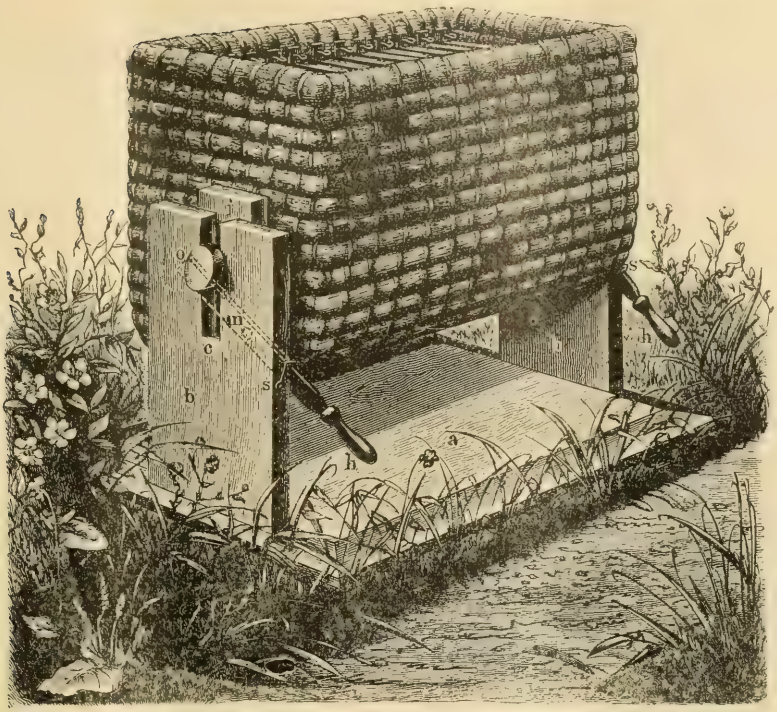
GRAVENHORST'S SYSTEM IN GERMANY.

The Peculiar Form of his Hive and Frame.

BY W. K. MORRISON.

Germany, the land of modern science, Wagnerian music, and lager beer, is very prolific in apicultural literature, which we naturally expect in a country of apiaries and printing-presses. Even if they are numerous, these bee-books are by no means vain repetitions of each other. On the contrary, many of them are quite original, particularly in the science of *Apis mellifica*, where our friends stand preëminent. If any criticism is in order it might be stated the Germanic bee-authorities are too self-centered, not copying the good points of American and

GRAVENHORST HIVE INVERTED, SHOWING HOW THE COMBS ARE REMOVED (BOTTOM UPWARD), AND THEIR PECULIAR SHAPE.



A SPECIAL INVERTING HIVE-STAND FOR THE GRAVENHORST HIVE.

French bee management. Baron Berlepsch succeeded in introducing the American idea of a movable-comb frame at an early date, and Dzierzon himself advocated the hanging-frame idea when once converted, though he never made much use of the bee-space and the movable roof-board. The latter he fought tenaciously, claiming it was bad for the bees in winter and spring. But the man who did more than any one else in Germany to popularize the movable-frame system of management was Mr. Gravenhorst, for many years editor of a bee paper, and author of a popular work on bee culture, with the title of "The Practical Imker." With considerable inventive faculty he very cleverly adapted the movable idea to the ordinary straw hive, and thus paved the way for greater things to come. Mr. Gravenhorst carefully studied the writings of the most celebrated of American writers, such as Langstroth, Quinby, Cook, Root, Heddon, and others, and gave them due credit for their work. Being endowed with a considerable amount of what we call "horse sense" he foresaw that he would have to suit the movable-frame idea to the straw hive. The illustrations serve to show how admirably he succeeded. No one but a plodding German would have thought of making a frame to suit so peculiarly shaped a construction as a dome-shaped straw hive; yet the frames are readily removable, and a broad frame is in use of the same sort in which sections are placed for fancy comb honey. Just think of it! square $4\frac{1}{4}\times4\frac{1}{4}$ sections out of a straw hive of the classical school of bee-keeping! Dzierzon succeeded in constructing a very fair hive by combining wood and straw—a sort of hybrid hive. Of course, the work of making these bent-wood frames is considerable, but that does not deter the Germans at all; and as they have no manufacturer to abuse, nothing can be said against the cost of them.

Of course, these hives are worked on the long-idea-hive system advocated by Mr. Poppleton and others; that is to say, the honey is stored at the sides, not on the top. It may be claimed such a hive will give poor results in a good season as compared with the "tiering-up" hives; but over against that its advocates would say use more bees and have more hives *a la* Hutchinson.

It will be observed that Mr. Gravenhorst learned something from Mr. J. M. Shuck, of Iowa, who had an arrangement for inverting his hives similar to the one here shown, or perhaps Mr. Shuck learned something from the Germans. Evidently the Germans find these hives get rather heavy, and require the assistance of a labor-saving device. This is one more argument in favor of the shallow hive, which the Germans know not.

The construction of the straw body is very ingenious, as it still retains the original aspect of the classic hive, and yet adapts itself to movable frames. Mr. Gravenhorst went further, and invented "a sort of hay-rack attachment" which was used for moving the hives. I am sorry to say this is not shown,

as it would be very interesting just now when derricks for bee-hives are up for consideration. Some may be disposed to criticise these arrangements for the pursuit of bee-keeping; but they are much superior to the log-gum hive of the South, and, what is more to the point, make for better things. Mr. Gravenhorst illustrates straw hives, which are square, and with single frames

THE MANNER OF REMOVING THE FRAMES FROM GRAVENHORST'S HIVE.

containing two combs, one above the other, but still retaining the fixed-roof idea, and allowing the frames to be removed only from the bottom, as the idea that a movable roof in a hive is bad seems to be part of a German bee-keeper, and has retarded the progress of hive-making in continental Europe very much.

Progress has been made, however, as a result of Mr. Gravenhorst's work, and great changes are slowly evolving all along the line. In German-speaking Switzerland a new bee-paper has appeared, edited by the Rev. Mr. Streauli, with the openly avowed purpose of converting the Germanic race (80 millions) to the American style of bee-keeping, and commenced with a translation of Mr Swarthmore's latest epics on the subject of queen-rearing. It looks like carrying coal to Newcastle.

There is a bee paper published in Russia advocating American methods of apiculture which, together with the above and the Parisian Gleanings, ought to make great changes in the trend of bee-keeping thought in Europe, and these old-time inventions will pass away.

SUCCESSFUL BEE-KEEPING UNDER DIFFICULTIES.

A Bee-keeper who, Without the Use of his Limbs, is Able to Hunt Bee-trees, Hive Swarms, and Do All the Work About an Apiary.

BY JESSE G. COCKRAM.

In my fifth year, in June, 1876, I was stricken with paralysis in my feet and legs. I have never walked since. When I was about 14 years of age I watched some bees getting water at my father's spring, and traced them into an ivy hill. I crawled over into the woods, the ivy so thick in places I could hardly get through it. I crawled on in search of the bees for about half a day before I found them.

At last I saw the bees working in and out of an oak limb. I surely was glad to find them. I crawled back to the house as soon as I could, to tell my mother the glad news. I had the tree cut, but it was an old stand. The comb was almost black, and only a few cells of honey in it. The bees had dwindled down to but half a gallon. This colony never did me any good. I tell you I have had the bee-fever bad. I craved to own some bees or have them where I could see them work. I enjoyed sitting and watching them work, in and out of the old-fashioned gum. I did not know then any thing about the frame hive that I now use.

I earned enough money so that, in 1894, I bought four stands, in box hives, and I kept my bees in round gums and box hives until last year. Finally I concluded to buy some modern hives to put my colonies in, any way, and try them. The new way of keeping bees as far exceeds the old as the thrashing of grain by machinery exceeds the old flail.

I have climbed a few low trees, and hived a few swarms; but I almost always have help. Some people don't believe I can climb a tree without the use of legs; but I've done this many times. I am strong in my arms and hands, back, etc.

I have the A B C of Bee Culture, and have read and studied it. I am also taking GLEANINGS. If any old-fashioned bee-keeper thinks he can get along as well without bee books and papers as he can with them, he is sadly mistaken unless he would simply own the bees and not be benefited by their teachings.

I have given an outside view of my shop, and myself in the condition that I crawl about in, and work with my bees, etc., and also an inside view of myself at the shoe trade.

Woolwine, Va.

[The world over admires and commends the man who, in spite of environment or physical disabilities, overcomes them and helps in the great work of making the world richer and better. Most men, afflicted as is our friend Cockram, would have given up in despair. But he apparently knows no obstacle too great for him to surmount—at least not in bee-keeping. Climbing a bee-tree

A BEE-KEEPER WHO HAS LOST THE USE OF HIS LEGS, BUT IS STILL A BEE-TREE HUNTER.

JESSE G. COCKRAM, A BEE-KEEPER WHOSE LIMBS ARE PARALYZED, BUT IS ABLE TO DO ALL THE WORK ABOUT AN APIARY.

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2 Geo. E. Hilton, Fremont, Mich.
3 R. A. Holekamp, St. Louis, Mo.
4 Mrs. R. A. Holekamp, St. Louis, Mo.
5 C. A. Hatch, Richland Center, Wis.
6 Mrs. C. A. Hatch, Richland Center, Wis.
7 A. L. Hatch, Sturgon Bay, Wis.
8 Miss Matilda Candler, Cassville, Wis.
9 Mrs. Ferrabee, Richland Center, Wis.
10 Miss Dorothy Ferrabee, Richland Center, Wis.
11 Miss Nellie Ferrabee, Richland Center, Wis.
12 C. J. Thies, Pepin, Wis.
13 W. H. Putnam, River Falls, Wis.
14 N. E. France, Platteville, Wis.
15 J. C. Frank, Earlville, Ind.
16 F. L. Kinney, Morgan Park, Ill.
17 Mrs. F. L. Kinney, Morgan Park, Ill.
18 Fred Wilcox.
19 R. W. Boyden, Chicago, Ill.
20 Geo. W. York, Chicago, Ill.
21 J. C. Bull, Valparaiso, Ind.
22 Miss M. M. Bull, Valparaiso, Ind.
23 Miss Olive Bull, Valparaiso, Ind.
24 Miss Clare Bull, Valparaiso, Ind.
25 G. A. Bleech, Jerome, Mich.
26 D. G. Coggshall, West Groton, N. Y.
27 P. D. Jones, Mt. Morris, N. Y.
28 G. H. Adkins, Ticonderoga, N. Y.
29 Fred Muth, Cincinnati, Ohio.
30 H. H. Root, Medina, Ohio.
31 J. F. Doll, Minneapolis, Minn.
32 W. S. Carrico, Florisant, Mo.
33 M. E. Darby, Springfield, Mo.
34 Dr. G. Bohrer, Lyons, Kansas.
35 J. J. Measer, Hutchinson, Kansas.
36 Oscar A. Frank, Kansas City, Mo.
37 Louis Werner, Edwardsville, Ill.
38 A. G. Anderson, Ferron, Utah.
39 L. F. Jouno, Denver, Col.
40 Allen Howze, Farosa, Texas.
41 L. A. Atten, Round Rock, Texas.
42 G. W. Palm, Round Rock, Texas.
43 E. L. Anderson, Saspamco, Texas.
44 S. H. Anderson, Saspamco, Texas.
45 D. H. Simmons, Hutto, Texas.
46 L. C. Rosseau, Waxahasie, Texas.
47 J. W. Griffin, Oneaville, Texas.
48 Udo Toepperwein, San Antonio, Texas.
49 I. A. Davis, San Antonio, Texas.
50 S. E. McBurney, Zephyr, Texas.
51 W. H. White, [illegible]
52 Louis Biedig[illegible]
53 H. Gossenbac[illegible]
54 A. C. Stanfie[illegible]
55 Wm. Zimmer[illegible]
56 J. L. Bergst[illegible]
57 D. D. Kemper, [illegible]
58 J. W. Rouse, [illegible]
59 J. F. Teel, Va[illegible]
60 J. M. Hagood, [illegible]
61 Ben Fuchs, [illegible]
62 J. C. Peterso[illegible]
63 Dr. N. King, [illegible]
64 G. E. Bacon, [illegible]
65 A. L. Krueger[illegible]
66 J. W. Taylor, [illegible]
67 E. J. Atchley[illegible]
68 Emil Rinn[illegible]
69 Miss Adela R[illegible]
70 J. M. Cooper, [illegible]
71 Fred Talbot[illegible]
72 E. E. Lawren[illegible]
73 Will Atchley, [illegible]
74 C. Dishmaki[illegible]
75 Mrs. Emil Bl[illegible]

VENTION, SEPTEMBER 8–10, 1906, SAN ANTONIO, TEXAS.

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77 W. O. Victor, Hondo, Texas.
78 Louis H. Scholl, New Braunfels, Texas.
79 O. P. Hyde, Floresville, Texas.
80 W. A. Sampey, Enius, Texas.
81 G. A. Bufkin, Brueeville, Texas.
82 G. D. Caley, Cozad, Neb.
83 E. Van Every, Maxwell, Texas.
84 J. M. Reed, Big Valley, Texas.
85 A. H. Knolle, Hondo, Texas.
86 H. Piper, Calaveras, Texas.
87 A. Y. Walton, San Antonio, Texas.
88 D. C. Milan, Uvalde, Texas.
89 L. Jones, Uvalde, Texas.
90 J. E. Chambers, Vigo, Texas.
91 D. M. Edwards, Uvalde, Texas.
92 A. J. Kessler, Kimpper, Texas.
93 K. Gordon, Junction, Texas.
94 C. C. Parson, Bluff Springs, Fla.
95 T. Marim, Buff Springs, Fla.
96 W. A. Gramp, San Antonio, Texas.
97 G. L. Johnson, San Antonio, Texas.
98 C. B. Bantston, Milano, Texas.
99 S. W. Kemmer, San Antonio, Texas.
100 Daniel Wurth, San Antonio, Texas.
101 J. Q. Smith, Lincoln, Ill.
102 C. W. Scott, Buceville, Texas.
103 Lena Hyde, Floresville, Texas.
104 Grant Anderson, Sabinal, Texas.
105 W. H. Laws, Beeville, Texas.
106 J. H. Kershaw, Abilene, Texas.
107 Y. G. Miller, Mathis, Texas.
108 Geo. J. Elam, Marlin, Texas.
109 L. Stachelhausen, Cibolo, Texas.
110 Mrs. Stachelhausen, Cibolo, Texas.
111 S. W. DeBord, Runge, Texas.
112 J. W. Allen, Uvalde, Texas.
113 Eloise Laws, Beeville, Texas.
114 J. A. Simmons, Oakville, Texas.
115 L. B. Smith, Rescue, Texas.
116 R. W. Rogers, Lometa, Texas.
117 D. C. Sulley, San Antonio, Texas.
118 T. P. Robinson, Bartlett, Texas.
119 Dr. J. B. Treon, Floresville, Texas.
120 Mrs. Wm. Atchley, Beeville, Texas.
121 J. M. Rankin, Chico, Cal.
122 Dr. E. F. Phillips, Washinton, D. C.
123 L. B. Wiseman, Floresville, Texas.
124 Bryan Callahan, City Mayor, San Antonio, Tex.

without legs is *almost* like flying without wings. What couldn't *we* do if we only *tried?*

On page 228 of last year we gave a picture of Mr. Stephen Hill, a blind bee-keeper who, not to be outdone on account of entire lack of sight, goes at the business and makes a success of it. There are many parallels in history, but perhaps the most notable, in apiculture at least, was the blind Huber. Certainly the world is richer and wiser for his work. No man with two eyes ever gave to the world more facts about bee life than Huber. All honor and praise to such men. I feel like taking off my hat to them; and as I look at these pictures of Mr. Cockram I wish I could shake his hand.—ED.]

TIERING UP COLONIES DURING A POOR SEASON IN MICHIGAN.

The Advantages of a Shallow Brood-nest.

BY T. F. BINGHAM.

At the beginning of the apple bloom I had about 100 colonies. The spring was cold and windy. I lost all the tree bloom, and we came up to apple bloom with empty hives and about one-third the brood and bees we usually have; and the cold frosty period during the apple bloom destroyed that also. I had no honey; not half the usual number of bees in a colony, and they slowly increased, or, perhaps, more accurately speaking, held their own. We fed a few that were starving, and doubled those not likely to weather the doubtful period preceding the clover and raspberry bloom.

It became evident that, for section honey, there was little hope if, indeed, there was hope in any course. I had an abundance of empty combs, and they had to be saved at all hazards, honey or no honey, bees or no bees.

As soon as the honey came from clover and raspberry the hives of empty combs were put on as fast as they were needed. Some colonies wanted few, some more, and, on the whole, all said empty combs were filled with honey. It was simply clover and raspberry —not a basswood blossom could be found. The bees gathered honey about two weeks, and sent off four prime swarms. There is about twice as much honey in the apiary as will be required to carry them through till June 1, 1907. At the time the photo was taken, all the hives were full as shown—not a set of frames to spare. I now have about 150 colonies to select 100 winter stocks from. The season was the poorest I ever knew.

Farwell, Mich.

[Mr. Bingham, of smoker fame, uses the shallowest brood-chamber of any bee-keeper in the country, and he has been using them for well-nigh forty years at least, with success and satisfaction. This shallow hive enables him to make a very *gradual* expansion of the hive, just enough to keep up with the increased demands of the colony. The illustration shows how nicely this works out. Just notice that some colonies required only two extra brood-sections while others towered up to the height of their owner. There are great possibilities in tiering up, nor is the practice necessarily limited to shallow hives; but such hives are better adapted for the purpose.—ED.]

T. F. BINGHAM'S APIARY, FARWELL, MICH., SHOWING THE VALUE OF SHALLOW BROOD-NESTS FOR TIERING UP.

WAX-RENDERING.

A Brief History of Different Methods, Including the Use of Wax-presses; the Hatch-Gemmil Press and What Can be Expected from it.

BY H. H. ROOT.

Some bee-keepers are not yet convinced of the superiority of a good wax-press for rendering wax from old combs, refuse from the solar extractor, etc. The principal reason for this is that they are sure that their own particular method wastes no wax. I want to say, however, that, from a good many tests made, I am satisfied that half of the wax in many cases is thrown away. It is next to impossible to tell very much concerning the amount of wax in refuse after it has become cold. It may look perfectly clean, and show no trace of wax, although it be broken up and examined carefully. For instance, one correspondent said that the cheese was as hard as a board—a fact which he seemed to think indicated that it had received so much pressure that surely no wax could be left, while, as a matter of fact, the more wax left in a cheese, the harder it is when cold. Another stated that the refuse was perfectly dry, and would shake out like ashes. While I think this would indicate that pretty thorough work had been done, yet, as I said before, very little can be determined from an examination of cold refuse. Without actually testing it, the best way, perhaps, to tell whether there is any wax left is to take a handful of refuse when it is hot, and squeeze it. If fine lines of wax appear along the creases between the fingers, it contains at least from eight to ten per cent of wax. The only way, then, to find the exact amount of wax remaining is to run the refuse through some form of press, and do the work thoroughly. Many bee-keepers place the combs in an old burlap sack, and immerse the sack

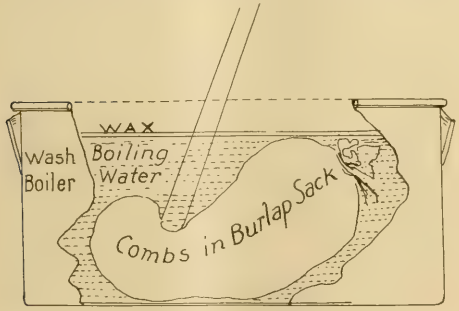

FIG. 1. A crude method of extracting wax from old combs, which wastes about 25 per cent.

in boiling water. This is punched with a stick, or covered with a slatted frame weighted down heavily so that the wax is forced out. In either case there is a waste on the average of about 25 per cent. Mr. Orel L. Hershiser, of Buffalo, N. Y., rendered, with his hot-water press, 85 lbs. of refuse which had been treated in this way by one of the largest producers in this country, and obtained 23 lbs. of pure wax, showing that in this one instance the method of rendering under hot water, without the proper amount of pressure, yielded, perhaps, less than two-thirds of the total amount of wax.

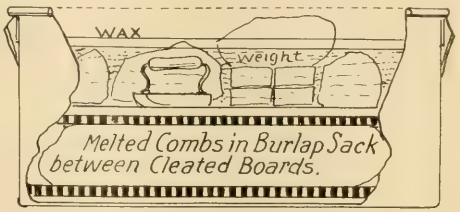

FIG. 2. Another crude and very wasteful method of extracting wax. This is a better way than that shown in Fig. 1.

The solar wax-extractor, while it is indispensable in an apiary, and possesses many advantages that need not be enumerated here, is hardly suitable for rendering old combs. The amount of loss from such varies from 25 to perhaps 40 per cent. When a few cappings are rendered, the amount of refuse left is usually quite small, and the waste may, therefore, be neglected. But if a great quantity of cappings is to be rendered, the refuse which comes from the solar had better be run through a good press.

I am sure that this method wastes more than most producers imagine, for wax of a most beautiful lemon color can be obtained from the blackest refuse in a solar extractor.

Since the wax-press is, without doubt, the most practicable extractor brought out thus far, when viewed from the standpoint of economy, we will now take up this part of the discussion.

WAX-PRESSES.

These may be divided into two classes—the first including any kind of press in which heat is applied to the slumgum during the pressing; and the second, all presses in which no heat is applied during the pressing. We will first consider briefly the heated presses including the hot-water press, in which great pressure is applied to combs immersed in hot water, and the steam-press in which the combs are enveloped in steam.

HOT-WATER PRESSES.

In these the pressure may be continued without the least danger of chilling the combs. This method has also a decided advantage in that the screw may be raised after having been turned down, and the cheese allowed to become saturated again with boiling water. The screw may then be lowered and this hot water forced out of the refuse, carrying with it more of the wax. This operation may be repeated as long as is found necessary by experience. It is thus seen that there is no disagreeable handling of the refuse until all the wax is out. Furthermore, all the work, if necessary, may be confined to the one tank.

Among the disadvantages of this method we may mention the poor quality of the wax. All the wax that I have obtained or seen from a hot-water press has been very dark, and had, therefore, to be refined if a good price were secured. In order to do rapid work with this press a large one must be used, for it takes considerable time to get the wax out; and the only way to do rapid work is to use a press of a large size. This makes the first cost very high. Furthermore, after the wax is out, there is the inconvenience of removing it from the surface of the water. It may be dipped off without much trouble, although this takes too much time, and is tedious work if all the wax is taken off. If any wax is left on the water, the refuse, when it is taken out in the sack, will absorb some of it. A better way is to have a very wide though shallow opening just below the level of the wax, and at the proper time allow the wax to run off through it. If this opening or gate is below the wax level, it would seem as though all of the wax and a little of the water would pass out through it, but such is not the case; and the only way to get all the wax off by this method is to introduce more hot water through a tube into the lower part of the press until all the wax overflows. Another way to separate the wax

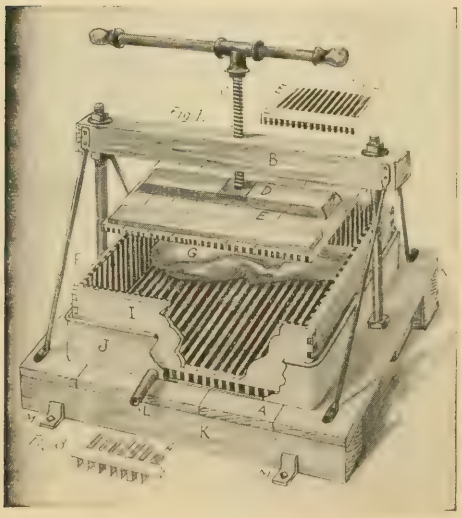

FIG. 3.—THE ORIGINAL HATCH WAX-PRESS.

This illustrates the general form of press that is now used by many bee-keepers all over this country.

from the water is to have a spout at the bottom of the tank and draw off almost all the water; then place another receptacle under the spout and allow the rest of the contents of the tank to pass into it. The pressure meanwhile should be kept on the refuse.

STEAM-PRESSES.

A steam-press has the advantage in this respect, that the wax will fall down below the refuse, and immediately pass out of the spout, leaving nothing in the way above. When the refuse is ready to be taken out, cold water may be poured into the boiling water below the false bottom, and the generation of steam stopped.

One of the disadvantages of the steam method is that the wax is as dark-colored as that obtained from the hot-water press. Furthermore, if the screw be raised and removed entirely, the refuse has to be shaken up before the pressure is applied again. This must be repeated a number of times in order that all the wax, or, more properly speaking, all that it is practicable to obtain, is removed. The great trouble with steam-presses, and, in fact, with most wax-presses, is that the last ten per cent of wax comes out so slowly that the work is often hurried, and there may then be a loss of from five to ten per cent. In the steam-press, and also in the hot-water press, another melting-tank has to be used if rapid work is to be done.

THE HATCH-GEMMIL WAX-PRESS.

At the last convention of the National Bee-keepers' Association, in 1905, Mr. C. A. Hatch, of Richland Center, Wis., convinced me that I ought to make a more thorough trial of the unheated press, which up to that time I had not tried extensively; therefore, for about six months I conducted a series of experiments with wax-presses, which were on a reasonably large scale, for I do not believe that one or two experiments with small quantities of comb prove any thing at all. I have found that the unheated press, as ordinarily used, *wastes anywhere from 8 to 10 per cent of the wax*, but that this loss can be reduced to less than 3 or even 2 per cent, if the whole operation be repeated, and, contrary to my expectations, the entire time for the two meltings, including *two* pressings after each melting, enabled me to turn out beautiful yellow wax at the rate of from 7 to 10 lbs. an hour. There are some disadvantages, of course, but they are not serious, and, take it all in all, I am convinced that the unheated press deserves much more credit than it has yet received.

Before going on to describe in detail this unheated press, it may be well to glance back briefly over the history of its development. I believe that Mr. C. A. Hatch, of Wisconsin, first constructed a press embodying the principle. He used for a short time a press designed by W. W. Cary, of Massachusetts, in which the combs were pressed while submerged in hot water, but he believed that he could improve on this plan by applying the pressure in a different receptacle without the use of hot water during the pressing. While there may have been others who used a similar plan before this, Mr. Hatch is probably the first one in this country to bring it to the notice of the public. Later, Mr. F. A. Gemmil, of Ontario, Canada, also worked with such a press, and it finally came to be known as the Hatch-Gemmil wax-press. In experimenting with this press I have made some changes which, in my opinion, seemed to be necessary. Fig. 3 will show the original

Hatch-Gemmil wax-press, and Fig. 4 the same with the changes that have been made. In Fig. 4 it will be noticed that a round can constructed of tin is used instead of the square wooden box and tin tray shown in Fig. 3. The principal reason for this change is that it is easier to keep the cheese from bursting out sidewise when a round box or can is used, for the square box tends to bulge out in the middle, thus allowing the burlap to burst. If a round can is used, the pressure sidewise is always in a direction directly away from the center, and the horizontal pressure is thus equalized. Instead of the wooden cleats placed vertically around the sides of the can, a perforated metal, or, better, a heavy wire-cloth lining a little smaller than the outside tin can may be used, which if firmly riveted can not possibly give trouble. I am sure, too, that with the round can the cheeses do not chill so quickly as they do in the square box, for the reason that they are more compact, and there is always less chance for cold air to circulate around under the cheese. Mr. Hatch now uses two screws instead of one, for he believes that he can get more pressure with the two; but I have not found the two screws necessary, for one screw will exert more pressure than is needed, and is, besides, much easier and quicker to handle.

It will be noted in Fig. 4 that the screw extends down into a hole in the center of the cast-iron follower. If the screw simply rests on the top, the follower shows a great tendency to go down sidewise, especially if one is not exceedingly careful in placing the melted comb evenly in the can. It is easy to see that, when the follower does not go down straight, one side of the cheese is much thinner than the other, and the thicker part will be found to contain quite a good deal of wax after the work is done. With this arrangement, the follower must go down straight unless the screw bends, and I have never had any trouble from that source. The circular piece above the cheese must be cleated as shown, to aid the wax and water in running off.

If any one wishes to make this kind of press at home, a square box had better be used similar to that shown in Fig. 3 instead of the round can, but there must be some method of reinforcing the corners to keep them from bursting. If a tin-shop is near at hand, the round can will be found easier to make and more satisfactory afterward.

A bench-vise screw, or one similar, would probably be used in a home-made press as shown in Fig. 3. But to keep the cleated follower board from tipping when it goes down, a heavy block had better be bolted securely on top of the iron plate D. The screw can then rest in a hole bored through the center of the block to the iron plate.

To be continued.

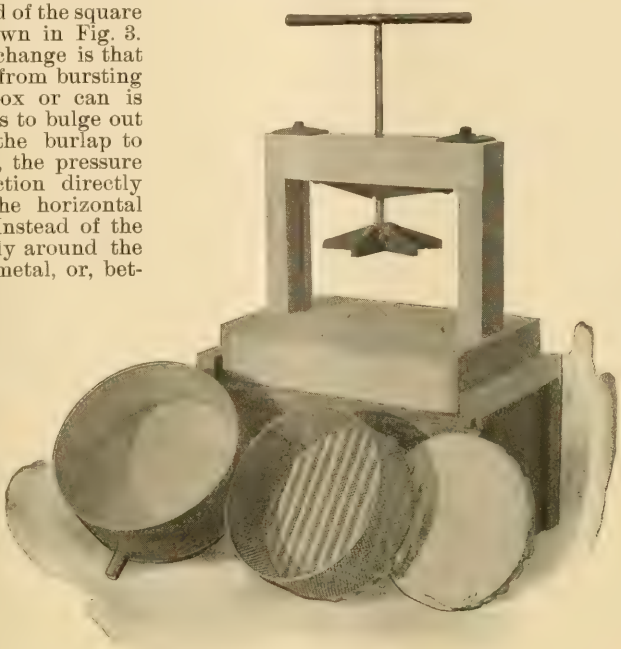

FIG. 4.—MODIFIED HATCH PRESS.

Showing the round pressing box or can instead of the square one as in Fig. 3.

HONEY NOT ARTIFICIAL.

How to Prove this Fact to the Satisfaction of Customers; a Name-stamp for Each Section.

BY PROF. H. A. SURFACE

A member of the Pennsylvania State Beekeepers' Association has recently written to me, asking what can be done to make the public understand that pure white honey is not artificial. In replying to him I said that I have had no difficulty in this regard in the vicinity of Harrisburg, for three reasons:

1. My apiary is situated along one of the prominent trolley lines where hundreds of persons see it daily.

2. This summer I gave a public demonstration in State Capitol Park, showing how to remove bees from a tree and transfer them to a hive. Thus people know that I have bees and am producing honey.

3. Upon each section of honey which I put on the market I stamp conspicuously, "Fancy Honey, Guaranteed. From the Camp Hill Apiaries, H. A. Surface, Proprietor, Camp Hill, Cumberland Co., Pa." Thus the name of the producer is on each package, however small, and his guarantee is there. I have no trouble whatever in selling this honey, and there are no evidences to cause people to think it is impure with

this guarantee. In fact, it is just what it is guaranteed to be—viz., "fancy honey." To build up a trade, no other kind should be used. After a trade is established, poorer grades of honey may be sold, but should not be sold for "fancy." After the people become interested in honey, and know something about its use, they will readily learn that there are different grades, and will then not be suspicious because some is light, some amber, and some dark.

A great deal has been said as to whether we should label our product "Pure Honey." This appears inadvisable, because it carries with it the idea of the possibility of finding on the market such material as *impure* honey. In stamping on all of my sections the words "Fancy Honey," and "Guaranteed," I am guaranteeing this product to be of the grade known as "Fancy," and since it is true that there are different grades of honey, this carries with it no implication of adulterated or impure honey. In my opinion this solves the problem of labels or brands, and at the same time does the producer justice by an advertisement of good material, and also gives the consumer a feeling of security in purchasing and using material produced by one whose name he knows.

My advice to every person producing material of any kind that is to be used by the public is to develop a market near his home, or as near as possible, and, by doing a strictly first-class business with high-grade goods, make a reputation that will at once secure for him prices above the average market price and relieve the product of the suspicion of impurity. A properly sustained reputation, in a region where a person is already known, should become one of a business man's most important assets.

Harrisburg, Pa.

THE VALUE OF ALSIKE CLOVER FOR BEES.

On page 230, in regard to the long-tongued bee, if the bee-keepers would sow more alsike clover they would not need to breed such bees, and they would get more honey. The alsike should be mixed half and half with red clover. The bees will work strongly on the alsike, and will carry the pollen from the alsike to the red clover; and if this method is kept up for a few years the red clover will make a good honey-plant. There is no better plant for honey than alsike clover, and the hay will make the best of feed for cows. With alsike clover the farmer gets three crops a year—two crops of fine hay and a crop of fine white honey. Alsike clover will not dry up like red clover. It will stay green. It is a good clover to sow with timothy. It is green when timothy is ready to cut, and will make a better feed for stock, and a fine pasture for summer.

Kewanee, Ill. W. W. CAIN.

[The scheme you outline has been tried, but, so far as I know, without success. It is doubtful if it ever can be.—ED.]

HOW TO COMBAT BEE-BIRDS.

In some parts of the world bee-eating birds are dreaded by bee-keepers. Luckily the United States is not much troubled with their attentions. California bee-keepers suffer from them sometimes, and in Porto Rico there is the bee-martin which loves to hang around an apiary and pick off the bees as they return. In other parts of the tropics various species of birds prey on bees with more or less pertinacity and success. In the southern part of Europe, notably in Spain, the bee-eater (*Merops apiaster*) is a devoted and relentless enemy of the bee-keeper, gathering in large numbers to devour the bees. Virgil and other writers allude to this un-

pleasant pest of the apiary. The foregoing illustrates a very forcible method of dealing with these birds. They have a habit of perching by preference on a dead limb or wire to see better, probably, and this is their undoing. Wait till several are quietly settled, and then shoot. Even a poor shot can make a good job of it.

Medina, O. W. K. MORRISON.

ALEXANDER'S ARTICLES APPRECIATED; HIS PLAN FOR BUILDING UP WEAK COLONIES A SUCCESS IN THE HANDS OF ANY THINKING MAN.

As an encouragement to those who intended to try the Alexander plan of uniting weak colonies to strong next spring, but who, after reading the unfavorable reports, page 1189, are undecided whether the plan will be a success for them or not, I will say that the plan *is* a success for every thinking bee-keeper who, before he tries it, reads the instructions carefully, not only once but several times, until he knows them by heart. There are some things in the Alexander treatment that *must* be carefully noted. He says: "As soon as they have some uncapped brood in their hives." Now, it must be observed that there is unsealed brood in both hives or else the plan will be a failure; and, if I understand Mr. Stewart, p. 1190, that is the cause of his failure; for if there is unsealed brood the bees will not desert their brood-nest.

Mr. Snowden, probably, in placing the weak colonies over the strong, used smoke, or in some way started the bees fighting. The best way, I think, is to mark your weak colonies and get the strong ready by placing a queen-excluder on top under the cover, then wait till night, and quietly remove the cover of the strong colony, and carefully place the weak over it, but do not disturb the bees with smoke or in any other way. If you think your bees are too cross, use the following method that some one described in GLEANINGS:

"Over the queen-excluder place a piece of burlap or mosquito-wire, leaving it between the colonies for 48 hours; then remove it quietly, and the bees will not fight, and, by the way, this is a good way of getting rid of laying workers in a neglected colony. I would not advise feeding the upper colony, but, rather, give them a frame with honey before uniting; but if you think you have to, remember that Mr. Alexander tells us to give them only a few spoonfuls in a comb next to their brood; for if you give them more you will start the bees below robbing from the weak, and consequently you lose your queen.

I wish you would convey my thanks to Mr. Alexander for his splendid articles on simplified bee-keeping. CARL O. JORGENSEN.

Dorchester, Mass.

DID THE BEES MOVE THR EGGS?

I believe if our friend Stachelhausen could see what I saw in the spring of 1905 his skepticism with regard to eggs or larvæ being moved by the bees would be removed. That spring I purchased some queens from a Southern breeder, receiving them the 5th of May, and introduced them in colonies of black bees. On examining the colonies on the 11th I found a queen-cell on an empty comb containing a larva about two days old. The cell was on the opposite side of the comb from the brood-nest. I cut off the cell, as I wanted them to, accept the queen. In look ing over them about ten days later I found about half of the brood in the hive was drones, and, to my surprise, they had two nice queen-cells on an empty frame with an empty comb between it and the brood-nest. I hatched these cells in a nucleus. They were from the Italian queen. I did not kill the queen, as I should have done, but the bees did it for me in the next few days.

Elvaston, Ill. C. S. CALDWELL.

[While it is probable that the bees moved the eggs, there is no positive proof that they did.—ED.]

THE MOTH AND THE FLAME.

Like many others I have often wondered why the moth flies to the flame; and it was when I found that a bee which got shut into the house just before dusk would fly at a lamp, just as it would at a window-pane in the day time, that I began to see light. For the bee, light meant an opening for exit; darkness, an enclosure or obstacle; and then as I watched moths, and experimented with them, I found that it was the same way with them. I think I have found the solution of the problem of "the moth and the flame," and it was the "busy little bee" that gave me the clue. J. E. WALKER.

Shaowu, Fookien, China.

[I confess the above is new to me. I had often wondered why moths, bluebottle flies, and other insects, so persistently bump their heads against the chimney of a lamp or the electric globes; and since our brother suggests it, it seems to me very likely he is right, that they regard the bright light as a place of exit, exactly as they would fly to a knot-hole through the boards in a darkened room. Friend W. has an article on the same subject in the *Scientific American* for Sept. 1, 1906.—A. I. R.]

LIVE BEES AS A FOOD FOR CHICKENS.

The note on chickens and live bees in the November 15th GLEANINGS interested me. I should like to know whether any of your readers have ever tried the experiment of feeding live bees to young chickens which had been kept enclosed away from the bee-yard so that they would have little chance to acquire experience with the bees.

New York, Nov. 27. M. A. BIGELOW.

FASTENING STARTERS IN SECTIONS BY THE USE OF A SHEET OF MICA DIPPED IN HOT WAX.

As you are continually on the lookout for the best way of doing all kinds of bee work I should like to have you try my way of putting foundation in sections. If we get a large per cent of fancy honey we need to have the foundation part just right—not pretty nearly right. If we do the work with the hot-plate method, and have the sheets as variable as they will be, not every section will be satisfactory; that is, some sheets will be a little too near one one side and some a little too short to be fastened to the bottom. It is not difficult to cut up the sheets the right size. What we want is to have them stay the same size when fastened in the sections, and as near one side as the other. That is what I am able to do now, since I discovered that a piece of mica (such as is used sometimes in the doors of coal-stoves) is just the right substance to dip in a little dish of melted wax to fasten the foundation to the sections. Spacing-blocks to fit inside of the sections should be used, and of the right thickness to have the foundation in the center of the section. These blocks should be nailed on a board so as to be right for one section-holder of sections at a time; then when filled they are taken off the blocks, a holderful at a time, and put right in the supers.

Have several boards with spacing-blocks and cleats arranged to hold four sections at a time. I had two small helpers, and all I did was to sit at one corner of the table and fasten in the foundation while my helpers placed them for me; then when they were cool enough they turned them right side up and filled the

supers. Have the helpers stand on the opposite side of the table, and have the surface of the table in two parts by nailing a strip in the middle. The sheet of mica should be of the right size to reach across the edge of the foundation.

One edge of this piece of mica sheet should be strengthened for a handle by nailing two little strips of wood on each side of one edge. If other bee-keepers should think as much of this as I do, hot plates will be used less. I didn't have a sheet drop out; and, though I did the work very rapidly, every one was in right. F. C. HUTCHINS.

Massena Springs, N. Y.

[There is much in getting used to a thing. Your plan is all right, except that it requires several spacing-boards and two helpers. The hot-plate method requires only one operator.—ED.]

GOETZE'S CELEBRATED PAINTING.

The picture in the Royal Academy exhibit this year which caused the most sensation is a large canvas painted by Sigismund Goetze, entitled, "Despised and Rejected of Men." We give a reproductien of the picture, which, as is easily seen, is a sermon on canvas. The painter-preacher says that all mankind are indifferent to the Christ, the mother bending over her babe, the man and woman of society, the scientist and the sportsman, the workman and the soldier, the ecclesiastic and the literalist—all are as indifferent to the thorn-crowned Christ as the newsboy shouting the sensation of the hour.

Of all the throng, only the hospital nurse turns and looks on the Savior, and her face expresses more of alarm than aught else. It is a pointed sermon, yet, perhaps like other sensational sermons, it is overdrawn, and hence misleading. Certainly there are thoughts of God in the world. When he cometh will he not find faith on the the earth?

The editor of the *Epworth Herald* says: "It is a sermon of the palette and brush, more graphic and and incisive than any that has been uttered from the pulpit in many a day. The painter has turned preacher, and the Royal Academy of London is his pulpit.

"But it tells only a part of the story. That part is terrible, and should be told; but the other part should be recited also, for it is a story of adoration, obedience, joy, hope, faith, devotion, achievement in the name and for the glory of Jesus Christ. He is to many, alas! an unknown God. But not all have gone with the multitude. There ought to have been room in that picture for the saints of God who are on earth, and who serve him every day with a sweetness, sincerity, simplicity, and fidelity as pure, true, and great as ever established in sanctity any saint who is in heaven."

DESPISED AND REJECTED OF MEN.—A SERMON IN A PAINTING.

See Our Homes, on opposite page.

He is despised and rejected of men; a man of sorrows, and acquainted with grief; and we hid as it were our faces from him: he was despised, and we esteemed him not.—ISAIAH 53 : 3.

Almost every day some new magazine or periodical is presented to my notice, and I have wondered again and again if this great wide world could take care of them all, read them all, and support them all. Several times I have been tempted to say we have magazines enough, and I was *almost* tempted to add that I did not want to see any more new ones. And then I reflected that every little while I come across something perhaps in the new magazines or periodicals I would not have missed for quite a sum of money. Well, a few days ago my youngest daughter brought me a magazine entitled *The Christian*. She said, "Papa, here is something that will interest you, I am sure," Then she held before me a picture representing a copy of a celebrated painting now in London. You will find the picture that met my gaze, on the opposite page. I looked at it, and as I gathered its significance the tears came into my eyes. Yes, even I in my old age had a good cry by just looking at a picture. Every little while I would look from the picture to the title, "despised and rejected of men;" and then the tears came again. I cried because I could not help feeling that the picture gave us a glimpse of the true state of affairs even in this present age. The descriptive matter that was given with the picture is also given on the opposite page.

That poor human form with his agonizing crown of thorns is bowed in grief over the carelessness, indifference, and selfishness of humanity. Although he *is* the Son of God he came to earth and assumed a human form like ours. He felt as we feel, and he suffered as we suffer, yet he was without spot or blemish. The old hymn says:

Was it for crimes that I had done
He groaned upon the tree?
Amazing pity, grace unknown,
And love beyond degree.

While he is held up prominently before all the world (for all the world knows *now* of "Jesus and the cross"), the multitudes pass by; the priests fold their hands in a holy sanctimonious attitude, and yet turn their heads the other way. The millionaires, the money-makers, and the fashionables belles of society, do not give him a passing look, much less a passing thought. Their heads are tipped in lofty disdain, for they look away *above* "Jesus and him crucified." Even the newsboy, in calling attention to the most important things in this world, from his point of view, ignores the suffering Savior. In our thanksgiving sermon a few days ago the good pastor, B. N. Tanner, said, in summing up our reasons for thankfulness, "Brethren, what is it that really *exalts* a nation? Is it prosperity, such as we have been discussing? Is it education? Is it mental and scientific progress? Is it even conquering and preventing disease? No, not any of these. What is it then? The good Book, this *old* Book, the Holy Scriptures, tells us that it is *righteousness* that exalteth a nation. Now, friends, are we as a people, are we as a great nation, seeking *first* "the kingdom of God and his righteousness"? I fear we are not. I fear we are *forgetting* that this same righteousness is of *more* importance, and is above all and over all."

I delight in seeing this progress; I rejoice in all new inventions. I lift my heart in thanksgiving and praise when we surmount difficulty after difficulty in science and mechanics. I rejoice when we succeed in combating disease, in making the Panama region a healthy place to live in while we undertake the greatest piece of engineering the world ever saw.* But a feeling of sadness comes over me when I hear of graft and greed and extortion; when I am forced to admit that this great busy world with all its talent and ability is too much like the picture where the people are, day after day, month after month, year after year, and *century after century*, pushing by, scarcely stopping to look at the image of the suffering Savior, the thorn-crowned Christ. Thank God, there is *one* individual in that picture who has stopped and noticed the "despised and rejected of men" —a hospital nurse. Her womanly spirit cries out in protest. The painter has put whole sermons in that look. Thank God, if it is indeed true that *men* are as a rule indifferent to his claims, there are some women who are ready to stop and rebuke by their looks and actions, if nothing more, a sinful world.

When I was in the busy city of Leed, in the Black Hills, in South Dakota, I landed after dark. With the rushing multitude I went to a hotel and asked for a room. Remembering my former experiences, however, I told the clerk I wanted a room with *outside windows*. He then said that I would have to pay a price that I did not feel like paying. May be it is all right, friends, but I feel as if it were an outrage to be asked to pay more than the majority of people get for a day's work, for the privilege of having a breath of God's pure air. I felt homesick. Yes, I do get homesick when I am away among strangers, a stranger in a strange land. I told the clerk that, if he would excuse me, I would not take the room. I then got on to the trolley car and rode a mile or two out of the city. There I found a hotel where I could get a very comfortable room for *fifty cents*. Now, the dollar I saved was not because I was greedy, but because I felt as if I would rath-

*Come to think of it, if I am not mistaken there was just a little graft and selfishness exhibited in the early undertaking of that same Panama canal, was there not, friends? And this graft did not exactly exalt that nation, especially in the estimation of the other nations of the earth when the matter came out

er put it into missionary work or give it to the Anti-saloon League, in accordance with that other text in the precious word of God, "Lay not up for yourselves treasures on earth, where moth and rust doth corrupt, and where thieves break through and steal; but lay up for yourselves treasures in heaven, where neither moth nor rust doth corrupt, and where thieves do not break through nor steal." I thought I could invest the money to better advantage than paying it out for an expensive room that would not add to *my* comfort.

Just as I knelt down by my neat clean bed to thank God for his mercies, and to ask him to help me to be of some use in that strange land, a sudden answer came to that prayer, that thrilled me through and through. It was worth more to me than anything money can buy — yes, a thousand times more than expensive hotels or even whole cities. It seemed a little wonderful, and yet it was a simple thing after all. I had the two windows open in my room (as of course I would as it was a warm evening), and there was evidently a window open in some neighboring building, for from that open window came floating across to me, in a sweet motherly voice, the words,

A never-dying soul to save,
And fit it for the sky.

This good woman, whoever she was, was evidently busy about some household duty. The hymn came only in fitful snatches. Now, I have before heard women at work sing a stanza or two, then when at liberty they would resume it and sing a little more. Perhaps your wife has done the same thing, just as my wife does; and, oh how I do love to hear those *spontaneous* bursts of song interspersing the daily routine of household tasks! The singer waited a moment, and then she burst forth again:

Arm me with jealous care,
As in thy sight to live;
And, oh thy servant, Lord, prepare,
A strict account to give.

I have attended great concerts; I have heard celebrated singers; but none ever gave me such a thrill as those old familiar words that my father used to sing when he was a carpenter working at the bench. I think I can remember when, in answer to my mother's prayers, he was converted to the Lord Jesus Christ—the time when he stopped work and every thing else, and gazed on that Savior, and then knelt at his feet, putting his whole life into the dear Savior's care and keeping. What a happy man he was then! He would, while at work at his carpenter's bench, suddenly burst forth with snatches from some of those old hymns in a way that would almost startle people.

That night I went to sleep happy, as you may imagine, at peace with God and with all the world. Soon in my dreams I was with a crowd of friends. As I hurried along my foot struck some obstacle. I looked at it curiously. Said I to those present, "Why, what is this?" and I stooped down and picked it up. It had a familiar look. Some one replied, "Why, dear me! It must be the crown of thorns where it was dropped when Jesus was crucified. It has been kicking about through all these centuries, and nobody has noticed it or stopped to pick it up until our old friend A. I. Root came among us."

When I woke up in the morning and began to collect my senses I almost thought my dream of the night was real; and then I wondered if the snatches of that *hymn* were only a dream. Well, I looked in my pocket diary, and there were the pencil-marks as I hastily noted it down the night before—

A never-dying soul to save,
And fit it for the sky.

I knelt down and prayed again that God would help me to use better the remaining days of my life toward that one end as expressed in that beautiful hymn, to help fit and train some of these little ones for the sky instead of for death and ruin.

In closing I wish to make an extract from that excellent home paper, the *Sunday-School Times*. My dear friend, if somebody should ask me what is the best paper in the world to have in the family, and to have the children, father, and mother read daily, I do not know but I should say that it is this same *Sunday-School Times*. I would have that first; and if I were a farmer or gardener I would have the *Rural New-Yorker*. I do not know but I would have GLEANINGS too, if you will excuse me for this little bit of selfishness. But here is the extract from the *Sunday-School Times:*

Physical health may be an animal's first duty, but it is not man's. It is a man's duty to keep as well as he can while he does what God calls him to do. But he can never even hear God's call if he is thinking chiefly about his health. Nations are not founded, nor heathen lands evangelized, nor canals digged, nor frontiers extended, nor the kingom of heaven moved forward in this world, by men who are thinking most about keeping their bodies well. The world would have been lost if one man had not been willing to give up his life for it. And the mystery of it is that physical health is so often for the first time found after it is endangered. A chalky-cheeked, consumptive Connecticut man in the sixties was told that he would not live two weeks if he responded to the President's call for more men. He enlisted, and for the first time found health in army-life exposure; and for forty years more he continued to be just as imprudent in God's service. Such "imprudences" are a better safeguard than a health policy.

The special point I wish to call attention to is this: "The world would have been lost if one man had not been willing to give up his life for it." When writing my health notes, and dwelling so much on what we should eat to be well and strong, I confess my conscience has troubled me several times because I have spent so much time in dwelling on the "things that perish." Health is a very important matter, it is true; but, dear brother and sister, let us not forget that we had better be sick every day of our lives — yes, we had better be crippled for life—than to be in the bondage of sin.

Now, if this copy of that wonderful painting gives you such a spiritual uplift as it did my poor self, then my talk to-day will not have been in vain. Even if it *is* true that he was "despised and rejected of men, a man of sorrows and acquainted with grief," it is

also true that he *is* and always *has been* and will be for *evermore* "the Lamb of God that taketh away the sin of the world."

SAVING SEED CORN; SOMETHING ADDITIONAL TO WHAT PROF. HOLDEN HAS BEEN TELLING US.

Perhaps I might remark that Ohio has the credit of giving the largest yield of corn per acre of any State in the Union. Now, in addition to this, Prof. Holden says the farmers of Medina and adjoining counties are considerably ahead of the rest of the State; and Prof. Green, of our Ohio Experiment Station, recently told me that more farmers from Medina Co. visit them than from any other county in Ohio. Now, this prefaces what I want to tell you about the corn convention that the farmers of Medina Co. held in one of our largest halls, Dec. 8. Prof. Williams, of the Ohio Experiment Station, gave an address. I will mention just one or two points. It is something that Prof. Holden did not allude to, if I am correct, and it was an eye-opener to me. Said he:

"Friends, when you go to the corn-cribs to pick out the best ears of corn you are almost sure to get ears that grow on stalks where there was only one stalk to a hill, or in a place where the hills were missing around it. Now, that is not what we want at all. We want to select our seed from choice ears that grew where there was a perfect stand. We want to find a strain of corn for seed that makes a desirable ear because of its inherent vigor and vitality, and *not* because of its environment."

You see the point, friends. Almost any stalk of corn would make a big handsome ear if it stood alone and no other stalk were near it; but the credit in this case comes from the *large area* rather than from the vigor or vitality of that particular plant. The moral was, that there is no way to get this high-grade seed but to go through the field in September and tie a red rag around the ears you judge will be the most desirable ones. But you want to mark a good many more ears than you will be likely to use. After husking-time these largest ears are to be weighed and culled. Some farmers mark the largest specimens by clipping off the tassels with a corn-cutter; but as the stalks are liable to be broken in husking, this is not as reliable a plan as to use a "red tape." One more point was something as follows:

"I suppose most of you have injury more or less from corn being broken down by windstorms, big blows, etc. You probably decide that these things can not be helped; that tornadoes are the "act of God," as the railroad companies put it, etc. But look here. Down at our Ohio Experiment Station last year we planted a great number of ears of corn, in a field so long that *each ear* made a whole row; and I will just tell you one of the things that we found out by this experiment. After a big rain and windstorm, row No. 1 was nearly half broken down; row No. 2, worse still. Only here and there was there a stalk standing up; but, lo and behold! row No. 3 was standing up almost entire from beginning to end, only an occasional stalk being bent over and broken off here and there. What does this teach? Why, that some ears produce a stouter and *stronger stalk* than others. If we save our seed corn from this row that did not blow down, for next year, we *should* have a field of strong stalks that would stand most blows. Now, suppose the ear that produced No. 2, where they broke over so badly, had been planted in the usual way and the product scattered all through the field. Then you would have seen the broken-down stalks all over the field, and supposed, of course, there was no remedy."

After he closed I said to him, "What a pity it is, professor, that wheat and oats do not grow on ears so we could work the same plan with them!"

"Why, bless your heart, Mr. Root, we can do the same thing with wheat or oats, even better than with corn. Each grain produces toward a dozen stalks, and we just take up the whole hill with all the heads, and make our tests, and, if desirable, plant."

Then I asked about green corn and popcorn. He said there was no question but that the same plan would work. "Finally," said I, "why can we not go on with beans and all other garden vegetables? and not only this, but considering what can be done with plant life is it not possible to work the same with domestic animals?"

"Why, to be sure it is, Mr. Root. Great progress is being made in weeding out the unprofitable cattle; and with the trap nest we are getting strains of fowls that produce 200 eggs a year—yes, 250, and I believe there are a few cases where a single hen in one year's time laid over 300 eggs. A flock of poultry where the drones and those that lay only occasionally have been weeded out will yield an immense profit compared with the ordinary flocks in farmers' dooryards."

Of course, the above is not exactly his talk, but it is the substance of the conversation; and do you not think, friends, that every branch of rural industry is showing us possibilities that heretofore the most sanguine have never dreamed of? Luther Burbank is by no means the only man who is developing new and unexplored regions along this line.

MY DUCK STORY.

While visiting with George W. Park (the great flower-seed man), at Lapark, Pa., last

summer, he told me there was a duck-ranch newly started, not very far away, and he had been told they had been running it on a very large scale, and he suggested that we drive over and see it. I told him I was always interested in ducks, because one of my first boyhood ventures was setting some duck eggs, that we found at our country store, under a hen. After they were hatched out I made a miniature pond for them, and the antics of those ducklings in the water was one of the joys of my childhood. Finally a big cat discovered they were "good to eat," and my duck speculation suddenly played out.

Well, friend Park and I found the place where a lot of new buildings had just been put up, and a great lot of duck pens were made on the side-hills sloping down to a pond of water. Each enclosure had a building for shelter and also included a portion of the pond, so they could all get into the water when they felt so inclined. As we drove up and asked permission to look over the plant I said to the manager, "Why, my friend, how many ducks *have* you here all together?"

"Well, stranger, to be exact, there are, as nearly as I can make out, just now 9987 ducks all told, big and little."

"Whew! Can't you manage somehow, by stretching the figures a little, to call it an even *10,000*?"

"Well, I suppose I might if I tried hard. Come to think of it, I have not been down to look at the incubators for a couple of hours; and I should not be surprised at all if there were enough hatched out by this time to make up the 10,000, and may be a little more."

Well, this immense ranch, although it had been running only a few months, was a grand success—that is, so far as we could discover. It seems here they did not allow the little ducks to go into the water. I do not remember the reason why, and perhaps they did not tell us. The little ducks, like the big ones, have a building for shelter, and this building is divided off so there are, perhaps, only forty or fifty ducks in a pen. Each pen has a poultry-netting inclosure outdoors, so the ducklings can go out whenever they feel inclined. Most of them were outdoors, stretched out in the sun; but when the sun came out too hot, some of them would go over to a shady place provided for them. They were all so healthy and strong I began to be a little suspicious. Said I, "Why, my friend, with all these hundreds and *thousands*, you certainly must have some sick or ailing ducklings. Where are they?"

"Oh! they are off at the hospital. Just as soon as a duck shows any weakness or indisposition it is put off by itself, if there is any possible chance of contagion. If you want to see the hospital it is over this way."

Well, out of 10,000 (perhaps only half of that number little ones), there were, may be, forty or fifty sick ones. There were a *few* almost dead, and some of them, evidently, had not decided whether they would live or die; and then there were quite a few that were getting so as to run about. These were sorted out and put into a convalescent-pen; and when they showed full health and vigor they were allowed to go with the others. I do not know what the average mortality is, but I think it is not very much after they get beyond a certain age. I can not tell you any thing about the profits of such an institution; but I presume that, where intelligently managed, and when the market price is fair, it pays very well; but I do not think any man living can run such an institution successfully until he has commenced on a small scale and worked up; and unless he is right on hand, and on the alert, with the aid of all that modern science can give him, he is very apt to have a sudden collapse in his finances. Whenever great multitudes of domestic animals are brought together on a small area, contagious diseases are almost sure to break out. But it is encouraging to know that modern science and skill are making headway.

We can grow ducks by the thousands; we can manage the hog cholera, and even tuberculosis in cattle; and I think it is accomplished along the line in which these people have succeeded with their duck-farm. Last, and not least, skill and science seem to be demonstrating that we can take a great crowd of men into a malarious locality like that of Panama, and so manage that the average mortality will not be greater than in what are called healthy localities in the North. May God be praised for what has been accomplished by earnest study and careful experiments.

RATS—WHAT SHALL BE DONE?

I have just asked our Ohio Experiment Station to advise us in regard to getting rid of rats; and I think it high time that the Department at Washington should send out a bulletin advising farmers as to how they can best manage the rat problem. If any of our readers have had experience in banishing rats by the use of ferrets, we should be glad to hear from them. Some years ago we used a ferret, but the rats came right back soon after the ferrets had been taken off; and it is something of a care and responsibility to keep ferrets on the premises.

MORE ABOUT THE RAT BUSINESS.

The following comes from our good friend R. H. Lodge, Silver Lake, O.

Take a large iron kettle to the place where the rats run, and fill it half full of rye and chaff. Then a board is placed with one end on the kettle and the other on the floor. In two or three days all the rats on the premises come there to eat. Then the rye and chaff are removed and water put in, and some chaff scattered on it. The rats jump in as usual, are drowned, and are taken out every morning and buried. Over 200 have been caught thus within three weeks.

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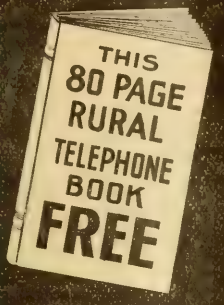

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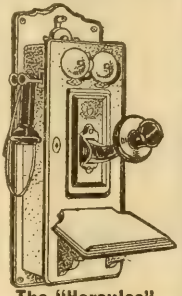
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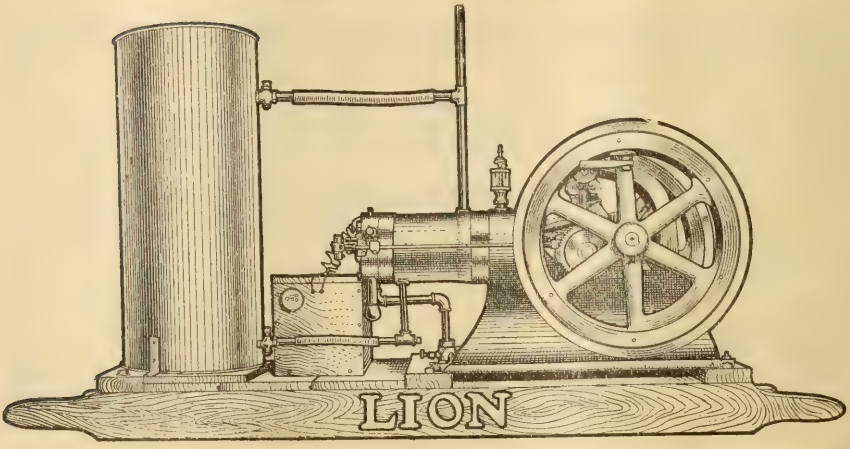

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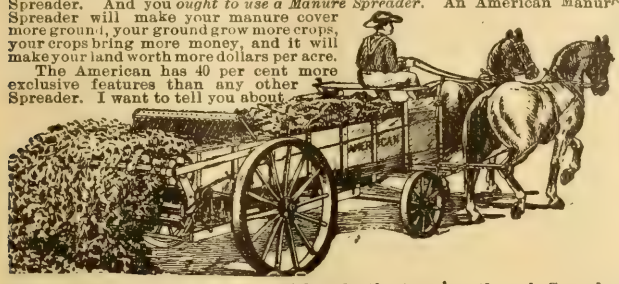

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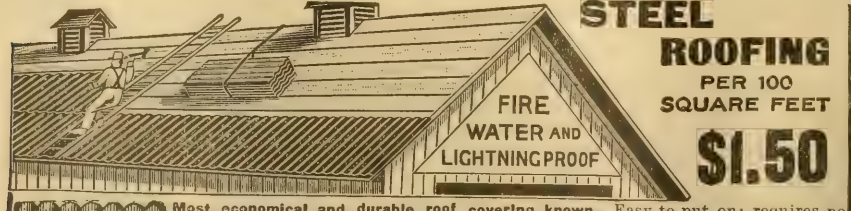

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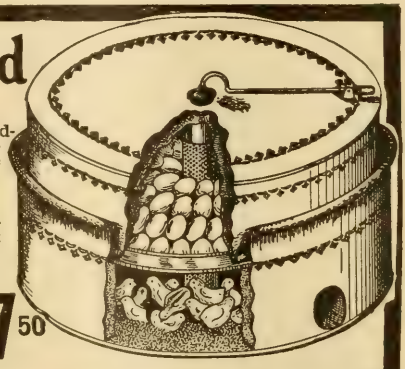

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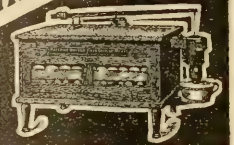

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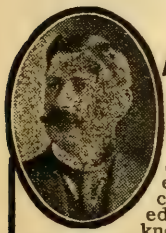

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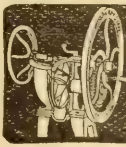

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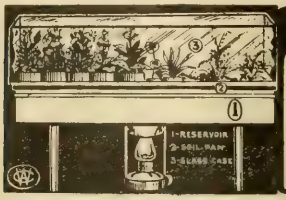

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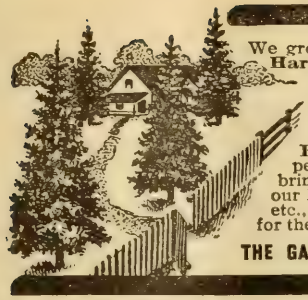

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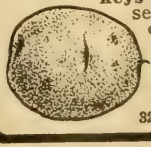

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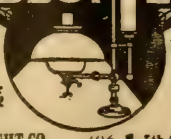

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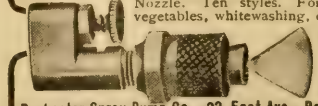

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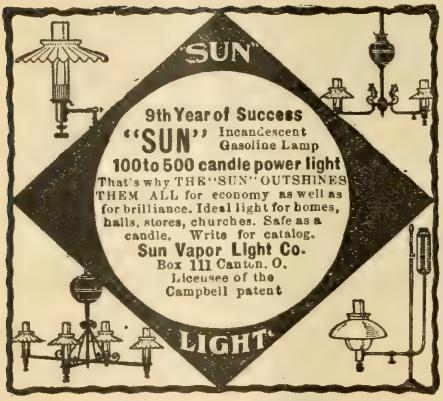

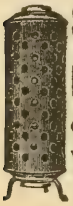

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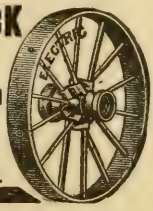

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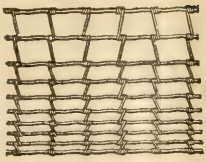

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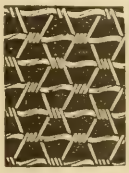

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I am fully alive to the importance and value of good queens for profitable keeping of bees. I think I can raise just as good queens as anybody. I will book orders for 1907 at the following prices: Each, 55c; $6.00 per dozen; $45.00 per 100. Also eggs to hatch, Buff Wyandotte, R. I. Red, S. C. Buff Orpington, Barred Rock. Circular free.

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WANTED.—Situation by a boy of 14 in apiary or on a poultry farm; would be willing to work his way.
Address C. W. WEBSTER, Maxton, Ariz.

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WANTED.—Young man to help on farm of 26 acres.
O. D. BELDING, Claremont, Va.

WANTED.—Several farm-raised young men to work by the year on market-garden farm where bees are also kept. State wages expected.
MILAN STILL, Winona, Wash.

WANTED.—A good man, single, to work on small farm by the year. Would take a man who wishes to learn bee-keeping. Tobacco and liquor users not wanted. State salary expected—age, experience, etc.
EDW. WILKINSON, Wilton, Wis.

WANTED.—Local representative to handle the sale of our new Unrivaled Series of Charts and Surveys, showing every state and foreign country, reliable, historical, and descriptive matter, beautifully illustrated. We anticipate sale large enough to net our representatives from $300 to $800 in every county.
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FOR SALE.—At a bargain, machines for making bee-hives and sections. C. A. GRAVES, Shelby, O.

FOR SALE.—Fine job-printing outfit.
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FOR SALE.—Beagle hounds, best blood; bottom prices; photo free. D. S. HALL, So. Cabot, Vt.

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FOR SALE.—Comb foundation, both brood and surplus. Beeswax worked into foundation at a very low price. Send for price list and free samples to
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FOR SALE.—A B C of Bee Culture (1907) free with order for bee-supplies amounting to $15.00 or over, at factory prices, before May 1.
S. D. BUELL, Union City, Mich.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1908 send your name and address to FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE.—Till Jan. 1, best Wisconsin sections per 1000, $4.00; No. 2, $3.40; plain, 25c less. Big discount on Danz. hives and other Root's goods; also berry-boxes. H. S. DUBY, St. Anne, Ill.

FOR SALE.—A 15-acre fruit-farm close to a county-seat town of 4000 inhabitants; one acre each of strawberries, raspberries, blackberries, and grapes; 130 cherry, 175 plum, 400 peach trees in bearing; good improvements, good schools, and good home market. An ideal place for a fruit-grower and bee-keeper. Plenty of white clover. For further particulars address L. C. CLARK, Hiawatha, Brown Co., Kan.

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FOR SALE.—Two sections of good Iowa land; 8 sets of buildings; your choice of 160 acres at $56.00 per acre; 40 miles north of Rockwell City.
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FOR SALE.—Will sell my valuable ten acres of fruit and truck farm for one-half what it is really worth. One mile to center of good town of 7000; best market known for fruit, truck, and honey. Write for price and description. Great bargain here.
J. B. DOUGLAS, Mena, Arkansas.

FOR SALE.—Ninety second-hand double-walled chaff hives, no inside furniture, at $1.00 each, f. o. b. car here. They consist of 40 ten-frame Quinby and 50 thirteen-frame Gallup. These hives are in fairly good condition, and the reason for selling is that, with our system of out-yards, we do so much moving from place to place, we have decided to put our bees into single-walled hives. Write for particulars.
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FOR SALE.—A Florida home is offered cheap, owing to old age and infirmities. Six acres of land, all cleared, and fronting on a fine lake. A good two-story house on cement foundations; a few bearing orange-trees and grape-fruit, guavas, and grapes in great abundance. A good chance for a bee-man. Twelve stands of bees in frame hives, on cement and iron. An excellent honey-extractor; ¼ mile to church and school; ½ mile to store and postoffice. Call on or write to me. J. A. BARBER, Chuluota, Orange Co., Fla.

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FOR SALE.—100 colonies of bees, in Higginsville ten-frame hives. R. L. WEBB, Waverly, Mo.

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ALBERT LANE, Vordan, Sac. Co., Cal.

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QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

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FOR SALE.—Choice poultry. Ten leading varieties for the farmer or the fancier. Circulars free.
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FOR SALE.—S. C. White Leghorn Cockerels, $2.00; also pairs and trios. G. L. FERRIS, Atwater, N. Y.

FOR SALE.—Mammoth Bronze turkeys. Toms $5.00 each. Hens $3.00 and $4.00. Address
MISS ANNA LANSDOWN, Ft. Lupton, Colo.

Wants and Exchange.

WANTED.—Early American and foreign books on bee-keeping. A. L. BOYDEN, Medina, Ohio.

WANTED.—A location for a custom feed and saw-mill. 4432 South Grand Ave., St. Louis, Mo.

WANTED.—Hive of Italian bees for 80-egg Iowa incubator. H. H. HAWLEY, JR., Concord Jct., Mass.

WANTED.—Every one who reads this to send a postal for my circular on Caucasian and Italian bees and queens. Important.
A. D. D. WOOD, Lansing, Mich.

WANTED.—To exchange modern firearms for incubators and bone-mills. Address
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OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange modern firearms for Indian relics. WM. S. AMMON,
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WANTED. Old combs for rendering. Also slumgum and beeswax. State quantity and price.
F. W. LESSER, Sta. A, Syracuse, N. Y.

WANTED.—To exchange one juvenile Imperial bicycle in good condition, and one Stevens rifle, almost new, for bee supplies. MAURICE A. GOULD,
New Sharon, Iowa.

Honey and Wax Wanted.

WANTED.—Fancy white-clover comb honey. Write us. INDIANAPOLIS DAIRY CO., Indianapolis, Ind.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.
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WANTED.—No. 1 and fancy white comb honey (unglassed), Danz. sections preferred.
THE A. I. ROOT CO., Medina, Ohio.

WANTED.—Beeswax. We will pay 30 cts. per pound for fancy pure yellow beeswax delivered in New York until further notice. CHAS. ISRAEL & BROS.,
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WANTED.—Immediately, honey in large and small lots for spot cash. Only dealer in Utah selling Root's goods at factory prices. Write us.
SUPERIOR HONEY CO., Ogden, Utah.

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Preston, Fillmore Co., Minn.

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HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—Well-ripened extracted basswood honey. Prompt payment on receipt; 7¾ cts. per pound, f. o. b, West Bend. H. C. AHLERS, West Bend, Wis.

WANTED.—20,000 pounds pure clover honey. Send average sample and state best price.
J. E. CRANE & SON, Middlebury, Vt.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here. GRIGGS BROS., Toledo, O.

WANTED.—To sell 4000 lbs. of white-clover extracted honey, put up in 2-lb. paper bags, and 1000 lbs. of same in 5-lb. bags at 9 cts. per lb., f. o. b., Flint, Mich. Cash to accompany order. This honey was not extracted until dead ripe, and is solid now.
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MRS. C. L. PARKER, Sta. A., Syracuse, N. Y.

FOR SALE.—Buckwheat honey in 60-lb. cans, at 6c per lb. C. J. BALDRIDGE,
Homestead Farm, Kendaia, Seneca Co., N. Y.

FOR SALE.—Extracted clover and linden honey in 60-pound cans, two cans in a case, at 8 cts. per pound; sample, 6 cts. C. A. GRAVES, Shelby, Ohio.

FOR SALE.—50,000 pounds California water-white extracted honey by the case or car.
H. J. MERCER, 731 E. Third St., Los Angeles, Cal.

FOR SALE.—Or exchange for bees or supplies, 200 homing pigeons. Address W. D., care A. I. Root Co.,
1100 Maryland Ave., S. W., Washington, D. C.

FOR SALE.—Choice extracted clover and basswood honey in 60-pound cans. It was extracted at end of season, and is very thick and well ripened. Price 8½ cts. per pound. Sample free.
J. F. MOORE, Tiffin, Ohio.

FOR SALE.—Four barrels broken comb honey, white clover; weight about 600 lbs. Price 8 cts. per lb., cash f. o. b. C. H. W. WEBER, Cincinnati, Ohio.

FOR SALE.—Fancy basswood and clover honey in barrels or 60-lb. cans; sample 10 cts., which may be deducted when ordering. ROBT. A. HOLEKAMP & SON,
4263 Virginia Ave., St. Louis, Mo.

Bee-keepers' Directory

This department is for the exclusive use of all-year-round advertisers. If you have any thing the bee-keeper needs, your card in this department keeps your name always before your prospective customers at half our flat rates. We reserve the right to reject or modify any ad. not eligible to these special rates.

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GOLDEN-ALL-OVER Caucasian Banat bees and queens. We book orders for early queens from our best imported breeding stock for honey, with 600 twin mating-boxes. THE SNYDER APIARIES, Lebanon, Pa.

QUEENS.—Improved Red-clover Italians bred for business; June 1 to Nov. 15, untested queens, 60c; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

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From this date until further notice we will pay 30 cents cash, 32 trade, for average wax delivered here or at our branch offices. This is a higher price than we have ever paid before at this season of the year. If any of our readers have any wax to dispose of we shall be pleased to hear from them. Be sure to mark your shipment with your name so that it may be identified on arrival, and mail us shipping receipt with gross and net weight of shipment.

COMB FOUNDATION ADVANCED.

We came to the close of the season last July with a good stock of beeswax on hand, which, with what we have had from producers, has kept us going till now without our buying from wax-dealers. When we come to replenish our stock we find that the supply is short, and prices have advanced sharply, so that the market at present is fully 2 cents a pound higher than at this time last year, and fully as high as at any time during the past two years. It is unusual for prices to be so firm this early in the season, and we are not warranted in issuing our catalog with the old prices on comb foundation, as they would have to be raised very soon if the increase were not made now. We have determined, therefore, to mark up all prices 2 cents a pound. New prices—retail, wholesale, and jobbing—take effect this date. The revised retail list will be as follows:

GRADE	Size, and sheets per pound		IN LOTS OF				
			1 lb.	5	10	25	50
Medium Brood.	7⅞x16¾	7 to 8	58	55	53	51	50
Light Brood...	7⅞x16¾	9 to 10	60	57	55	53	52
Thin Super....	3⅞x15½	28	65	62	60	58	57
Extra Thin....	3⅞x15½	32	70	65	63	61	60

Special Notices by A. I. Root.

THE CONSUMPTIVE WOMAN WHOSE CHICKENS WERE STOLEN.

ON page 1449 I spoke of a woman threatened with consumption, having her chickens stolen, etc. One of our family suggested that the readers of GLEANINGS chip in and make up to her the loss of her chickens which she took so much care and pains with. I am glad to see expressions of sympathy for those who are in trouble; but it is my sad duty to tell you that this good woman died recently of the very disease that threatened her—consumption. Just think of it, friends. How can one calling himself a man be so depraved, and so lost to all that belongs to manhood, as to steal a poor woman's chickens under the circumstances I have mentioned?

HOW TO ROAST CHESTNUTS.

If you put them on top of the stove you must cut a slit through the shell or they will burst open and fly all over the house. Our Italian friends manage it by making a cross with a sharp knife. But that is considerable trouble, especially with the small American chestnuts. After considerable experimenting, my way is this: Unscrew the handle from your corn-popper, fill it with chestnuts, and set them in the oven. You will not forget and let them burn up as you might do with peanuts, for when they are cooked to a turn you will hear such a popping that no one on the premises would miss the message, "We are done—come and take us out."

Convention Notices.

The annual meeting of the Nebraska State Bee-keepers' Association will be held at the Experiment Building at the State Farm, Lincoln, Neb., on January 16, 1907. An interesting program on practical subjects has been prepared, and bee-keepers will be benefited by attending. LILLIAN E. TRESTER, Sec.

The New Jersey State Bee-keepers' Association will meet at the State-house, Trenton, N. J., on Wednesday, Jan. 16, at 10.30 P.M. Addresses will be made by the President, by Chas. Stewart, foul-brood inspector, Sammonsville, N. Y.; H. S. Ferry, Mt. Vernon, N. Y., J. H. M. Cook, Caldwell, N. J., and others. All bee-keepers, and especially ladies, are cordially invited to attend. G. N. WANSER, Sec.

Program of the second annual convention of the Washington State Bee-keepers' Association, held at State College, Pullman, Washington, Jan. 7—9, 1907.

FIRST SESSION.

Monday, January 7, 7:30 P.M.

Meeting called to order by the President. Reading minutes of last meeting, and report of Secretary and Treasurer.

Annual address of President, Anson S. White.

"The honey flora, and how to improve it; and zig-zag journeys among bee-keepers in Southern Idaho, Eastern Washington, and Oregon," by A. A. Hansen, Lewiston, Idaho.

DISCUSSION.

"Co-operation in buying supplies and marketing honey," by R. C. Aiken, Loveland, Colo.

DISCUSSION.

Question-box.

MORNING SESSION.

Second day, January 8, 9 A.M.

"Foul brood and other diseases," by E. F. Atwater, Meridian, Idaho.

DISCUSSION.

"Exhibiting apiarian products at fairs," and "A model premium-list," by Anson S. White, Cowychee, Wash.

DISCUSSION.

"Adopting a uniform package; best size and kind," by J. B. Adams, Kennewick, Wash.

DISCUSSION.

AFTERNOON SESSION.

1:30 P.M.

Election of officers.

"The pure-food law and its relation to apiculture."

DISCUSSION.

"Out-apiaries and their management."

DISCUSSION.

"Relation of apiculture to fruit-growing," by Professor F. A. Huntley, North Yakima.

DISCUSSION.

"The importance of a good location," by J. W. Thornton, North Yakima.

DISCUSSION.

EVENING SESSION.

7:30 P.M.

"Bee culture as an aid to nature study," by Professor A. J. Cook, Pomona, Cal.

Stereopticon lecture, "The wild bee and his evolution," by Professor A. L. Mealander, Pullman.

MORNING SESSION.

Third day, January 9, 9 A.M

"Producing comb and extracted honey in the same apiary," by Dan Macy, Walla Walla, Wash.

DISCUSSION.

"Queen-rearing and requeening," by Isaac Hayes, North Yakima.

"My experience," by J. W. Linley, Wallula.

DISCUSSION.

"Establishing a State Apiarian experimental station," by Professor E. E. Elliott, Pullman.

"The honey-eaters' league," by L. R. Freeman, North Yakima.

It Will SAVE You to Ask Our Special Time Price NOW on a Detroit Tongueless Disc Harrow

You'll **Save** in time—**Save** your horses and save much harder work for yourself, if you'll simply write a postal for our proposition on a Detroit Tongueless Disc Harrow today.

Don't let yourself buy any other kind of a harrow until you have heard from us. It's well worth your while to find out what you can do with us. Especially worth your while to know **all** about the Detroit Tongueless Disc.

No weight on the horses' necks—no bruises, galls or straining from sharp turns or rough, hilly ground.

No Tongue at All to Pound Around.

You hitch to eveners on the light front wheel truck. Then your horses pull straight ahead all the time, turning and all. No tongue to **cause** tipping.

We Allow 30 Days' Field Test FREE

This new Tongueless of ours was **The wonder of the age** in Disc Harrows last year when we had 1463 orders more than we could fill. Think of that.

There are good reasons.

Until we made and patented this Original Detroit Tongueless Disc nobody knew how to save the **awful draft** of those old **Tongue** Harrows. Ours is

The Lightest Draft Disc Harrow in the Market

It rolls smoothly everywhere you drive and is **The Easiest for Horses and the Driver.**

We can't tell you the whole story here. But we want you to know the **whole** truth about what **a desirable** harrow the Detroit Tongueless Disc is.

The best way for you to know is for you to try it free yourself for a month in your own fields.

We Pay the Freight

to your railroad station and even pay return freight if you don't find our Detroit Tongueless just exactly what we say it is, It won't cost any responsible party a cent to try it NOW, or at the time you want to begin your regular harrow work.

All you need to do is to say in your order when you want to test it. We'll ship promptly.

Ask for our free catalogue. That also tells all about how well built our Detroit Tongueless Disc Harrows are. That, too, will interest you. You can't make any mistake in writing us. We will take care of you liberally on a square deal.

This is only one of the Great Special Features—Truck Instead of Tongue

Order Now for Future Delivery

We advise you to send in your order right NOW, and we guarantee to make delivery when you want it. Handsome catalog and time prices on full line of sizes FREE. Write today.

Address **AMERICAN HARROW CO.**
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The man behind a Planet Jr.

knows it takes *more* work off his hands, and makes him do *better* gardening, than any other garden implement. Besides, **Planet Jr.** Seeders, Wheel Hoes, and Cultivators are **guaranteed**—no other maker uses such materials or puts such work into his tools. Half a million users know how long they last

The New No. 6 Planet Jr. Combination Hill and Drill Seeder, Wheel Hoe, Cultivator and Plow does the work of three to six men, and does it better Opens the furrow, sows any kind of garden seed accurately in drills or in hills 4, 6, 8, 12 or 24 inches apart, covers, rolls the ground and marks out the next row—all at one operation. As Wheel Hoe, Cultivator or Plow it adapts itself to every kind of crop, and is used all through the season.

We are glad to send anybody interested, our **New Catalogue** showing 1907 Planet Jr. implements—Seeders, Wheel Hoes, Horse Hoes, One-and Two-Horse Riding Cultivators, Harrows, Orchard-and Beet-Cultivators—45 kinds in all. **Write today.**

S. L. Allen & Co., Box 1106S, Philadelphia, Pa.

A New Factory

and also a new firm name, but in the same place with the same management. We have just put in a complete

Weed Process Comb Foundation Factory

of the very latest type, and we are now ready to work up wax for western bee-keepers at low prices. . . We want several thousand pounds of beeswax at once, and will pay top market price for same. Let us hear from any one having wax to offer. .· .· .·

Buck & Wilson, Augusta, Kan.

Butler County

One step won't take us very far;
We have got to keep on walking.
One word won't tell folks what we are;
We have got to keep on talking.
One inch won't make us very tall;
We have got to keep on growing.
Promptness once won't do it all,
We have got to keep on moving.

Single orders are good enough in their place,
But more are necessary to keep up our pace.

No doubt you are planning for next season's supplies. Write us for catalog and other information. Give us a trial. We can please you. By handling the Root Co.'s goods, with excellent shipping facilities, promptness, etc., we can serve you in a satisfactory manner.

John Nebel & Son Supply Co.

High Hill, Montgomery Co., Mo.

Mr. Texas Bee-keeper:

I should like to talk to you *personally.*

First, I want you to know about my supplies. I handle Root's Goods, of course; for I believe in giving my customers complete satisfaction—for that's better in the long run than low prices. My place of business is on the S. A. & A. P. Ry., just opposite the passenger depot, where I have built a warehouse 40×250 feet, and I have filled it full to the brim, for I handle Root's goods by the carload. This means I can furnish you with supplies with the utmost promptness.

Then, too, I have installed a complete Weed-process Foundation factory. I can turn out 500 lbs. a day. I can work your wax into foundation. In fact, my facilities in this line are not surpassed in Texas.

My can business is increasing by leaps and bounds. That is because of the quality of the goods. It will save you dollars to get my prices. Better write for them to-day.

Nothing pleases me better than for bee-keepers to make their headquarters at my office when in San Antonio. You are always welcome. I have fitted up my office with plenty of desks and chairs, with writing-material, a reading-table, and all the bee journals on hand. Consider yourself invited.

If you haven't my catalog just drop a postal.

I can supply Red-clover and Golden Italian queens promptly.

I am now paying 23c cash and 26c in trade for average clean beeswax delivered here. Save your slumgum. I will buy it. Let me know how much you have, in what condition the slumgum is, and in what kind of an extractor it was rendered, and I will make you price I am paying.

Call or Address

Udo Toepperwein, - San Antonio, Texas

1322 South Flores Street

Gloves for Handling Bees

Something New. Something You Want.

Our specially prepared Gloves soften the hands, and prevent and cure chapped hands. The fabric contains a preparation which prevents the gloves from becoming hard and stiff. We furnish them without armlets or sleeves for using in sweeping, gardening, or general housework, driving, or outdoor work. They are just the thing for driving in the rain, as they are absolutely waterproof. If worn at night they keep the hands soft and white. All their points of excellence can not be here enumerated, but they never fail to give the greatest satisfaction. To introduce them, we will send by mail or with other goods at the following low prices:

Bee-gloves—long arms, fleece-lined in two sizes—large for men, small for ladies.....35 cents
Men's gauntlets, fleece lined.....35 cents Ladies' gauntlets, fleece lined.....35 cents
Ladies' unlined for wearing at night or doing light housework.....40 cents

Early-order discounts on bee-supplies (excepting above and a few other articles) as follows: Three per cent discount for cash with order before February 1st

If you haven't our 1906 catalog send for one and a free copy of The American Bee-keeper (50c a year).

The W. T. Falconer Manufacturing Co., Jamestown, N. Y.

New Goods - Big Stock

New Warehouse : Root's Goods : Prompt Shipment : Low Freight

Everything for the Bee-keeper at Savannah, Georgia

We are prepared to furnish promptly a full line of supplies; choice new stock just from the factory. BEES and QUEENS. We have large apiaries of fine stock. Book your orders at once, as there will be a heavy demand this season. Catalog sent free. Correspondence solicited.

Howkins & Rush, 124 West Liberty St., Savannah, Ga.

Beeswax!

We are always in the market to buy beeswax, and pay the highest market prices. We want beeswax from the bee-keepers direct. . . . . .

Dadant's . . . . .

It Excels **Foundation**

Wherever you are you can get our goods. Write us and we will either make you prices or will tell you where you can get our foundation nearer to you. We have agents everywhere. . .

Bee-supplies

We handle every kind of bee-keepers' supplies and only the very best. Early order discounts given now on supplies and foundation. Write us before selling your beeswax or buying your season's supplies. . . . . .

Dadant & Sons, Hamilton, Ills.

Root Goods

for the West

Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS.

My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

Write for estimate with liberal discount for orders sent in now.

Jos. Nysewander, Des Moines, Iowa

565, 567 West Seventh Street

GLEANINGS IN BEE CULTURE

VOL. 35 JAN. 15, 1907. NO. 2.

THE A. I. ROOT CO.
MEDINA, OHIO.

The Swarming Season

will soon be here. Are you prepared? Why not order your supplies now, and take advantage of

The Large Discounts

which we offer this month on Bee-supplies? Only remember the

Low Freight Rates

from TOLEDO places our goods in your door cheaper than you can get them elsewhere. We afford you every advantage in both Poultry and Bee Supplies. We sell The A. I. Root Co.'s bee-supplies, Model Incubators and Brooders, Prairie State Incubators and Brooders, Poultry Supplies of all kinds.

Our Large Illustrated Catalog

illustrates and describes our complete line; tells how to raise bees and chickens successfully. . Free upon request.

The Griggs Bros. & Nichols Co.

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von Deutschland, Schweiz, Osterreich, u. s. w., schreiben Sie uns um unsere 1906 Preisliste für

Bienenwohnungen,
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Wabenentdecklungsapparat, und alle anderen Artikel von.

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Der grösste Fabrik der Welt.

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Distributor of Root's Goods from the Best Shipping - point in this State.
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I sell at catalog prices, and, with the low low freight rates of the competitive railroad companies, I can save you money by way of transportation charges.

In soliciting your orders I will assure you that every inducement consistent with conservative business is afforded my customers.

I also **rear** Italian queens from the best stock that money can secure. Write for my descriptive price lists of queens and bee-keepers' supplies—both free.

Beeswax taken in exchange for supplies.

E. E. PRESSLER, WILLIAMSPORT, PENN.

C. H. W. Weber,

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Distributor of Root's Goods Fxclusively, at Root's Factory Prices.

Give me your orders for the BEST GOODS MADE. You will be pleased on receipt of them. You will SAVE MONEY by ordering from me. My stock is complete; in fact, I keep EVERY THING the BEE-KEEPER needs CINCINNATI is one of the best SHIPPING-POINTS in the Union, PARTICULARLY IN THE SOUTH, as all freight now GOES THROUGH CINCINNATI. Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly FREE OF CHARGE.

A Special Discount on Early Orders

I will buy your HONEY AND BEESWAX. I pay CASH ON DELIVERY; or, if you are in NEED OF HONEY, write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted -in cans, barrel-lots, or car-lots—of EXTRACTED or COMB HONEY. I guarantee its purity.

QUEENS AND NUCLEI.

Let me book your orders for queens. I breed the finest GOLDEN ITALIANS, RED-CLOVERS, CARNIOLANS, and CAUCASIANS. Can furnish NUCLEI beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White and Yellow Sweet-scented Clover, Alfalfa, Alsike, Crimson Clover, Buckwheat, Phacelia, Rocky Mountain Bee-plant, and Catnip.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Markets.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel stain, or otherwise; all the cells sealed except an occasional cell; the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

ST. LOUIS.—The demand for honey is not as urgent as it was before the holidays. Prices, however, are unchanged. We quote to-day: Fancy white comb honey at 16; No. 1, 15; light amber, 14 to 15; broken and inferior, less. Extracted light amber, California, 7½; Spanish needle, 7½. Our market is bare of white-clover honey. The receipts of Southern barrel honey are still very small, and same is quotable at 5½ to 6; same quality in tin cans would bring ½ to 1 ct. more. Beeswax firm at 30½ for choice pure; all impure and inferior, less. R. HARTMANN PRODUCE CO.,
Jan. 8. 14 So. Second St., St. Louis, Mo.

TOLEDO.—The market on comb honey remains the same as last quotations. As usual, at this season of the year, there is not much demand for honey, and prices have weakened if any thing. Fancy white comb brings 16; No. 1, 15, with little demand for lower grades. Extracted white clover in barrels brings 6½; cans, 7. Beeswax, 26 and 26½.
Jan. 7. THE GRIGGS BROS. & NICHOLS CO.

DENVER.—There is practically no honey left in the hands of producers in this State, and barely enough in the Denver market to supply the home trade until spring. We quote strictly No. 1, white, per case of 24 sections, $3.20; No. 1, light amber, $3.00, and good No. 2, $2.80; white extracted, 8 to 8½; light amber, 7¾ to 8. We are in the market for beeswax, and pay 26 cts. per pound for clean yellow wax delivered here.
THE COLORADO HONEY PRODUCERS' ASS'N,
Jan. 5. Denver, Col.

SCHENECTADY.—Market continues dull; merchants are taking account of stock, and will not buy until obliged to later on. No great amount of stock is on our market, and no change in prices.
CHAS. MACCULLOCH,
Jan. 7. Schenectady, N. Y.

CINCINNATI.—The comb-honey market, at the present time, is very quiet. Holders of this article are not trying to realize a profit — merely disposing of what they have, at cost. Fancy comb honey is selling at 14½ to 16. Quote extracted amber honey in barrels at 6 to 7; fancy light amber in cans at 7 to 8; fancy white, 9. For strictly choice beeswax we are paying 30, delivered here. THE FRED W. MUTH CO.,
Jan. 9. 51 Walnut St., Cincinnati, O.

ZANESVILLE.—Since the holidays the demand for honey is very light. No. 1 and fancy white comb bring from $3.75 to $4 per 24-section case; practically no demand for extracted. Beeswax, 30.
Jan. 7. E. W. PEIRCE, Zanesville, Ohio.

ST. PAUL.—Supply of honey is limited. Fancy white, No. 1, in 1-lb. sections, new, 15 to 16; No. 2 white clover, 1-lb. sections, 13 to 14; extracted white, in 60-lb. cans, per case, 9 to 10. W. H. PATTON,
Jan. 8. Sec. Bd. of Trade, St. Paul, Minn.

CHICAGO.—At this date the market is slow, but the stocks on hand are not excessive; indeed, are smaller than usual; prices are unchanged as compared with our last quotations. R. A. BURNETT,
Jan. 7. 199 So. Water St., Chicago, Ill.

INDIANAPOLIS.—Fancy and A No. 1 white comb sells for 16 to 17, and demand is good; fancy amber, 11 to 12, with slow demand; No. 1 white, 13 to 14, demand not good. Best grades of extracted honey in 60-lb. cans bring 8 to 9, and demand is good, but higher prices will retard the market; amber extracted brings 6½. Good average beeswax sells here at $33.00 per 100 lbs. WALTER S. POUDER,
Jan. 6. 513 Mass. Ave., Indianapolis, Ind.

BUFFALO.—Honey is moving very slow for this time of the year. Dark and No. 2 white is harder to sell than best grades of white. Fancy white comb, 16 to 17; A No. 1, 16 to 17; No. 1, 15 to 16; No. 2, 13 to 14; No. 3, 11 to 12; No. 1, dark, 11 to 12; No. 2, 10 to 11. White clover, extracted, 7 to 8; amber, 6½ to 7; dark, 6 to 6½. Jelly-tumblers, 90 cts. per doz. Beeswax, 30 to 32.
W. C. TOWNSEND,
Jan. 6. Buffalo, N. Y.

MILWAUKEE.—The market on honey is in quiet condition, and the demand has dropped off much during this month, as the season is full of attractions of another sort, and honey sweet is neglected. The supply is not large but below the usual quantity this season of the year. Values remain fairly steady. We quote: Fancy 1-lb. sections, 16 to 17; fair to good, 15 to 16. Extracted, barrels, cans, and pails, white, 8½ to 9; amber, 7½ to 8. Beeswax, 28 to 30.
Jan. 6. A. V. BISHOP & CO.

Honey and Wax Wanted and For Sale. See Classified Ads. on pages 63–64.

BEESWAX WANTED
We are paying 29c. per lb. cash delivered here, for
CHOICE YELLOW BEESWAX
Send us your shipment now.
MONEY BACK THE DAY SHIPMENT ARRIVES.
THE FRED W. MUTH CO.
51 WALNUT ST., CINCINNATI, OHIO.

WE WILL BUY AND SELL

HONEY

of the different grades and kinds.

If you have any to dispose of, or if you intend to buy, correspond with us.

We are always in the market for WAX at highest market prices.

HILDRETH & SEGELKEN,

265-267 Greenwich St. 82-86 Murray St.

NEW YORK.

BEESWAX ADVANCED.

From this date until further notice we will pay 30 cents cash, 32 trade, for average wax delivered here or at our branch offices. This is a higher price than we have ever paid before at this season of the year. If any of our readers have any wax to dispose of we shall be pleased to hear from them. Be sure to mark your shipment with your name so that it may be identified on arrival, and mail us shipping receipt with gross and net weight of shipment.

The A. I. ROOT COMPANY, Medina, Ohio.

Better than an Island

This place is just as good as an island for breeding queens, for there are no other bees within five miles, and so pure mating is guaranteed. It is better than an island when you order queens, for the fastest trains stop here, and hence queens are not away from the colony long enough to impair their usefulness. Safe introduction is guaranteed if you follow my special directions. I consider the Banat Caucasian bees the best and gentlest in the world. Banat Caucasian bees are bred here; other races in outyards. Queen-breeders should secure their breeding-queens from this pure stock. Order now. Banat Caucasian queen, $3.00. Caucasian queen, $1.50. Golden Italian, 75c. Tested queens, one year old, double these prices.

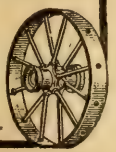
Dele Collins, Ph D., Emporium, Pa.

A low wagon at a low price. Handy for the farmer. Will carry a load anywhere a horse can travel.

Low Down Wagons

soon earn their cost on any farm.

Steel Wheels



for farm wagons. Straight or staggered spokes. Any size wanted, any width of tire. Hubs to fit any axle. For catalogue and prices, write to

Empire Mfg. Co., Box 91 H Quincy, Ill.

Buy Trees Grown on Muskingum River

Full Line Fruit and Ornamental. Catalog free. Freight paid. AGENTS WANTED.

Mitchell's Nursery, : Beverly, Ohio

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize
A GOLD MEDAL
at the World's Fair,
St. Louis, 1904.

BEST,
COOLEST,
CLEANEST,
STRONGEST.
CHEAPEST

Largest Smoker Sold for a Dollar.

We Send Direct from Factory to Buyer when the Nearest Supply-dealer Does not Keep it.

It has a side grate that strengthens the fire-cup and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to clog.

Every Thing Guaranteed "Root Quality."

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke I find it all you claim. In the spring I shall want several. I always want the best.

N. E. FRANCE, Platteville, Wis.

Price $1.00; three for $2.50.
By mail add 25 cents for postage.
Send for circular giving fuller details.

F. DANZENBAKER MIAMI, FLORIDA

THE HOE RAZOR.

We know any number of men who have laid aside other safety razors after having once used the "Hoe." Why? Because it is the simplest razor to put together; because the blades can be stropped like the old-fashioned razor; because it costs less than any other reliable safety razor.

Unlike all other safety razors the Hoe requires no adjusting of blades. There are no troublesome springs, hinges, or screws to arrange. You couldn't put a blade in the Hoe wrong if you tried to. The handle of the Hoe has the length necessary to be easily grasped and enable one to hold it at the proper angle in all positions. In the Christy comb-guard the teeth of the guard point toward the blade. It is so designed as to leave the edge of the blade free with a clear space for lather to pass through upon the top of the blade. just like (and with all the advantages of) an ordinary razor, without its disadvantages.

The Christy Hoe, including six blades, $1.50.

JOSEPH HORNE CO.,

PITTSBURG, PA.

FOR SALE.--Extracted honey, strictly pure, buckwheat, 6½c; clover mixed, 7c in 60-lb. cans and 150-lb. kegs. This State production; best flavor.

H. R. WRIGHT,
Wholesale Commission, Albany, N. Y.

Established 1873
Circulation 30,000

64 pages, semi-monthly
$1.00 per year

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

Published by
THE A. I. ROOT CO., Medina, Ohio

J. T. CALVERT, Business Manager
A. L. BOYDEN, Advertising Manager

POSTAGE IS PREPAID by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year postage.

CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

DISCONTINUANCES.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

HOW TO REMIT. Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of The A. I. Root Company, Medina, Ohio. Currency should be sent by Registered Letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

Foreign Subscription Agents.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

PARIS, FRANCE. E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid.* 7½ *fr.*

GOODNA, QUEENSLAND. H. L. JONES. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid,* 5/6.

DUNEDIN, NEW ZEALAND. ALLIANCE BOX CO., 24 Castle St. *Per year, postpaid.* 6/.

SPECIAL OFFERS.

Sunday School Times
Rural New-Yorker
Farm News
Holden's Corn Book
Gleanings in Bee Culture **$2.85**

The Whole Family Group.

Gleanings in Bee Culture
Delineator
McClure's Magazine
World's Work
Regular price, $7.00.

Our price for all the above, one year, - - - **$3.75**

Review of Reviews Special Club.

Gleanings in Bee Culture
Review of Reviews
Woman's Home Companion
Success Magazine
Regular price for all the above, $6.00
Our price for all, one year, - **$3.60**

Gleanings in Bee Culture one year, and one copy How to Keep Bees, - - - **$1.50**

THE A. I. ROOT CO., Medina, Ohio.

Find enclosed .....for which please send me Gleanings in Bee Culture.....months, and..... as per offer.....

Please continue sending Gleanings until otherwise ordered.

Name.....

Postoffice.....

County..... State.....

Date..... If you want Gleanings discontinued at expiration, check here( )

Control of Increase.

is one of the most important questions in bee-keeping, both to the small bee-keeper who can't be with his bees all of the time, and to the man who is running out-apiaries; and Mr. E. F. Atwater, of Idaho, who has for several years managed several apiaries, some of them many miles from home, is writing a series of articles for the Bee-Keepers' Review, giving his experience in producing both comb and extracted honey, particular attention being given to the management or control of increase. The opening paragraph of the second article in the series is as follows:

"The system of swarm control, or non-swarming, that gave me the best results, with a minimum of labor, with or without increase, no absconding, no disturbance of the colony, no delay, will now be described."

The Review is $1.00 a year, but to each man who sends me $1.00 for 1907 will be sent free (as long as the supply holds out) all of the back numbers of 1906. For $1.00 more the book "Advanced Bee Culture" will be sent. In other words, you can get the Review for 1906 and 1907 and the book for only $2.00.

W. Z. Hutchinson, Flint, Mich.

Northwestern Bee-keepers!

We are headquarters for the ROOT supplies for the States of Montana, Minnesota, the Dakotas, and Western Wisconsin.

You can save freight by ordering from this branch. A complete line of bee-keepers' supplies always in stock.

Secure a catalog at once.

BEES and QUEENS.—Your orders will be attended to.

The A. I. Root Company

H. G. ACKLIN, MANAGER

1024 Mississippi Street, St. Paul, Minn.

At St. Louis

On a Line

to all points in the South and Middle West.

Send for our free illustrated catalog of

Root's Bee-supplies

We sell at factory prices, and are allowing a 3 per cent cash discount during January. Send us a trial order.

Beeswax Wanted.

Blanke & Hauk Supply Co.

DEPT. B,

202-204 Market St., **St. Louis, Mo.**

Manufacturers and Jobbers of Dairy, Creamery, Ice-cream, and Poultry Supplies.

Gleanings in Bee Culture

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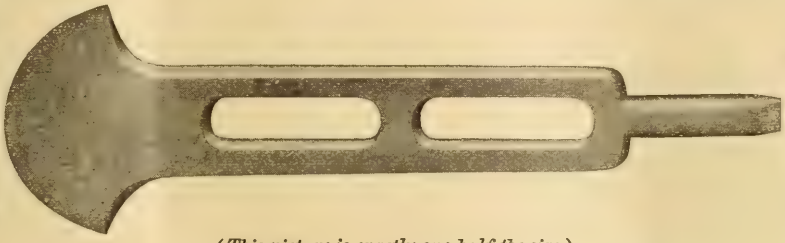
The Weekly American Bee Journal is in its 47th Year

Something New=The Ideal Hive-Tool

Bee-keepers have long needed a Tool with which to work among the hives during the bee-season. The Tool shown here was invented by Wm. Muench, a Minnesota bee-keeper, some years ago, but it was not on the market before. We have lately bought this Tool, and all rights, from Mr. Muench's widow, and have had the first lot made. They are ready for delivery now.

Best Hive-Tool



Only 30c, by mail

(This picture is exactly one-half the size.)

DESCRIPTION.—The Ideal Hive-Tool is made of high-grade malleable iron, much like wrought iron, 8⅜ inches long. The middle part is 1 1-16 inches wide and 7-32 thick. The smaller end is 1⅞ inches long, ½ inch wide, and 7-32 thick, ending like a screw-driver. The larger end is wedge-shaped, having a sharp semi-circular edge, making it almost perfect for prying up covers, supers, etc., as it does not mar the wood.

What Dr. Miller and Miss Wilson Say of It:

In the first edition (1903) of Dr. Miller's "Forty Years Among the Bees," page 58, he says: "Of all the hive-tools I have tried, I like best the Muench tool." On Jan. 7, 1907, he wrote us saying he thought "just as much of the tool as ever."

Miss Wilson, Dr. Miller's assistant, says this of the Ideal Hive-Tool: "It is an ideal tool. In fact, I don't see how it could be improved upon. I am sure we would feel utterly lost in the apiary without it.....You will have to try one yourself if you want to know its worth."

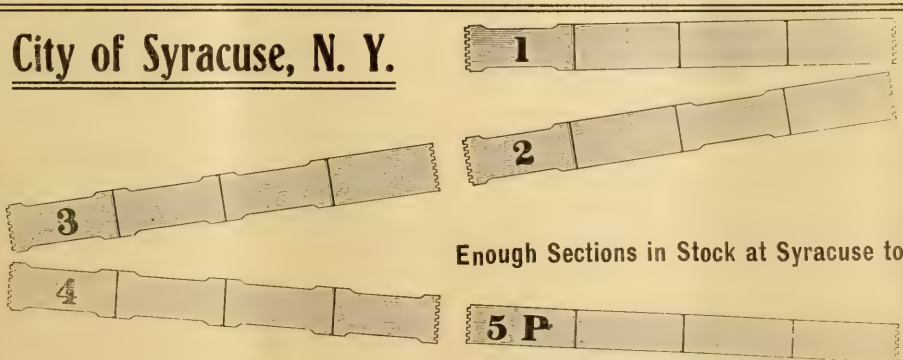
The Ideal Hive-Tool Free to a New Subscriber.

To a **new** subscriber to the **Weekly Bee Journal** for one year (at $1.00), we will mail an Ideal Hive-Tool **free**; or we will mail the Hive-Tool alone for 30 cents (stamps or silver, if more convenient). Sample copy of the Weekly American Bee Journal sent on request; **or a 3 months' "trial trip" for only 20 cents.** Address,

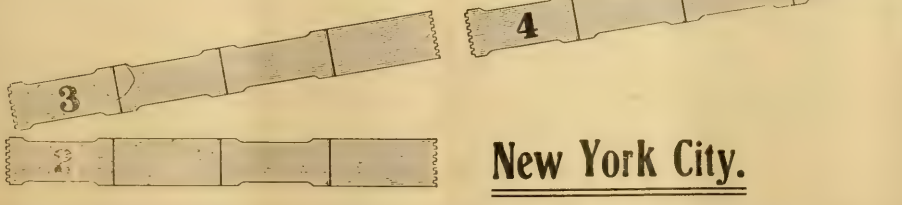
GEORGE W. YORK & CO., 334 Dearborn Street, CHICAGO, ILL.

The Oldest and Only WEEKLY Bee-Paper in America

City of Syracuse, N. Y.



Enough Sections in Stock at Syracuse to Lay a Walk from Syracuse to New York



New York City.

The A. I. Root Co., Syracuse, N. Y.

A Page with Our Readers and Advertisers.

"A SQUARE DEAL"

We believe that every advertisement in this paper is backed by a responsible person. But to make doubly sure we will make good any loss to paid subscribers sustained by trusting any deliberate swindler advertising in our columns, and any such swindler will be publicly exposed. We protect subscribers against rogues, but we do not guarantee to adjust trifling differences between subscribers and honest responsible advertisers. Neither will we be responsible for the debts of honest bankrupts sanctioned by the courts. Notice of the complaint must be sent to us within one month of the time of the transaction, and you must have mentioned GLEANINGS IN BEE CULTURE when writing the advertiser.

MEASURING CLASSIFIED ADVERTISEMENTS.

There has been some inquiry as to how to estimate the number of lines an ad. will occupy in our classified columns. A very simple and effective rule is to allow eight words of average length to the line. Write out the proposed ad. in as condensed wording as will clearly express your idea, and sign your name and address. Then count all the words, divide by eight, and this number, plus one, if there happens to be a good-sized fraction, this number multiplied by 20 cts. will be the amount to remit for one insertion. If the ad. will go in less than the estimated space we will return the money.

THE GREEN-BONE INSTINCT.

The jungle fowls, scratching and fighting in the solemn woods of long-ago India, did not have any one to prepare patent foods for them that were warranted to push a procession of fertile eggs fairly into their nests; but when they wanted a meal they surely had to work for it. It was all around them in swarming millions and crawling thousands, for insects and worms filled the sunlit air, and wriggled in every dank and steaming yard of earth.

The modern fowl inherits this craving for animal food. The best and cheapest form of this food to-day is green bone, which, chopped to dollar-making, labor-saving size, should be fed liberally to every flock. There are many machines for doing this work. One of the standards is that of the F. W. Mann Co. manufacture. You will find their ad. on another page. Send for their illustrated catalog.

"Great Crops of Strawberries and How to Grow Them" is the title of a handsome book just received. It is published by the R. M. Kellogg Co., the famous growers of thorough-bred pedigree plants, of Three Rivers, Mich. The book tells you just what and how and when to do every thing, from the time the plants are set until the berries are marketed, and how to handle the plants to make them produce larger crops the second year than they did the first. It teaches you how to improve plants by selection. The book is handsomely printed. Everybody interested in strawberry culture, either for market or for family use, should have it. Send for a copy of the 1907 edition. The book is free to our readers. Address R. M. Kellogg Co., box 400, and tell them you are a reader of GLEANINGS.

Have you noticed what a variety of goods is offered in our want and exchange columns? For instance, see the advertisement of H. H. Hawley offering business and calling cards (and his samples are fine), and then see what a range of goods is mentioned by other advertisers, up to apiaries and farms.

STILL ANOTHER.

Please cut out my beagle-dog ad. in classified department of GLEANINGS. Dogs all sold. Any thing advertised in GLEANINGS is sure to sell.

So. Cabot, Vt., Jan. 7, 1907. D. S. HALL.

The above confirms what many other subscribers say of our classified columns. A two-line ad. inserted twice brought these sales.

CATALOGS RECEIVED.

A 4-page poultry list of white Plymouth Rocks from Dr. C. L. Van Osdol, Dellsboro, Ind.

We have just received the 1907 seed-book of Wm. Henry Maule. It is a book of over 150 pages, filled to the brim with descriptions and cuts of the best and newest varieties of vegetables and flowers. Mr. Maule's advertisement appears in this number of GLEANINGS, and we suggest that every reader of GLEANINGS interested write for it.

The first bee-supply catalog for 1907 to appear is, as usual, from our Southern friend J. M. Jenkins, Wetumpka, Ala. It contains 64 pages, and should be read by all bee-keepers in the South. Mr. Jenkins not only manufactures and handles a full line of supplies, but has a large and growing trade in bees and queens.

The first queen-breeders' circular to appear is from the Snyder apiaries, Lebanon, Pa. Mr. Snyder writes that already he has urgent requests for information about his bees and queens (golden-all-over Italian, Banat, and Caucasian); and to give the desired information he issued his circular early. Bee-keepers desiring any of these races will do well to get his prices at once.

A 12-page queen circular entitled "Quality in Queen-bees" has just been issued by Robt. B. McCain, Oswego, Ill. In spite of the large demand for queens, no breeder can hope for a continued trade unless he furnishes queens of quality. Mr. McCain reports an increasing trade, due, undoubtedly, to the quality of his queens, and to his care in filling orders. The first page shows the product of one of his colonies for 1906, viz., 280 lbs., which speaks well for his stock.

ADVERTISING - RATES

Twenty cents per agate line flat.

Classified columns—bona-fide exchange or want ads.— 20c a line.

Discount for cash in advance, 5%; if paid in 10 days, 2%.

No objectionable advertising accepted.

Forms close 10th and 25th of each month.

Guaranteed circulation per issue, 30,000.

GLEANINGS IN BEE CULTURE
MEDINA, OHIO

PHOTOGRAPHIC - COMPETITION

We are pleased to announce another series of prizes for the best photographs submitted to us, as described below, in two series, American and foreign, under the following conditions:

FIRST.—The competition opens January 15th and closes October 1st, 1907. All photographs intended for this competition must be in our hands by the last-named date.

SECOND.—Competition for these prizes is limited to bee-keepers or some member of the family. Entries may be made for as many different classes as may be desired.

THIRD.—A photograph entered in one class can not be entered in any other class.

FOURTH.—Each photograph should be marked on the back with the name and full address of the sender, and the class in which it is entered. This is important.

FIFTH.—In judging the photographs, the general appearance, neatness, etc., of the apiary or exhibit or yard will be taken into consideration. Photos may be sent unmounted. We rather prefer them this way, and in a solio or reddish-brown tone if possible. However, send such as you can get most easily.

SIXTH.—With each of the photographs submitted we would like a brief statement of the conditions under which the apiary was photographed or honey produced, or similar information regarding the photograph. This should be limited to about one hundred words.

SEVENTH.—All photographs and correspondence regarding the same should be addressed to Advertising Department, GLEANINGS IN BEE CULTURE, Medina, Ohio.

EIGHTH.—We reserve the right to limit the number of awards or make no awards in any class if there are no suitable entries for that class.

AMERICAN COMPETITION — Including Canada and Mexico—AND FOREIGN COMPETITION

The following are the classes in which entries may be made:

CLASS A.—Photographs of any apiary in village, town, or city.

CLASS B.—View of an apiary not exceeding six hives in town or city.

CLASS C.—Apiary in town or country of not less than six hives or more than fifty hives.

CLASS D.—Apiary in town or country of fifty hives or more.

CLASS E.—Photograph of comb honey produced by a single colony of bees; not less than ten sections, and this preferably in plain sections.

CLASS F.—Photograph of a bee-keeper's home showing some view of the apiary if possible. The apiary need not be prominent in the picture, however.

CLASS G.—Photographs of a crop of honey from any number of colonies, six or more.

CLASS H.—Photographs of any apiarian exhibit of bees, supplies, or honey taken at fairs or shows of any kind.

CLASS I.—Photographs of any work in the bee-yard, such as hiving swarms, extracting, or any other operations with the hive.

CLASS J.—Photographs of any other subject relating to bee-keeping not classified above.

PRIZES

	Value, Postpaid
FIRST. One leather-bound "A B C of Bee Culture," 1907 English edition, or cloth-bound French or German..	$2.00
SECOND —One half-leather "A B C of Bee Culture," 1907 English edition..	1.75
THIRD.—One "How to Keep Bees" and any two Swarthmore books.....	1.50
FOURTH.—One full cloth-bound "A B C of Bee Culture," 1907 English edition	1.20
FIFTH.—One "How to Keep Bees," by Anna Botsford Comstock.....	1.10
SIXTH.—One No. 1 bee-veil, all silk...	.80
SEVENTH.—One No. 2 bee-veil, silk face	.50
EIGHTH.—One illustrated book, "Bee Culture in Foreign Countries".....	.50
NINTH.—One Bee Model Queen (see Special Notices)	.50
TENTH.—One Bee Model Drone (see Special Notices)	.50

Ten prizes are offered for each class: Ten for Class A, Class B, Class C, etc.—one hundred prizes for each contest, American and Foreign, two hundred in all if that number of entries are received, the prizes offered being identical for each class for the American competition and for the Foreign.

If the winner of any certain prize has already the prize offered, we will, on request from him, furnish a selection of other items from our catalogs, of equal value.

ADDRESS ALL CORRESPONDENCE TO
Advertising Department, Gleanings in Bee Culture
The A. I. Root Company, Medina, Ohio, U.S.A.

Danzenbaker Prizes

It is to be regretted that so many bee-keepers are satisfied to produce year after year a very ordinary grade of honey as regards its appearance, when by a little more care, and having more suitable fixtures, and by taking the honey from the hive at just the right time, a much larger percentage of "fancy" or "extra fancy" honey could be produced, which would sell at a much higher price. The experience of honey-merchants generally is that there is no difficulty in disposing of large stocks of fancy or extra fancy, even when the market is dull. It is the inferior grades that suffer most at these times. We believe, too, that bee-keepers would be very much better satisfied with their season's work if their best efforts were made to produce a really fine product. To increase further the interest in extra fancy honey, the following prizes are offered for honey produced in Danzenbaker hives during the year 1907, under the following conditions:

FIRST.—As above stated the honey must be produced in a Danzenbaker hive, either the present style or any Danzenbaker hive that has been put out within the last few years. These hives may be had of any dealer in bee-keepers' supplies in any part of the country

SECOND.—For Classes 1 and 2 we require a shipment of approximately the amount stated, to be made by the bee-keeper direct to us at Medina. After the prizes have been awarded the honey entered for competition in Class 1 or 2 will be held subject to the instructions of the producer. We will sell it at a five per cent commission or we will ship it to any point direct by freight or express. There being good honey markets in our immediate vicinity, such as Columbus, Cincinnati, Cleveland, Buffalo, and Pittsburg, it can be disposed of without difficulty at good market prices, and the shipper will not have to lose a good market by shipping it here. Neither the honey awarded a prize nor that which obtained no prize is to be our property, but will be sold subject to the instructions of the producer who sends it to us. We are interested only in inspecting it to award the prizes.

THIRD.—For all honey submitted for prizes we must have a definite statement from the producer regarding the conditions under which it was produced, whether a light or heavy flow of honey, how the colony was handled, how many colonies in the yard, from what source produced, etc.

FOURTH.—For Classes 3, 4, and 5, we must, in addition to the above report have the signature of two witnesses certifying to the correctness of the report. If the party who sends us the report for the competition is well known to us we shall not require these witnesses. References may be given instead of the signature of witnesses if desired. All parties intending to compete for these prizes should send for blanks which we will furnish, on which the report may be made out.

FIFTH.—It will be noticed in the last three classes, three to five inclusive, that it is not at all necessary to send us the honey—all we require is a report.

SIXTH.—We reserve the right to limit the number of awards in each class, or to make no awards in a class if there are no satisfactory entries for the same.

SEVENTH.—No contestant will be awarded more than one prize in each class, but may make two entries if desired—one in Class 1 or 2, and another in Class 3, 4, or 5.

The classifications for the prizes are as follows:

CLASS 1.—For best shipment of 200 lbs. of comb honey in Danzenbaker sections.
CLASS 2.—For best case of comb honey in Danzenbaker sections.
CLASS 3.—For best report of yield from single colony in Danzenbaker hive.
CLASS 4.—For best report of yield from five colonies in Danzenbaker hives.
CLASS 5.—For best report of general results from use of Danzenbaker hive.

For each class there will be ten prizes as follows:

FIRST.—$10.00.	Five Classes.
SECOND.—$7.00.	Ten Prizes for each Class.
THIRD.—$5.00.	Fifty Prizes in all.
FOURTH.—$2.00.	
FIFTH TO TENTH.—$1 00 each.	

This is the time to decide to enter this competition. No matter where you live, whether in the United States or elsewhere, you can certainly find one class in which you can make an entry; and as there are ten prizes in each class we believe that no one will be greatly disappointed in the results unless it is ourselves, and we hope that we shall not be, but see a large number of entries. Even if you fail to get a prize, you will doubtless have increased the value of your own product by your efforts to produce some big results or an extra quality of honey.

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests
Illustrated : Semi-monthly : One Dollar per Year
Published by The A. I. Root Company, Medina, Ohio

Vol. XXXV. JAN. 15, 1907. No. 2

A POSTAL from Frank Benton locates him at Hongkong, Nov. 28. I hope he'll get away with his feet full size; but then I believe it's only the women who have their feet squeezed in China.

R. F. HOLTERMANN seems to think it dangerous to feed honey in any case, p. 20. Whew! that's caution with a vengeance! Of course, his rule is a safe one, but it would be pretty hard for me to adopt it so long as there is no foul brood within ten miles.

STENOG is getting me all tangled up about pronouncing propolis, p. 16. When I saw the discussion the question certainly was whether the accent was on the first or second syllable. As to whether the first syllable is *pro* or *prop*, there is authority for both.

YOU ARE RIGHT, I think, Mr. Editor, in saying, p. 16, that a stove is better in the cellar than calcium chloride, and in some cellars it might be cheaper. But the whole outfit for the chloride ought not to cost more than $5.00, and in some cellars it would cost $5.00 to make a chimney; besides, the salt can be used over and over again, and the fuel in the stove can't

EVIDENTLY the English is a hard language to use without getting things muddled. In reply to the question whether I thought the bees would use dry dust for brood-rearing, p. 16, I replied, "I hardly think the bees would waste time gathering useless material." By that I meant that, as the bees had spent time gathering it, I thought it would hardly be useless, but useful, although ye editor's question shows that he understood it the other way.

C. BOHM has been making a study of drones. The drone has a period of youth, 9 to 14 days, in which he seldom leaves the hive; then a transition period (he doesn't say how long), when he flies more or less; then full maturity, during which time only he is capable of service, this period being of short duration, when death ensues. This accounts for the need of so many drones. It seems, also, that drones should emerge two weeks or more before needed.—*Leipz. Bztg.*

I HAVE DONE a lot of studying over what Mr. Alexander says in the first full paragraph, p. 29. My belief has always been that there was an important gain to leave bees out of cellar till after the latest flight day in November, thus shortening the period of their winter confinement. His testimony, I must confess, shakes my faith in that belief. I heartily wish that he may be right and I wrong, for it would simplify matters very much to take bees in at a certain date without the uncertain waiting for another flight-day that may never come.

GLEANINGS would like to reform its spelling if big journals like *Ladies' Home Journal* would blaze the way. Well, look at the January number of that journal, p. 19, and you will find the first blaze, the Roosevelt spelling being used in one department. Good! [This is good so far as it goes; but GLEANINGS would hardly feel like helping to blaze the way with only one big gun ahead. If the *Ladies' Home Journal* starts out with the reform, doubtless others will follow soon. When that is done, we little fellows will try to get into the band-wagon.—ED.]

WHETHER bees leave wire-cloth separators clean of burr-combs or not, p. 18, may also depend on whether the bees are crowded or not. I can get almost any one of my colonies to build burr-combs between supers by

crowding them enough. [You are quite correct. But when bees attach burr-combs to wire-cloth separators, and leave fences or other separators alone *in the same super*, we are inclined to believe that the first-mentioned are more subject to comb attachments. This was the case with the experiments made by Vernon Burt, and it is the only right way to test a proposition of this kind, in our judgment.—ED.]

A JAMAICA friend asks my comment on a clipping which relates that a writer in *Science* says bees can't sting you while you hold your breath. The only comment necessary is to say that it is boiled-down nonsense, with neither science nor sense. It went the rounds of the papers a few years ago, and no doubt many bee-keepers besides myself tried it, but none ever reported it a success. [We entirely agree with the doctor that all such talk is "boiled-down nonsense." We never had the patience even to try it, although we know of some who did, and found that the stinging business went on just the same. —ED.]

THE NEW thousand-dollar license law of Chicago, which was proclaimed as a triumph for temperance, seems now to be causing joy, but it's all on the other side. Read the following from the *Brewers' Journal:*

"During the first eight months of the present year 3,066,505 barrels of beer were sold in this city (Chicago), an increase of 209,366 barrels over the same period of 1905. And now let the temperance cranks explain what they have gained by raising licenses to $1000 per year."

When will good people learn that raising the license only entrenches more firmly the liquor power?

CANDLE-WICKING is advised, page 19, for making beeswax candles. My, oh my! Mr. Editor, I didn't think you were so old a man as that. Don't you know that candle-wicking has gone out of use almost entirely? You can't buy it in Marengo, for I asked. But you can make a beeswax candle with cotton wrapping-twine for a wick. Just warm your beeswax and squeeze chunks of it around the string. [Why, candle-wicking is a common article in any engine-room or any other place where stuffing-boxes are used to prevent the leaking of gas, water, or steam. Any common valve will have around its stem some sort of packing—usually candle-wicking. I suspect, doctor, more of it is made now than was made during the days of your grandmother, but it is used for an entirely different purpose.—ED.]

YE EDITOR, p. 19, thinks the new law will allow a 14-ounce section to be labeled 1 lb. I doubt. [The law does make a little discrimination in the weights of food products where nature, so to speak, does the weighing; but nevertheless I think it is bad policy at any time to label a section as holding three-fourths, one-half, or two pounds. While a section may hold approximately these weights, they are misleading, and the figures ought not to be used. It is well enough to say that comb honey is worth so much a pound; then if the retailer puts a section on the scales the customer pays for it at a *pro rata* pound rate. Nor is there the slightest objection to marking the price on each individual section—there, now, doctor, we did not intend to bring up that old controversy, so we will stop before we begin.—ED.]

"BUT A FEELING of sadness comes over me when I hear of graft and greed and extortion," p. 43. Yes, Bro. A. I., never before were the daily papers so full of such things; but isn't there more gladness than sadness about it? for the accounts come only because such things are beings exposed and punished. [Yes, and this very thing leads us to believe that better times are coming. The time was when any legislation that affected adversely "certain interests" would be turned down; but that time has gone by. Investigations are rife, exposures are made, grafters and bribers are being sent to the penitentiaries, and sometimes the muck goes too deep and in the wrong places; but out of it all, good is coming. The passage of the rate bill and the pure-food bill through the same forces of reform are made possible. The signs of the coming millennium are, perhaps, a great way off, yet they are more in evidence now than ever before, and why? Because the common people are reading more, and finding out after all that their own individual vote means something. The bosses are begining to lose their influence.—ED.]

HENRY DE MERCADOR-BELLOCH, founder of the Spanish *Review of Apiculture*, also translator of important bee books, died December 9th. He was the leader of the new bee-keeping in Spain.

A FOUL-BROOD LAW FOR INDIANA.

ALL bee-keepers of Indiana interested in securing the passage of a foul-brood law for their State are requested to write to Walter S. Pouder, 513 Massachusetts Ave., Indianapolis. It now seems high time that a law of that kind be enacted. The States to the north, west, and east of it are already protected by suitable legislation. The matter now seems urgent as well as opportune for the bee-keepers of Indiana to take hold of the matter in earnest.

Later.—The following which has just been received from Mr. Pouder will explain itself:

I have just secured the free use of room 12 at our State House for Wednesday, February 6, for a meeting of Indiana bee-keepers. It is hoped and urged that the meeting will be well attended, and that we may organize ourselves into a permanent State association.

One of the important objects of the association will be naming a committee to secure foul-brood legislation for Indiana. WALTER S. POUDER.
Indianapolis, Ind., Jan. 10.

GOOD CANDY (POWDERED SUGAR AND HONEY) NOT SUITABLE AS A WINTER FOOD.

IN this issue, on page 98, we refer to some experiments made at Medina in reference to feeding bees various kinds of candy during winter. The statement is there made that the Good candy—the mixture of powdered sugar and honey kneaded into a stiff dough—gave good results. In referring this statement to the man who made the experiments he says we misunderstood him—the Good candy was the feed that gave the most trouble and that ran down between the frames, and moreover it was the hard candy, made of sugar and water, that gave the best results. Inasmuch as a misstatement was made it is only proper to make the correction right here. Dr. Lyon had no trouble with the Good candy, because his bees were wintered outdoors, where there would be less moisture and a much lower temperature. In this respect our findings were different from those of Dr. Lyon.

OUR FRONT COVER-PAGE PICTURE.

OUR front-page illustration represents the Rev. P. Cavaille, a monk of the order of Grande Trappe, in the act of hiving a swarm. In Europe the clergymen, whether they are monks, preachers, friars, brothers, abbés, or what not, are very often ardent disciples of the bee-keepers' art, and usually they make it both pleasant and profitable. And it seems bee-keeping is peculiarly fitted to their temperament and environment. Nothing could be more befitting to them unless it is the art of gardening, in which they frequently excel. Both Dzierzon and Schönfeld were clergymen, and the word "Father" is often seen before the name of German apicultural writers, and "Abbe" or "Curé" before the surname of French writers. Mr. Ralph Benton, in our issue of Nov. 15, gave us a very entertaining narrative of a visit to an apiary belonging to the Trappist monks near Rome, from which one can get a vivid glimpse of cloister life in Europe. We have Trappist monks in Kentucky, but we understand they do not keep an apiary as their European brothers do. In England the monks of St. Mary's, Buckfast Abbey, keep quite an up-to-date apiary, and some of the brothers write for the bee-papers very often and seem to read GLEANINGS and A B C; for, contrary to general opinion, these religious bee-keepers are quite modern in their ideas. The English monks we mention were expelled from the Grand Chartreuse of France some years ago and took refuge in England.

SHUTTING BEES WITHIN THE HIVES DURING WINTER.

ON p. 1559, Dec. 15th issue, we referred to some experiments we were conducting in the matter of shutting bees in the hives by means of a wire-cloth vestibule for outdoor colonies, and a rim three or four inches deep, with wire-cloth sides interposed between the bottom-board and hive-body for the indoor colonies in our cellar. The results thus far, while not decisive, are rather unfavorable. The confined bees seem to get uneasy; and when they learn they can not get out they stir up the whole colony. We found dysentery was starting in a good many of our cellared colonies at a time of year when we never had it before. The results outdoors with the wire-cloth vestibule were scarcely any better. Apparently the few bees that try to get out, and can not, seem to be able to stir up the whole colony. When they begin to roar, the contagion, so to speak, in the case of cellared bees, spreads to others.

Now, understand, we do not as yet condemn the method, for we are continuing our experiments just the same, to discover, if possible, whether the confinement or some other condition is responsible for the untoward conditions. We speak of this at this time in order that some of our readers who may be experimenting along these lines may be on their guard.

Perhaps the reader will say we ought to have known better; but the reports of one of the best bee-keepers in the country, Mr. Hershiser, were so favorable that we felt constrained to try it for the cellared bees. For the outdoor bees the removable-screen vestibules looked as if they might be a good thing, especially as it was designed to remove them when they should be removed, and to keep them in on deceiving days when the bees ought to be kept in. We shall see later.

THE EFFECT OF THE PURE-FOOD LAW ON THE GLUCOSE INTERESTS; GLUCOSE MIXTURES MUST BE LABELED FOR WHAT THEY ARE.

IN GLEANINGS for Nov. 15, page 1418, appeared an editorial in these columns, to the effect that the new national pure-food law would be a severe blow to the glucose interests of the country. The *American Food Journal*, of Chicago, publishes this editorial entire, but dissents from it in this wise:

> We are a trifle skeptical about the new national law being a blow to the glucose interests. Several new plants are being constructed, the largest in Joliet, Ill. The law legalizing mixtures, compounds, and blends will allow unlimited opportunities to sell a mixture of honey and glucose, and probably compel States to allow its sale which now prohibit it or require it to be labeled adulterated.

We were not unaware of the reports in the current press, to the effect that the Standard Oil Co. was buying up glucose-factories and distilleries, with the apparent intention of using both to make denatured alcohol, which, unless its production were controlled, might be a serious competitor to its gasoline. It was also reported that Standard was reëquiping and rebuilding some of these glucose-factories, but, apparently, not for the purpose of making glucose for the market, for it seems clear that the starch from which it is made will have to be used for something else.

Our contemporary says, "the law legalizing mixtures, compounds, and blends will allow unlimited opportunities to sell a mixture of honey and glucose, and probably compel States to allow its sale, which now prohibit it or require it to be labeled 'adulterated.'" Very true, the mere matter of mixing or compounding has never been objected to, neither is there any national law to prevent it; *but it was the mixing of several ingredients, and selling them under the name of one, and all at the price of the highest,* to which exception is taken. But the *Food Journal* man does not state that such mixtures of honey and glucose would have to be *labeled for what they are.* Consumers will not buy glucose syrup when they know it. The experiment has been tried, and proved a failure. We bee-keepers are not afraid of glucose and honey when no deception is used in foisting the combination on the public. Or, to put it another way, we do not object to the wolves, but we do protest when they are allowed to masquerade in sheep's clothing.

Referring again to the alleged glucose-plant or plants which are being constructed, it is well known that such institutions have been putting out what is known as gluten foods. A good deal of these foods is used by dairymen. If the Standard Oil Co. has bought up these glucose-factories, it probably will continue to make these stock foods as before and convert the by-product, starch, not into glucose, but into denatured alcohol. True, it may make some glucose; but there is likely to be but a small demand for that article, for it can not now, in most States and interstate and territorial business, be used as an adulterant.

There have been numerous items in the press, referring to the alleged troubles of the glucose people in States where there are pure-food laws. Here is one from the *Cleveland Press* for Dec. 7th last;

DEATHS LAID TO GLUCOSE TRUST.

NEW YORK, Dec. 7.—Fearing a wholesale poisoning of children by candy, the city authorities are trying to prevent the glucose trust from shipping here from Philadelphia tons of glucose which the trust virtually admits may have been responsible for the death of women and children from sulphites used in making glucose to lessen the cost.

The glucose trust is controlled by the Standard Oil combination, and has paid fines and costs amounting to half a million dollars in Philadelphia. One girl is dead here, poisoned by sulphites.

Here is another from the *Rural New-Yorker:*

At a total cost to the glucose trust of half a million dollars, settlement was made December 6 at Philadelphia by D. C. Gibboney, acting for State Dairy and Food Commissioner Dr. B. H. Warren, and Attorney-General Hampton L. Carson, acting for the State of Pennsylvania, of all cases based upon sales of candies containing glucose adulterated with poisonous sulphites. As a result this particular kind of food poisoning has been abolished in Pennsylvania at one stroke. Moving its adulterated product out of Pennsylvania back to New York, and the costs which it agreed to pay, cost the trust $500,000.

How much of truth there may be in all of these items we do not know; but evidently the prospects ahead of the glucose interests are not so rosy as the *Food Journal* editor would have us believe, especially if we take into consideration that the national pure-food law has only just taken effect. If the glucose interests have 500 suits in one State, and if they have paid half a million in fines, as alleged in another State, what may we expect when those same interests come against the whole United States? Apparently their troubles have only just begun. We still believe that glucose, as a product (whatever we may say of the factories that formerly made it) have received almost a knock-out blow.

WHAT THE GLUCOSE PEOPLE ARE TRYING TO DO.

Later.—It appears that the glucose interests are a little worried over the action of the new law. According to the *American Grocer* they are asking for "a ruling on their products which would do away with the use of the word glucose, substituting therefor either corn syrup or corn sugar." The makers of the stuff admit that glucose "is a name against which a very great prejudice exists."

Does this mean that glucose has acquired so unsavory a reputation that its makers would like to cover up its identity and character by another name or names that would fool the public, on the principle that a professional crook finds it convenient to use several aliases rather than his own name? We hope not. Large quantities of glucose have been used in jams and jellies, and heretofore it has not been necessary to state the fact on the labels of such articles. But now under the new law, if glucose is used it must so state on the label. But "a very great prejudice exists" against glucose, and its makers would like to have corn syrup, which they claim is "wholesome," substituted. We hope the Honorable Secretary of Agriculture and his colleagues will make no such ruling. Let every thing be sold under the name that the public *knows,* and then there will be no deception.

THE NEW LAW AGAIN, AND THE UPWARD SLANT ON THE PRICE OF HONEY.

ATTENTION is drawn to the remarkable communication in the *American Bee Journal* for Dec. 20, of Mr. C. P. Dadant, on the subject of artificial honey, or sugar known as "glucose" to the trade. Mr. D. relates how, many years ago, his father had gotten up a circular petition which he succeeded in having signed by 10,000 bee-keepers, with the avowed intention of placing the matter before Congress; but, for want of a genuine interest, the matter was allowed to drop into "innocuous desuetude." He is evidently somewhat astonished at the effect of the new pure-food law, though as a matter of fact it had not yet come into force when his communication was written. He admits he had a grudge in his heart against Prof. Wiley, the author of the famous honey canard, but he now willingly forgives him, in view of the part he played in securing the enactment of the Hepburn pure-food law.

He says the dealers around his locality are already buying honey, whereas before they were quite well satisfied with the spurious

goods. It ought to be remembered, also, this same thing is taking place all over the entire country. In sympathy with this movement the honey market has experienced a firmer tone, and the end is not yet in sight.

Honey is still much too cheap. It behooves every bee-keeper to see that the law is enforced in his locality by being ready and willing to assist the government officials in gathering evidence; and as there is a force of at least half a million bee-keepers in this country the law should not lack for help.

Mr. Dadant, in the article referred to, calls attention to a fact not generally realized — that the sugar interests would work with us, as they too have suffered from adulteration as we have.

In Florida the makers of genuine cane syrup are already experiencing a benefit from the new national pure-food law, it is said. If the Hepburn law does not fully protect the consumer in every respect we may rest assured legislation will soon be provided which will. The new law is a wedge, and a big one, without doubt.

THE NEW PURE-FOOD LAW AS VIEWED BY TWO OF THE LARGEST BUYERS OF HONEY IN THE UNITED STATES; THE DANGER OF SENDING OUT UNRIPE HONEY UNDER THE LAW.

MESSRS. R. A. BURNETT & CO., of Chicago, and Hildreth & Segelken, of New York, are probably two of the largest honey-dealers, if not *the* largest, in the United States. A few days ago we wrote them, requesting their opinion as to the general effect of the new national pure-food law on the honey business — whether or not it would advance prices, etc. The following are their replies. They will speak for themselves:

Gentlemen:—You ask for our opinion concerning the national pure-food law. It will take some time to get it enforced. The tricky people will find some way of evading it for a time, but eventually it must be of great benefit to the nation; and as to the sale of honey, in our judgment it will at least not hinder it; but if the bee-keepers will let their honey ripen before taking it off the hives it will do more than any law passed in furthering its consumption.

R. A. BURNETT & CO.

Dear Sir:—We have always been in favor of a national pure-food law. The present law may not be perfect in every detail, but as a whole we consider it fair and just. It certainly is not calculated to injure those who comply with its provisions, but, on the contrary, they will be benefited by its enactment.

As to its effect on honey, we firmly believe that the enforcement of this law will greatly aid the sale of honey; in fact, we think that from now on only pure goods will find sale, for, to comply with the law, inferior or adulterated goods must be labeled accordingly, and this we think will stop the sale of them; therefore pure goods, in all probability, will bring better prices. Consumers, as well as manufacturers, should be found willing to pay the advance, as they will have a guarantee that they are getting the genuine article.

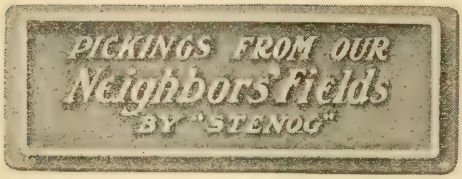
HILDRETH & SEGELKEN.

Mr. Burnett is apparently more conservative in his opinion than Messrs. Hildreth & Segelken. We wish, however, to draw attention to the importance of his last sentence. There are some old veterans in the business who may take off their honey before it is entirely capped or ripened in the combs; but the average bee-keeper, at least, had better let the bees do their own ripening. The suggestion of Mr. Burnett is a very good one, especially as unripe honey on the market will suggest adulteration, even if it does not make the producer of it actually liable under the new law. We should be a little fearful, at least, that some chemist would declare some unripe honey as adulterated, and it might be very difficult for the producer to prove his innocence of the charge. All bee-keepers, therefore, had better err on the safe side by seeing to it that all honey shipped from their yards is thoroughly ripened, with a good body and first-class flavor for the kind of honey sold.

It is well to remember that the U. S. standard for honey allows only 25 per cent of water, and any in excess of this would *certainly* be construed as an adulteration. Producers generally should "paste this in their hats."

DEATH OF THE BARONESS BURDETT-COUTTS.

WE are very sorry to announce the death, on Dec. 30, of the President of the British Bee-keepers' Association, the Baroness Coutts, of London, England, whose loss will be severely felt by the bee-keepers of Great Britain, as she for many years was a sort of patron saint of bee-keeping over there. She was one of the most famous women of the 19th century, and, besides, was the bosom friend of Queen Victoria. Her name originally was Miss Georgina Burdett. Her father was an English statesman who sided with the plain people, though very wealthy himself. His daughter inherited his wealth, also that of her uncle, Thomas Coutts, a great banker of London. At the age of 23 she received as her portion $10,000,000 in gold, weighing 14 tons, and with it the great Coutts bank of London. The first thing she did with her money was to look up Charles Dickens and with him go around relieving the poverty of the London poor, doing every thing possible to help them along. She established the National Society for the Protection of Children; also the Destitute Children's Society, for which she provided 300,000 dinners a year. She founded quite a number of technical schools of all kinds. She aided starving Russian and Turkish armies, and endowed three colonial bishoprics in English colonies. She founded colonies in Canada, and offered to furnish the means to relieve General Gordon, imprisoned in Khartoum. She financed a society to encourage poor persons to keep milch goats. She opened fishing-schools in Ireland. In fact, she was one of the greatest philanthropists of our age. She was born April 21, 1814, and was, therefore, 92 years of age at her death. When over sixty she married a brilliant young American, Mr. Ashmead Bartlett, who assumed the name of Burdett-Coutts, and became a member of the House of Commons. Needless to say, the Baroness Coutts was idolized by the English people, and well they might. Her like we do not see very often.



Mr. Spiegler-Kunnesdorf says in *Deutsche Illus. Bienenzeitung*, that he succeeded, by injecting bee-poison direct into the arteries of men afflicted with tuberculosis, in effecting a cure. Every five days the injection was repeated six times, After the second day of treatment the patients coughed but little. At the end of four days the bacilli developed no more.

The Italian government provides the following stations for the experimental study of apiculture:

1. Bieno (Novara); Passerini; observer, Cav. Carlo.
2. Bra (Cuneo), Alardo; observer, Sac. Filippo.
3. Castiglione Torinese (Torino), Marucco; observer, Teologo D. Giuseppe.
4. Marsango di Campo S. Martino (Padova), Zovato; observer, Cav. Bartolomeo.
5. Castel di Casio (Bologna); observer, Bettucchi Michele.
6. Solomeo (Perugia); observer, Monini Pietro.
7. S. Pietro in Campiano (Ravenna); observer, Gardini Silvio.
8. Montescudo (Forli); observer, Pratelli Giovanni.
9. Iesi (Ancona); observer, Chiappetti Beniamino.
10. Treja (Macerata); observer, Perucci Carlo.
11, Torre S. Patrizo (Ascoli); observer, Mariani Cav. Mariano.
12. Rome; observer, Costantini Cav. Antonio.
13. Teramo; observer, De Michetti Agr. Vincenzo.
14. Orsogna (Chieti); observer, Di Bene Giovanni.
15 Lupara (Campobasso); De Leonardis Avv. Carlo.
16. Caserta, Raimondi Giuseppe.
17. Bisignano (Cosenza), Anselmotti Ciro.
18. Lagonegro (Potenza), Aldinio Pasquale.
19. Civitella Alfedena (Aquila), Armiento Vincenzo.

There is also a kind of school of bee-keeping at Caltagionne, in Catania, which also acts as an experiment station.

In a recent issue reference was made to the work being done by Mr. Isaac Hopkins, in New Zealand, in the way of spreading the principles of modern bee-keeping in that country and in dispelling some errors that seem to cling tenaciously to the minds of some who take only a superficial view of things. It seems a sad comment on human nature that so much effort is necessary, the world over, to shield man from the ruinous effects of his own folly. How much has been said and done, for instance, to induce the growers of fruit to spray blossoms at a time when it would destroy the larvæ of noxious insects instead of doing so at a time when it would simply kill the blossoms! Even stringent legislation has been found necessary here.

As all know, considerable friction has been developed at times in this country between farmers and bee-keepers, and Mr. Hopkins has met the same trouble in his experience. To show how he has "met the enemy" I make the following quotation, which originally appeared in the "Australasian Bee Manual," but was printed later in Mr. Hopkins' bulletin on bees. In speaking of apiculture in relation to agriculture he says:

BENEFICIAL INFLUENCE OF BEES ON AGRICULTURE.

As to the intervention of bees in the cross-fertilization of plants, I can here only refer the reader for further information to the works of Sir J. Lubbock and of Darwin. The latter, in his work on "Cross and Self Fertilization of Plants," gives the strongest evidence as to the beneficial influence of bees upon clover crops. In speaking of the natural order of leguminous plants, to which the clovers belong, he says, "The cross-seedlings have an enormous advantage over the self-fertilized ones when grown together in close competition;" he also gives the following details of some experiments which show the importance of the part played by bees in the process of cross-fertilization:

"*Trifolium repens* (white clover).—Several plants were protected from insects, and the seeds from ten flower-heads on these plants and from ten heads on other plants growing outside the net (which I saw visited by bees) were counted, and the seeds from the latter plants were very nearly ten times as numerous as those from the protected plants. The experiment was repeated in the following year, and twenty protected heads now yielded only a single abortive seed, while twenty heads on the plants outside the net (which I saw visited by bees) yielded 2290 seeds, as calculated by weighing all the seeds and counting the number in a weight of two grains.

"*Trifolium pratense* (purple clover).—One hundred flower-heads on plants protected by a net did not produce a single seed, while one hundred on plants growing outside (which were visited by bees) yielded 68 grains weight of seed; and as eighty seeds weighed 2 grains, the hundred heads must have yielded 2720 seeds."

Here we have satisfactory proof that the effect of cross-fertilization brought about by bees upon the clovers and other plants growing in meadows and pasture lands is the certain production of a large number of vigorous seeds, as compared with the chance only of a few weak seeds if self-fertilization were to be depended upon. In the case of meadow cultivation it enables the farmer to raise seed for his own use or for sale, instead of having to purchase it, while at the same time the nutritious quality of the hay is improved during the process of ripening the seed. In the case of pasture lands, such of those vigorous seeds as are allowed to come to maturity and to fall in the field, will send up plants of a stronger growth to take the place of others that may have died out, or to fill up hitherto unoccupied spaces, thus tending to cause a constant renewal and strengthening of the pasture. The agriculturist himself should be the best judge of the value of such effects.

The beneficial effect of the bees' visits to fruit-trees has been well illustrated by Mr. Cheshire in the pages of the *British Bee Journal*, and by Professor Cook in his article upon "Honey-bees and Horticulture." In fact, even those who complain of bees can not deny the services they render. What they contest is the assertion that *bees do no harm*.

In regard to the two locations I referred to, p. 1172, I have kept bees in each place about 13 years, and believe I have stated the matter correctly. Still, I am not sure but Mr. Green's advice, p. 1421, is good when he advises moving my bees nearer to my best pasturage, although further from home.

It is risky to praise one article only when there are so many of value in Dec. 1 GLEANINGS; but that by E. W. Alexander seems so full of good sense I must call attention to it, and commend it, especially to our younger bee-keepers. I believe no one will go astray who follows his advice.

And again the pound-section question bobs up. Well, this is not to settle it, but rather to hinder its solution. Most of my No. 1 honey this year ran 23 and 24 lbs. to the case of 24 sections; but the honey from one yard of black bees will go fully a pound lighter. Shall we have one size of section for pure and grade Italians, and another for black bees?

Dr. Miller is undoubtedly right in saying that mice will more readily destroy empty combs than those with honey, but he does not, I think, give us the full reason for it. Mice are fond of honey, but with it they want some nitrogenous food, which the scattering cells of pollen in empty combs supply; and by working through the empty combs, or chewing them up they are able to get a well-balanced diet. Besides this, the empty combs are warm, and make a most excellent place for nests.

"Honey selling in Great Britain at 48 cts.?" Pray tell us where; who sells it? how much at that price? Is it a little bought by some lord, or aristocrat, or by the king himself for his royal family? How much will it take to break the market? I have shipped honey to England several times, but was able to realize only about enough more than honey was selling in this country to pay the extra cost for cartage, wharfage, freight, insurance, exchange, etc., which amounted to two or three cents per pound, I should say, but I had the satisfaction of knowing I could do it. [See our answer to Dr. Miller, on page 1556 of last year. Our British cousins are suspicious of foreign honey; and consequently such honey, even though just as good, will not begin to bring the prices of English heather.—ED.]

Mr. Greene, on page 1420, is right in thinking that longevity a most important trait or quality of bees. When I said that "greater endurance means longevity" I meant what I said—that, if you have endurance, you have longer-lived bees. They will not so soon wear themselves out, and consequently will live longer. I can conceive of a colony of bees of very great endurance; but, associated with it, greater activity, so that their greater activity would wear them out as fast as less industrious colonies with less constitutional vigor; but I believe these are exceptions.

E. D. Townsend, in a most excellent article in GLEANINGS for Nov. 15, tells how to get better prices for extracted honey; yet in one thing I want, good naturedly, to disagree with him. He says, "It is estimated, and I have never seen it contradicted, that if comb honey sold through the commission man brings 14 cts. a pound, the freight, cartage, and commission will bring the price down to 10 cts. for the bee-keeper." Now, I have sold a good many tons—yes, carloads—of honey through commission men, and the amount paid for freight, commission, etc., rarely goes above two cents a pound. About ¾ cent is for freight, ½ cent for cartage, and on cent for commission, although I have had it cost much less and sometimes more. [You are able to do better than most bee-keepers. —ED.]

Quite right is the editor of GLEANINGS in thinking the outlook for the future of bee-keeping is bright. The pure-food law can not but make a sight of difference in the sale of extracted honey; and improved methods in marketing will add immensely to the demand for comb honey, I feel sure. "Up against 500 lawsuits in the State of New York," did you say the glucose people were, and that just after settling up for their adulterations in Pennsylvania for half a million dollars? This giant has looked with supreme indifference upon the discomfort of the honest producers of honey; but the day of reckoning has come I am reminded of a conversation between two little girls. One says to the other, "Do you know what becomes of bad folks when they die?"

"No; what is it?"

"Why, don't you see they will go to hell and be burned up? But they won't be burned up right off, but will sizzle and sizzle and sizzle for a great while."

The adulteration business is evidently in the fire, and for one I shall enjoy seeing it sizzle and sizzle and sizzle for a great while.

Allen Latham, Dr. Miller, and the rest who have had lots of clover with but little honey from it, have my sincere sympathy. What is the cause? We know that the weather has much to do with it, but not all by any means, for our friend Latham could hardly have no good weather for clover, or but two or three days during the past 22 years, while he has

much good weather for apple-bloom, sumac, locust, etc. I have come to the conclusion that soil has much to do with it, and venture to guess that Mr. Latham lives in a section where the soil is light, or, at least, with but little clay. In such sections, as far as my observation goes, clover yields honey very grudgingly. Exactly the reverse seems to be true with buckwheat. It yields freely on light soils, while on clay it is, as a rule, almost worthless for honey, The honey business here in Vermont is mostly located in the Champlain Valley, within ten to fifteen miles of the lake, where the soil is largely clay. As soon as you leave this section the soil is lighter, and very few bee-keepers seem to prosper unless in sections where raspberries abound.

A HAPPY AND PROSPEROUS YEAR.

1907. What will you do to improve bee-keeping during this, another year?

No, Dr. Miller, there was no "queen of the convention" at San Antonio, perhaps because it could not be agreed upon as to the method to employ for testing the sweetness of all the 16's and 20's. Both "the saccharometer or the natural labial process" had their objections.

No use sealing bodies of empty combs without treating them frequently by fumigation to destroy the young larvæ hatching from the eggs of the wax-moth already laid on the combs before they have been put away. This accounts for combs being destroyed, many times, by the wax-moth larvæ, even when they were securely sealed away.

Moth-balls to protect combs against the ravages of wax-worms were recommended at the San Antonio meeting. Enough of these for one hundred bodies of combs can be obtained from any druggist for 15 cents. Simply stack the bodies with the combs up, putting some of the moth-balls into the bodies as they are stacked, and closing each stack with a lid on top.

Perhaps the honey vinegar with the unpleasant odor and taste to which Mr. Alexander objects was made from buckwheat honey. It is rather dark, and strong in flavor and odor, hence this may have something to do with it. All the honey vinegar I have tasted, of my own as well as others, was good, clear, and sharp, and without any objectionable taste of honey. In these cases, however, milder honeys than buckwheat honey were used in the making.

ARTIFICIAL RIPENING (?) OF HONEY.

Don't do the work the bees can better do for you. One of these is that of ripening honey. Very little, if any thing, is gained by ripening it artificially. It requires an extra outlay for suitable equipment, as a first reason, and the product does not compare with the delicious, well-flavored product ripened on the hive by the agency of the bees themselves, and savoring of a fragrant aroma that is entirely lost in the artificially ripened stuff Besides, the well-ripened honey from the hives is the best advertisement for the producer, and brings from one to two cents a pound more than the regular market price. A much wiser plan is to put the extra outlay in more comb-supers, enough to hold the entire crop on the hives long enough to become well ripened. Pity the bee-keeper who has only one or two supers to a colony, necessitating extracting the honey from them every few weeks during the honey season to make room, and then "ripening" the honey in tanks.

CAKES OF CANDY FOR WINTER.

For winter feeding, nothing is better than cakes of candy made of pure granulated sugar, and laid over two small sticks on top of the frames directly over and in reach of the cluster, and covering the whole with some kind of mat for warmth. So, make the cakes 4 pounds of sugar to a gallon of water. This should be boiled carefully until the syrup solidifies quickly, when a little of it is dropped into cold water. The syrup is then poured into shallow greased pans and molded into cakes about 2½ inches thick. If these pans are large, the cakes can be broken into pieces of about 150 cubic inches; or cakes 2½ inches thick and 6 inches wide by 10 inches long, will weigh about 6 pounds—just right for the purpose. I have used common pasteboard boxes of these dimensions, which can usually be obtained free of charge at dry-goods stores; lined them with a sheet of paraffine or butter paper, and poured the syrup into them. After hardening, the paper is easily peeled off the cakes. The boxes can be used several times, simply laying over each a new sheet of paper and roughly pressing it down with the fingers.

TO ALLEVIATE THE PAIN OF STINGS.

All kinds of questions are sometimes asked me about what to do in case of stings from bees and other insects. The first thing *I* do is to suck the wound well to remove as much of the poison as possible. This, with me, is generally all that is necessary. To keep the place well covered with saliva for some time seems to give relief. This has a soothing effect. Honey spread over the sore place has a similar effect, and is one of the most ready applications, as it can generally always be easily gotten, especially when working with

the bees. In severe cases the wound should be washed well with warm water, then bathed in alcohol; then bind a folded linen wet with alcohol or vinegar over the wound, changing the application every ten minutes until the pain subsides. A slice of fruit—apple, peach, or tomato—bound lightly on the wound will help in many cases. This is most practical if the apiary is located in an orchard with ripe fruit. Many other remedies have been suggested but not tried by us in our apiaries.

MISTLETOE — OUR FIRST HONEY-PLANT.
SEE PAGE 110.

Often I have thought whether this should be called the last or the first of the season. It sometimes begins to bloom, and bees roar on it early in December. Other plants may bloom almost up to this time, and we might call mistletoe the last of the season. But with the beginning of mistletoe bloom, really begins the real new life with the bees for the following year, and especially marked is this during a year with an early spring.

Mistletoe (*Phoradendron flavescens* Nutt) belongs to the family *Loranthaceæ* (mistletoe family), and is a parasitic plant on the branches of certain trees, from which it obtains a living from their sap. It sometimes kills the branch or even the tree on which it is a parasite. It occurs as an evergreen, glabrous, pendent bush, from one to four feet long, sometimes in large dense clusters, with its fiber roots insinuated into the wood of the tree upon which it preys Its branches are stoutish and knotted, branching twos, or dichotomous, with thick and smooth, green, oval leaves, generally in pairs. The flowers are small, inconspicuous, and greenish-yellow in color. An abundance of pollen is obtained from these. The fruit is a small, white, viscid berry, the flesh portion of which is very mucilaginous. Birds fond of them will sometimes have them sticking to their bills, take them to other trees, where the berries with the seed are removed by rubbing them off on some branch to which they adhere, and new plants begin to grow. I have seen this pest on different species of oaks, elms, mesquite, hackberry, bois-d'-arc, and other trees. It is most abundantly found on our shade trees here; the hackberry (*Celtis Mississippiensis*), to which it is doing much damage. It is just as plentiful on the mesquite-trees (*Prosopis juliflora*), our leading honey-producer.

The photos (p. 110) show it on the mesquite-trees. It will be noticed how dwarfed the branches are upon which the largest quantity preys. This photo also shows *two* valuable honey-plants on *one root-stem*. Several of my apiaries are located where the mistletoe is plentiful, and I value it very highly. It is the earliest pollen-yielder, and such in large quantities, and stimulates early brood-rearing. I am not sure about its honey-yielding, but believe it gives some.

The mistletoe was deemed sacred by the Druids, and is still frequently employed in Christmas festivities and sports. "Kissing under the mistletoe," according to Scandinavian mythology, is given as follows by Braver:

"The wicked spirit Loki hated Balder, the favorite of the gods, and, making an arrow of mistletoe, gave it to Hader, the god of darkness, and himself blind, to test. He shot the arrow and killed Balder. He was restored to life, and the mistletoe given to the goddess of Love to keep. Every one passing under it received a kiss as a proof that it was the emblem of love and not of death."

LOSS OF QUEENS WHEN MATING.

"Good morning, Mr. Doolittle. Got those bees in the cellar yet? The last you told us about them in GLEANINGS was that they were not in, and that they were out in fourteen inches of snow."

"Yes, I remember, Mr. Allen. But the snow went off a few days later; and we had a day in which they had a reasonably good flight soon after. This allowed me to get them in all dry and nice. It would have been a little better had the south wind not blown quite so hard, as this prevented their flying as freely as they otherwise would."

"Do you have much south wind here?"

"Lots of it during the winter, and especially every time when it becomes warm enough or nearly so for the bees to fly. This is one of the things against outdoor wintering here in Central New York. Nearly every time when the mercury goes from 45 to 55 degrees above zero we have a south wind which sweeps over the country at from 35 to 50 miles an hour; and if the bees attempt to fly they are blown down in the snow, mud, or slush, so that many of them perish, fully half or more with the mercury as low as 45 to 48."

"That makes it bad, surely. But I came down from Michigan to have a little talk with you about the loss of queens when they go out to mate. So far I have lost a large proportion of what I have raised in getting them fertilized. Can you tell me where my trouble lies?"

"Do you have any king-birds hanging or perching about your apiary?"

"Not that I know of. How does a king-bird look?"

"Do you know of a bird that they call a 'pee-wee,' a bird which builds its nest in some old out-building or about the barns, using moss and mud for the constructing material?"

"Yes, this bird which you describe is quite familiar to me."

"Well, a king-bird is a great big overgrown pee-wee, about three times as large as the pee-wee, or nearly as large as our robin; but in shape, color, and general make-up it looks and carries itself almost exactly like a pee-wee. But instead of building its nest about buildings, and using mud and moss in nest-construction, it usually builds in apple or other low-down trees, using fine grass or straw, mainly, for material."

"Yes, I know the bird now, and I did see one or two sitting on old dead branches of trees about the apiary during the summer."

"And did you notice that, every few minutes, or at times as many seconds, this bird would leave its perch in rapid flight, and in a moment return and appear to be pounding something which it held in its beak, against the old dead perch on which it sat or stood?"

"No. I do not think I noticed that part, for I did not observe close enough for that, as I was not interested in this bird or any other."

"Well, these birds are insectivorous, and thus it comes to pass that they often feed on the bee; and when you see one perched on some old dry tree near the apiary, going from and returning to the same every few moments or seconds, and pounding its beak against the old tree, you may rest assured that a bee perishes with every flight from the crag."

"What makes you think this?"

"I have a rifle with a telescope sight on it, the telescope being strong enough so I can see the toe-nails and whiskers of a squirrel ten rods away, and with this I can see what a bird has in its mouth at that distance."

"That is plain, I should say"

"Yes; and this telescope has told me that the king-bird catches bees, and lots of them, especially when a pair or more of them have nests near or about the apiary; and as this bird is one of the late comers in the spring it nests late, so that the time for feeding its young comes right in the time when most queens are taking their wedding-flight, or at about the time after-swarming is at its height, where natural swarming is allowed. One year there were three nests of these birds near the apiary, when I allowed natural swarming, and before I commenced the rearing of queens as a business, and that year I lost fully forty per cent of all queens from the parent colonies and after-swarms which were saved. I noticed that these birds were about the apiary very largely from one to three o'clock in the afternoon, and from this I conclude that drones and queens, in proportion to their numbers, are more often caught than worker bees. The next year I killed every king-bird as soon as I saw one perching about the apiary, and my loss of queens since then has been only a small per cent of what is was previous to thus killing all these birds which insisted in hanging around the apiary."

"Well, I will look after these birds in the future. But you do not think these birds cause *all* the loss of queens?"

"No, by no means. If your hives are close together, of the same color, and stand in a row side by side, so that all of them except the end ones look and appear alike, you will have trouble in the matter of losing queens at mating, no matter whether there are any birds around or not."

"How is this?"

"While bees mark their location on their first flight better than it would seem possible for them to do, yet if you observe only casually you will find that there is much mixing of bees when returning from their first flight, where hives are of the same color and set close together. Now, if it happens to be a worker bee or a drone which enters a hive other than its own, no harm comes from such an entrance; but if it happens to be a queen she is soon balled and killed, where the hive into which she enters has a good queen already. And in any event the hive from which she came will soon be beeless unless the bee-keeper finds out about this loss and gives them a new queen or some means of producing one."

"I see. But how is this to be remedied?"

"First and best by locating the apiary about buildings or scattering trees, so that no two hives shall be in a nearly like position as regards these trees or buildings, in which case the queens take these things as a sort of landmark, and by these know just which is their own hive, thus making no mistake when returning from their wedding-flights."

"But suppose one has no trees near or about where the bees are wished to stand."

"Then we must do the next best thing, which is, to locate our hives in such a position that no two of them appear the same from the outside."

"How can this be done?"

"By setting them in twos, threes, or fours about the beeyard, and having the entrances to each lot face in different directions; by painting each hive a different color, and by having a dissimilar object near the entrance of each hive."

"Which is *your* choice?"

"Where I could occupy all the ground I wish with any apiary I would locate the hives on the hexagonal plan, having the rows ten feet apart, and the hives ten feet apart in the row; and under no consideration would I have the hives closer than five feet apart each way; and I would have a few trees or buildings in and about such an apiary, if possible. If not possible, I would put something out in front of every other hive of a different nature from the other hives, thus giving every other hive a different appearance."

"How is this best done?"

"Lay a few flat stones down in front of the second hive from each end of the row, then skip a hive, and in front of the next one lay down a wide board or two, twice as long as the hive is wide; skip a hive again, and at the next put down more stone, and so on till all the apiary is gone over. Then, if you put in a few sunflower seeds near the entrance of every fourth hive, or allow some weeds to grow near the entrance of an oc-

casional hive throughout the apiary, or lean up a stick of wood right over the entrance to a part of the hives, you will have very little cause to complain from loss of queens when they go out to meet the drones. Occasionally a queen will get lost under the best of conditions; but since I kept the king-birds killed off that persisted in hanging about the apiary, and marked my hives as I have told you, I do not lose more than five queens out of a hundred, and not more than three out of a hundred, except in unusual years."

"Well, I feel very grateful for what you have told me, and I will be going now. Good by."

AVOID A PROUD AND BOASTFUL SPIRIT; EXCEPTIONS TO ALL RULES.

When we know a thing, it seems to be human nature to tell it to our friends. When we think we know a thing and don't, we tell everybody. This describes my nature exactly.

After studying the bee question a little I always liked to tell people just how my bees were going to act; just when they were going to swarm (usually they didn't swarm at all, but were just trying to supersede a queen). I liked to tell just how they would act when they swarmed; how they would circle in the air, and, on account of the queen being clipped, they would go back into the hive without clustering. Theoretically this was what they should do; but, friends, in this vicinity (I did not say "locality") I have had during the past five years about 25 swarms, and every mother's daughter of them, with one exception, clustered and stayed clustered till I got tired of waiting for them to come back, and till I shook them out of the tree. This one exception caused me some embarrassment.

One day a friend came over to talk bees with me. He was the kind of company I enjoy visiting with. He kept his mouth shut like a gentleman, and let me do all the talking. I told him how to stop a runaway swarm. All he had to do was to get ahead of them and throw water on them. I told him that one writer claimed he could drive a swarm anywhere he wished with a spray-pump. I did not try to get him to swallow such a big one till he got used to my little ones. But I hope that is so. What a fine ad. it would be for the bee business on the 4th of July to head the procession driving a swarm of bees before you!

I told my friend if he ever saw a runaway swarm to let me know and I would show him how easy it was to stop them. It so happened that, about a week later, he came running over to my apiary, nearly out of breath, and said: "There is a whopping big swarm of bees about two blocks away, and they are coming right this way."

"How lucky!" I thought. Never was a more opportune time for a scientific demonstration. We quickly got pails of water and cups. Sure enough, here came the bees—a buzzing, humming mass that filled the air for nearly a square. It was a beautiful sight—one of which I never grow tired.

Before they got near the apiary we sprinkled them, and, presto! they immediately began to slow up and come nearer the ground. There, I told you so. See how easy we can make them come down! This is the modern way of doing things. Some old fogies still use tin pans, looking-glasses, etc. Nothing in such nonsense as that. This is real science. All this time the bees kept coming lower and lower. Now you just watch me and I will show you how I can make them cluster on that little peach-tree there. How fine to stop them right in an apiary where we have hives and every thing all ready for them! Then I got on the other side of the swarm and began to sprinkle them. All this time my friend kept exclaiming: "This is great! It' worth coming a long way to see! What wil you take to teach me how?"

But why did not the bees cluster on that tree? Now a sickening suspicion began to come over my mind. The bees were gathering in a cloud around a hive. Yes, they were going in. Then the truth dawned upon me. It was one of my own swarms that I had hived the day before, and they were trying to abscond, and, not having their queen, they were returning as all good bees should. Oh my! Did mortal pride e'er before suffer such a slump? all that fine demonstration come to naught! all that classical bragging worse than wasted! I would gladly have sold myself for a penny, but I was too humble to cheat my worst enemy as badly as that. My friend looked at me with pity. The thought came to me that I might explain that, after all, it was due to the modern method of clipping the queen's wings that saved the swarm, but I did not have the heart to venture even this cheap apology.

Those bees were determined not to stay in that hive. I gave them ventilation all around. I shaded them. I gave them a double brood-chamber, but they simply would have none of it. Then I gave them a frame of brood to fool with, and they stayed under protest. Here is another exception to the orthodox teachings. That queen refused to lay a single egg for four days, and in the meantime the bees built the hive over half full of drone comb. I have had one or two other swarms do the same thing; and in using starters when they start with worker comb they usually leave a space in the corners that, later, they are sure to fill with drone comb. So my rule from this on will be, "Full sheets in the super; full sheets in the brood-chamber, at any and at all times."

THE DANZENBAKER HIVE.

A Demonstration of it at the Bee-keepers' Field Meeting at Jenkintown, Penn., June 26, 1906.

BY GRANT STANLEY.

With all respect to the inventor of the Aspinwall non-swarming hive, I can hardly make myself believe it will do all that is claimed for it in the hands of all bee-keepers and in all localities. Another thing, by the illustrations recently shown in GLEANINGS I am of the opinion it will prove rather complicated and too expensive. I can hardly believe we shall have a strictly non-swarming hive very soon unless it be at the expense of the honey crop, for the reason that it looks too much like getting rich by sitting down with our hands folded. Bee-keepers could farm out colonies by the thousand as easily as they control hundreds at present. Now, after all, what is wanted more than any thing else in this respect is a hive so constructed that it can be successfully manipulated and produce a profit to the bee-keeper in any locality; localities are so different that a successful manipulation of colonies applied to one locality will prove a failure in another, though possibly only a few miles apart, and *vice versa*. Then, too, as no two individuals are alike, the bee-keeper also comes up for consideration. We see two very successful bee-keepers, possibly in the same locality, employing entirely different systems. So I say what is wanted is a hive so constructed that it will readily permit of varied systems of manipulation, and produce satisfactory results to the bee-keeper; and if there is one hive possessing these features over another I believe it is the Danzenbaker.

This hive possesses more points of merit than any other hive on the market to-day. In fact, I have heard of only two objections to this hive, and they are these: That the handling of closed-end frames is too slow and tiresome, and kills too many bees, and that the closed ends are likely to be coated with propolis, and would have to be pried apart. To the former I would say that I believe closed-end frames can be handled even singly more rapidly than hanging frames, while they can also be handled in pairs or three or four at a time; in fact, it becomes a matter of handling hives instead of frames, and I believe this is what most bee-keepers desire. If a little smoke be blown over the closed ends on opening the hive, the bees will crowd to the center of the frames, and they can be handled without killing a single bee. Now as to the latter objection, I live in a locality where propolis is sometimes very troublesome, though I have also had to pry hanging frames loose before I could handle them. Propolis is always worse with me during wet seasons; and as the fall weather with its cool nights approaches it hardens and becomes very brittle; but by this time I have no need to handle frames. But in case they must be handled at this time, if the frames are pried slightly with a screwdriver or like instrument they can be handled very readily.

This hive can be quickly adjusted to meet the needs of any size of colony. It is, in fact, a large or small hive just as wanted. If the main honey-flow comes from white clover, and it is desired to have a strong force of bees by this time, a second set of brood-frames can be placed on the hive during fruit-bloom, and by the beginning of white-clover bloom the hives will be fairly boiling over with bees, and the bees of this upper set of frames can then be shaken on the frames below, and the brood given to weaker colonies or used for making increase. This will furnish an immense force of bees for the sections. If the bee-keeper resides in a locality similar to that of "Alexander the Great," of York State, where the main flow comes on considerably later, the single brood-chamber will furnish plenty of bees in sufficient time for the harvest.

With this hive, bees will build all worker comb, and as straight as a board, even from an inch of foundation. You don't need to lift the frames out every day or two to see if the bees are building straight comb, as must be done with ordinary loose hanging frames. In case a colony persists in only half building down to the bottom-bar, the frames can be reversed, when the work will be completed in short order. Where the bee-keeper resorts to natural swarming for his increase, by placing a super of sections with starters on the hive at the time of hiving the swarm, the frames and sections will be drawn out together, as it seems that just enough bees work below to keep the queen engaged, and the rest of the bees work above in the sections.

This hive has been termed the "comb-honey hive;" but it is equally good for extracted honey. The producers of extracted honey want a frame narrower than the standard Langstroth, and rightly so, on account of the great weight in handling large frames of sealed honey and the risk of breaking in extracting. If I were an extracted-honey producer I should want my extracting-frames the same size as those used in the brood-chamber so that, if I wanted to use them for building up weak colonies with honey or making increase, they would be right at hand. There should be but one size of frame in the apiary. Of course, some will say they don't want any brood reared in the frames they run for extracted honey, as it will not be quite as clear; but "all is not gold that glitters;" and, after all, quality is the greatest essential that comes up in the production of honey.

This hive is also very well adapted to out-apiaries; and as bee-keeping by the establishment of such is becoming more of a specialty each year, it is worth while to give this matter more than a passing notice. The frames are always ready for moving, and can be carted anywhere with perfect safety. All that is necessary is to screen the entrance, fasten the roof and bottom-board, and the hive is ready.

In case the bees of a strong colony get ahead of the queen during the honey season, and fill the frames above the brood with honey, by reversing the frames at this time this honey will be carried up into the sections, as they will not tolerate any honey below the brood.

This is a very suitable hive indeed for making artificial increase by the use of nuclei, the frames being closed-end; and by the use of a division-board on each side of the frames it makes it a very warm hive, even in quite cool weather—a feature very essential in the rearing of good queens and building up these small colonies.

Brood-frames of this depth are about the limit at which combs built by bees from foundation starters will not stretch, sag, or buckle from the top-bar or bulge at the bottom. It is the limit at which bees build combs solid to the bottom-bar. Wiring is not necessary in the use of this frame. It is the limit that a queen will stay in the brood-chamber and not go up into the sections without the use of excluders. It is also the limit that insures having the pollen stored in the brood-frames and none in the section. It is the limit at which bees will build no brace-combs. My experience with brace-combs is not worth mentioning, as the very small amount I have had has been the fault of the queen and not the hive. The present tendency among many bee-keepers is for a frame somewhat shallower than the standard Langstroth, for the reason that they want very little honey stored in the brood-chamber during the honey-flow, as they want it in the sections, and this is overcome by the use of this frame, while with a deep frame there is always from one to two inches of honey stored above the brood next to the top-bars.

Another thing, as the brood extends clear up to the top-bars it is a very easy matter to examine a colony without removing a single frame. By blowing a little smoke over the frames the bees will run down out of the way, and you can tell just how many frames of sealed brood they have, and as to the presence of the queen. If present, drone brood can also be readily seen.

I have used this hive since 1900, and with this amount of experience and close observation I believe bees will winter better in this hive than in any other hive on the market. I wintered bees in these hives right alongside of chaff hives; and the bees in these hives always came out away ahead.

The chaff hive has seen its day. In wintering bees on summer stands, it requires several days of warm weather to warm up a chaff hive, and before this time has arrived the warm weather has passed without the bees having had a flight; but with this hive, an hour or two of warm weather will warm it up sufficiently for the bees to fly. I have never had a case of spring dwindling or a queenless colony show up in spring; in fact, I have never lost a single colony in these hives with the exception of the winter of 1903, when so much loss in bees prevailed all over the country, and my loss was due entirely to starvation. There never will be a hive invented that will winter bees without food.

This is practically a double-walled hive. The frames being closed-end, there will be no currents of cold air passing up through between the frames, as is the case with loose hanging frames. Bees will build up in spring in this hive with amazing rapidity. I have never failed to have the hives fairly boiling over with bees at the approach of white-clover bloom, and this season I had honey sealed in the sections during apple-bloom. I believe it is the opinion of the majority of bee-keepers that bees will build up more rapidly in spring on closed-end frames. In the use of this hive, if the bee-keeper will see that his colonies are supplied with plenty of well-sealed stores at the approach of winter, there will be no need to "jockey" his bees in spring with daily applications of syrup to get them up for the honey-flow. When I read about this work in the journals I always imagine there must be something wrong. To tamper with bees daily in early spring results in more harm than good.

In preparing these hives for winter, lay two sticks, about the thickness of a lead-pencil, across the tops of the frames, so the bees can get from one frame to another without going around below; push several thicknesses of paper down between the outside frame and the hive, allowing it to extend several inches above the frames. Now put on an empty super; cover the frames with a porous quilt, and place a wheat-chaff cushion on top, and an outer case over all, and with plenty of well-sealed stores I would not give a great deal to have them insured. By this method of wintering in this hive I have not had a single moldy comb in spring. I allow a $\frac{3}{8}$-inch entrance the width of the hive during winter, and $\frac{3}{4}$ during the honey season.

The adjustable bottom-board is another grand feature connected with this hive, as it permits of any size of entrance, from the smallest to the $\frac{3}{8}$ inch the full width of the hive. In case of robbing, the entrance can be reduced to such size in a few seconds as will insure protection.

In the production of fancy comb honey it is very necessary to have the maximum amount of honey stored in the sections in a minimum period. The faster this work is accomplished, the nicer the product. This is of the utmost importance in localities where the honey-flow is short. So you see that, by the use of this shallow frame, mostly occupied with brood, all honey is rushed into the sections; and with a strong colony it is surprising how rapidly the sections are drawn out and completed. My experience has been that bees will draw out and cap

these 4×5 sections much more rapidly than square ones. It is said bees are like people in this respect. We never see a square house, and, indeed, bee-keepers do not want a square bee-hive, as much better results are obtained with the present system. I have very few cells in finished sections that are not sealed, most of them all sealed, and built as straight as a board right down to the wood. Now, if all this is true in addition to being able to secure one or two cents more a pound for these sections, is it not a matter worth the consideration of every practical bee-keeper in the country?

Nisbet, Penn.

THE PLAIN LANGSTROTH FRAME—WITH A PRELUDE.

A Plea for Simplicity.

BY E. N. WOODWARD.

As we have been favored with so many articles on the merits and demerits of the Hoffman frame, I thought it no more than fair that the plain Langstroth frame with its simple construction and its easy manipulation should again have an advocate.

With this thought in mind I sat down to express my conviction on this old, wornout (always new) subject; but as I sat at my desk I opened the August 1st number of GLEANINGS, and, looking at the page at random, I said to myself, "Surely this must be some text-book illustrating some new mathematical problem, with its cubes and its squares, and right angles, triangles, parallels, etc.," but upon closer study I found that they were quite simple devices for handling hives, supers, and various things of that kind, and, to all appearance, very good in their way, and I wondered to myself what the inventive brain of the modern bee-keeper would place before us next, and whether we could afford all of this luxury, and make use of all the new things offered us, and make a paying investment of it.

Now, in this north-central half of Uncle Sam's bee-pasture, where we depend mostly upon white clover for our surplus, and often a failure at that, we must be a little careful how we indulge in these new things, on account of expense. One man may exploit a certain kind of hive (non-swarming), perhaps. It is something new, and has some good points, but is too complicated and expensive for practical use. Or some one may develop a new system of management so elaborate in detail that the thought of putting it in practice makes it appear almost prohibitive. It is easy for us to preach to others; but do we ourselves practice what we preach? In other words, do we take our own medicine? I rather suspect not in all cases, except in homeopathic doses.

In these new things that come up, how shall we determine what is truth and what is error? Sometimes we ourselves are at fault, and in trying to follow what may possibly be a truth we meet with disaster. As a case in point, I tried to follow the Alexander method of strengthening weak colonies by placing them over strong hives, and it proved a complete failure. I shall not attempt it again until I am convinced that I was at fault myself. So I repeat, what we are all after is truth.

> The teacher then should plainly show
> That truth alone is uttered;
> For man, to win success, should know
> Which side his bread is buttered.

And now after drifting away for a time I wish to resume my subject and have a word to say in regard to the plain standard Langstroth frame. What we want is a hive and a frame and a system of management that will bring dollars and cents into our pockets. I am aware that this is not the popular side of the question. There are two extremes. One man will choose a tall hive with a deep frame, another man a shallow hive with shallow frames. Mr. R. C. Aikin, of Colorado, once said, "If bees were to consult their own wishes they would choose a hive thirty inches high." Is there not some point where the two extremes may meet—some happy medium where the wishes of the bee and the convenience of the bee-keeper may harmonize? We think that the compromise is about on the line with the standard Langstroth frame, pure and simple.

I have used the Hoffman frame quite extensively, and I find by experience that the objection to the plain frame is somewhat imaginary. It is the cheapest frame that can be made, and the easiest to handle. You can remove any frame you wish, often without the use of a smoker, and certainly without the disturbance and the annoyance and the stings that will come when we attempt to move the first Hoffman frame.

Now, "in this locality" attraction of gravitation is always in force. We set our hives perfectly level; and if frames are well made, and hung upon tin rabbets, they will hang true and plumb every day in the week. Again, at certain times of the year I wish to space my frames differently for a reason and a purpose which I think are very important. When running for extracted honey I space my frames in the super 1⅞ inches. In wintering I space them 1½ inches. If I wish to remove several frames from below and place them in the extracting super above, it is easily done. But some one will reply, "You can do all this with the Hoffman frame." So you can; but when you space the Hoffman frame differently you make a hanging frame of it—just what I advocate, and the so-called advantage of the Hoffman frame has lost its merit.

In regard to moving hives to out-apiaries, I will just say that I have moved hundreds of colonies on springs five miles and over, with no damage whatever, and I have moved them by the carload two hundred miles with the same good result.

In conclusion I will say that, for an all-purpose combination, for comb and extracted honey, the standard Langstroth hive and frame has no superior, and, like many other good things, will still rest upon its own merit.

Hillsdale, Mich.

FEEDING IN MIDWINTER.

How it Saved an Apiary; Some Interesting and Valuable Experiments; Good Candy as a Winter Food.

BY DR. D. E. LYON.

[As we were conducting some experiments in midwinter feeding, we requested our "long-arm correspondent," Dr. Lyon, to conduct a similar series, adding we would pay him for any colonies that he might kill in the operation. The results that he gives here are very interesting as well as valuable, and we feel sure our readers will peruse it with unusual care.—ED.]

The purpose of this article is to give the results of some experiments made last year in winter feeding, and to offer suggestions concerning the method of feeding. The apiary fed was made up of 60 colonies, the result of artificial increase, the same having been built up from ten weak colonies, spring count.

The divisions were headed by young queens introduced at once at the time of division, by aid of tobacco smoke, and each small nucleus was allowed to shift for itself as far as feeding was concerned.

The season was a fair one, and by Sept. 10th each of the 60 nuclei had built up to a fairly strong colony with full sets of comb which they had drawn from full sheets of foundation, but with less than 10 lbs. of honey to the colony.

Feeders of the Miller type were filled with about 25 lbs. of good thick syrup, and each colony took up about this amount.

By the way, the writer had the Root Co. make his feeders to order, and I am convinced that the slight change was a big improvement. The feeders were made of ¾-inch wood, so that they would not warp; and the outside divisions were such that the feeder fitted flush with the outside of the hive all around. When placed on the hive it looked exactly like a shallow super, and over it the hive-lid was placed, which could be slid from one side to the other without the escape of a bee or of a bee falling into the syrup.

Fig. 1.—Placing the cake of hard candy over the frames.

Feeding was over in a few days, and bees fixed for the fall and winter, and the outlook was favorable for bees going over till spring. The writer was called away for several weeks on a lecturing-tour, and did not have a chance to see the bees until the middle of December.

The fall months were very warm, the bees very active thereby, and, in consequence of warmth and activity, consumed all the syrup that had been fed them, and thus on December 23d, as I examined the hives by lifting the ends I was alarmed to find that not a colony had more than 3 to 5 lbs. of stores, and the most of the winter before them.

To feed syrup in a wholesale manner was entirely out of the question, as I tried it on a few colonies and found the weather too cold for the bees to take it, and I was confronted by the possible loss of my entire apiary unless some plan could be devised to feed them.

Fig. 2.—Hard candy in position with the prepared super ready to set down over the hive.

COLONIES FED IN WINTER WITH HARD CANDY.

As an experiment, ten colonies were fed each a cake of hard candy, made

Fig. 3.—Hives protected by supers of shavings on which are tacked strips of building-paper wide enough to extend down nearly to the bottom-boards.

by boiling two parts sugar with one part of honey until the same was brittle, and, when poured into bread-pans, these cakes hardened like so many blocks of ice. These blocks, weighing about 10 lbs. each, were placed one over the frames of each of the ten colonies, the cake of honey candy being placed on two strips of wood to elevate it about ¼ inch above the top of the frames—see Fig. 1.

Fig. 4.—Mixing honey and pulverized sugar to make Good candy.

Then supers were taken, Fig. 2, and pieces of burlap nailed over them so that, when these supers were placed over the cake of candy, the burlap had been left so loose and "baggy" that it covered the candy and at the same time permitted the super to rest flat upon the hive-body.

The super was then filled with planer shavings, the lid put on, and, to protect from wind and cold, I nailed a wide strip of "rubberoid" paper on the top of the super so that it lapped the hive-body as seen in Fig. 3.

As a matter of fact, the same method of packing was employed with all the hives, and was a perfect protection in every sense of the word.

A few more colonies were given cakes of hard brittle candy made by boiling plain granulated sugar and water, and poured into baking-pans to cool and harden.

HOW TO MAKE AND FEED GOOD CANDY.

I was not willing to risk too many colonies in experimenting, so the larger number of colonies were given great balls of "Good" candy, made by mixing extracted honey with pulverized sugar, and a cake about the size of a man's head was placed right on top of the frames, and the super packing, as above described, placed over each.

I can assure the readers of GLEANINGS that it was no easy job to roll up my sleeves and

knead up several hundred pounds of honey and sugar, so I did most of it by proxy (Figs. 4, 5, 6), and each of these cakes was molded on a bread-making board, and rolled in pulverized sugar until quite stiff. It was an awful job in December, but it was either this or lose the apiary; and of the two evils I choose the lesser.

RESULTS.

After the colonies were fed (remember this was the last of December, with snow on the ground, as the illustration shows), I left them, intending to open a couple of colonies in a few days to see how they were making out, especially those fed the "hard" candy made from sugar and honey. About two weeks after feeding, I returned home from a trip; and when I went out into the apiary I noticed that something was radically wrong with the bees that had been fed the honey and sugar blocks—that is, the blocks made from boiling honey and sugar. Out of each of these colonies ran a stream of sticky half-melted candy, and in front of each of the hives were hundreds of dead sticky bees; and on opening the hives I found that the heat from the cluster had caused the block of candy to soften and run, the honey in it making it sure to do so, and thus those ten colonies were lost, Figs. 7 and 8.

Fig. 5.—Adding enough pulverized sugar to make a stiff dough

Fig. 6.—Kneading the Good candy on a bread-making board.

The lesson I learned from this was that it was a bad thing to mix the honey with the boiling syrup for feed, for the colonies that were fed the hard candy made from granulated sugar alone with water were doing nicely, and came through to spring in prime condition.

The colonies that were fed the big balls of Good candy, made by mixing pulverized sugar and extracted honey, all did well, and demonstrated, to my satisfaction at least, that for feeding in winter nothing could equal it.

Along the last of February it became necessary to give each of these colonies another lump of about 5 lbs., which carried them over till fruit-bloom, and each of them built up well with the coming of the early blossoms. I would frequently go out among the bees in January and February and thrust my hand down through the shavings and feel how large the lump was, and thus I knew when to give another, which I did the last of February.

Care must be taken to pack the bees good and warm after giving the Good candy; and if this is done a hive can be opened in the dead of winter and the feed put in, if it is quickly closed and packed according to the above directions.

There is no reason why any colonies should be lost when discovered short of stores in freezing weather, if the above directions are carried out. The shortage of stores was explained; and had the writer not been away all the fall, the syrup would again have been fed; but as it was, the midwinter feed saved the apiary.

Rye, N. Y.

[For several years back we have been

Fig. 7.—Showing how the cakes of hard candy containing honey melted and killed the bees.

having a good many inquiries as to what and how to feed colonies during winter in cellar and outdoors, packed in chaff. Our answer has always been, give to all such, frames of sealed stores—nothing better, and nothing else anywhere near so convenient. Whenever practicable it is our practice to lay aside a lot of these when honey comes in in the season, and set them aside for emergency purposes for winter use. But when such combs are not available—or when, for any reason, the bee-keeper has not provided them in advance—he must give them something else.

One *can* feed sugar syrup in the cellar, and the bees will take it down just the same as they would outdoors. What, then, is the objection? It stirs outdoor bees up to activity, breaks up the winter-nest, and, in the case of cellared bees, starts an uproar that excites all the other bees to a greater or less extent in the cellar, whether so fed or not. The only thing, then, is to give them candy in some form—some sort of food that they can appropriate *very slowly*. For this purpose we have advised giving lumps of Good candy made by mixing powdered sugar and honey into a stiff dough; and it would seem, in view of the report of Dr. Lyon, that we were not far wrong. Our own experiments have likewise shown that food so prepared will carry colonies through the winter in good condition; although it must be clearly understood that there is nothing that is quite equal to a natural winter-nest, with sealed stores of honey or syrup immediately around and bordering that nest. Especially is this true for colonies wintered outdoors.

But some one, some little time ago, complained that the powdered-sugar candy would dry up, and that the granules would drop down between the frames and be wasted; that at other times these granules would be carried out of the entrance, because without water the bees would be unable to convert them into food.

Last winter we went to work making various kinds of candy—some with varying percentages of granulated sugar and honey; another with pure sugar and water, and the Good candy, to which reference has already been made. We consulted various candy-men, who suggested that glucose would make a more suitable candy; but knowing the often dangerous sulphites in that article, and not desiring to encourage the use of it by any bee-keeper for any purpose, we did not use any of it. Our candy-men then suggest-

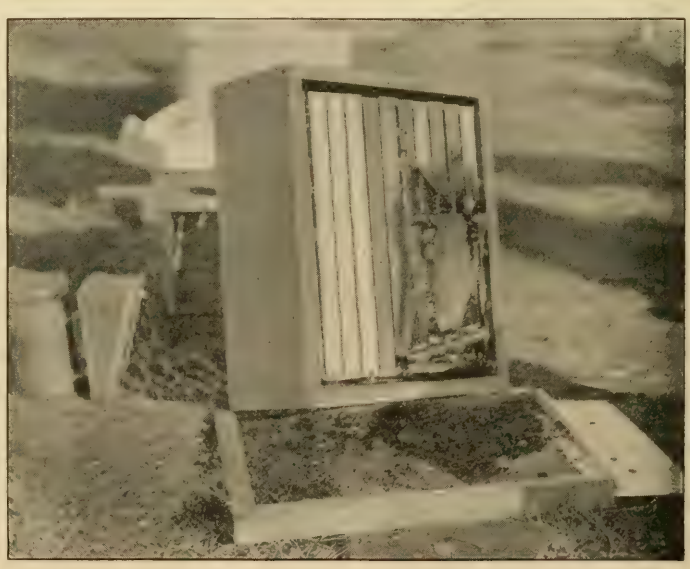


Fig. 8.—Cakes of hard candy containing honey not suitable. Bees on bottom-board drowned.

ed the use of honey, saying it would make a candy that would be moist and always available to the bees. We made several lots, as explained, with varying percentages of honey, and felt sure we had struck something good. In the mean time we requested Dr. Lyon to test the same proposition. We also made other lots of candy with dry sugar and water. These several kinds of food we gave to the bees in the cellar. What was the result? The candy that had been subjected to heat containing honey seemed to give any thing but favorable results. For some reason it seemed to excite the bees. Why this should be so when honey was a constituent in the Good candy we could not understand unless the cooking had the effect of making the honey into a sort of caramel—a substance that is always harmful to bees. As Dr. Lyon explains, this cooked-honey candy was very sticky, and ran down among the bees—and, such a mess! The bees looked discouraged, and were about ready to throw up the sponge.

How about the dry candy, using only water? This worked very nicely. It seemed so brittle and hard that it did not appear that the bees would be able to use any of it; but in its crystal state they would use it when they would not apparently touch the dry granules of sugar that dropped down on the bottom-board.

Now, while this hard dry rock candy is all right, it is a rather nice trick to make it. If you overcook the mixture of water and sugar you will spoil it. If you do not cook it enough, the result is just as bad. It should be cooked so that it will "grain" readily when stirred.

But I suspect that the average bee-keeper had better be content to make up the Good candy. In doing this he should not use *confectioners'*, but *powdered* sugar. The former is apt to contain starch. He should then mix this with the best extracted honey he has, in a warm room, kneading it until he has a lump of hard stiff dough. He should allow this to stand three or four days. In all probability the dough will begin to "run" and become sticky. He can overcome this by mixing in a little more powdered sugar, kneading it again until he has a nice stiff ball, which will hold its stability. This may now be given to the bees, in suitable-sized lumps on top of the frames.

For outdoor colonies the candy should of course be protected with packing material, and the whole covered with a super or deep cover. Building-paper will answer excellently for the purpose if put over the super.

I might state that Dr. Lyon and ourselves, in testing the value of this honey-and-sugar candy that had been cooked, and then made into bricks, sacrificed something like twenty colonies of bees. He killed something like ten, and we lost an equal number. How many more we actually injured in the cellar, not so fed, we can not say. While only a few colonies were given this hard honey candy, yet the excitement caused among those few affected more or less all the others not supplied with this food.—Ed.]

VENTILATING OUR BEE-CELLARS.

Too Much and Too Little; how Not to Ventilate.

BY E. W. ALEXANDER.

There are but few things connected with the wintering of our bees that elicit such a difference of opinion as the ventilating of our bee-cellars. While it is true that bees have been and are frequently wintered in cellars that have little or no ventilation, it is also true that, in these, we usually find the combs badly molded, honey thin and watery, and the bees somewhat affected with dysentery, and far from a healthy condition when taken out. Certainly it is contrary to natural law to confine our bees under ground five months or more, compelling them to breathe the same air over and over thousands of times, and then expect them to remain in a healthy condition so as to stand the ever changeable weather of our spring season.

In order to have my ideas well understood on this ventilating subject, Figs. 1 and 2 show the building we made over our bee-cellar last fall. In constructing this building we had several objects in view. First, and one of the most important, was to give the cellar *proper ventilation;* next, to give us a large room above to do our extracting in, and store our surplus hives of extracting-combs and many other things connected with the business. Then we wanted a tank-room where we could have our honey-tanks so arranged that, in a moment, we could turn the honey directly from the extractor into either tank; then we wanted a shop where we could make hives and do all kinds of odd jobs, such as making beeswax into comb foundation, grafting larvæ for queen-cells, which should always be done in a warm room, and, lastly, plenty of room to store a large crop of honey in until sold.

First, I will describe the building, which is 24 feet wide and 56 long. The longest way is north and south. The cellar occupies 24 ×40 feet of the ground floor at the north end; then the tank-room occupies 16×24 feet of the south end, and its floor is on the same level with the cellar floor. This room has four doors in it—one wide door opening into the south end of the cellar; also one wide outside door in the south end of the building where we roll out the barrels of honey into the wagon when we ship. Then we have a door on each side of this room, which comes very handy to carry bees in and out of the cellar from the lower part of the bee-yard by putting screens on these two doors; and by leaving them open we get a fine current of air through the tank-room, which has much to do with ripening and thickening the honey. The cellar also has an outside door at the northeast corner, where the greater number of colonies are carried in and out. The shop part is on the upper floor, which is level with the floor of the extracting-room, and is 16×24 feet.

This extracting-room or store-room is 24× 40 feet; and directly over the cellar in the

floor of it we have four trap-doors about 10 feet apart, in size $2\times2\frac{1}{2}$ feet, directly over the bees. These we can easily open to any size of hole from a little crack to the whole space, $2\times2\frac{1}{2}$ feet, which allows all impure air to pass off into the large room above. We can also put a quilt in the place of the large door at the south end of the cellar, which gives fine ventilation into the tank-room and up the stairway into the shop, and up a garret. We have two pipe-holes in the chimney, one of which is always open, and makes a strong current of all foul air out of the building. This steady and gradual ventilation of the cellar into these two large rooms, one at the end and the other directly over the cellar, keeps the air as fresh and healthy where the bees are as it is outdoors.

With this way of ventilating the cellar it is never necessary to open any outside doors, letting in cool fresh air, which will arouse a whole cellar of bees to the extent that they never again become quiet, and form themselves into a nice compact cluster, as they should to go through the latter part of the winter without loss.

We were surprised last spring to see how few bees wasted away while they were confined in the cellar. The average loss was less than $\frac{1}{2}$ pint to the colony, and that with a confinement of over five months. Every additional year's experience in wintering a large number of colonies convinces me more and more of the vital importance of giving them a pure healthy atmosphere during these long northern winters.

I often think that, if those who have gone to much expense building bee-cellars, and putting in ventilating-pipes conveying the air directly from outdoors in among their bees had only realized how much better it would have been to have had this air first tempered, as it were, by being a short time in an adjoining room, they would soon have changed their ideas in regard to ventilation. But here is the rock that shattered their faith in ventilation. When they saw this current of ever changing temperature from outside kept their bees restless and uneasy they went to the other extreme and closed up all ventilators in disgust, and have ever since been prejudiced against ventilating their bee-cellars.

This is one of the questions we bee-keepers have studied on for many years; and it does seem strange that it took us so long to see the great difference in results when our bees were ventilated by giving them fresh air directly from the outside or from adjoining rooms. The first has almost invariably done far more harm than good, while the second has given us the very best results we could possibly ask for, keeping our bees quiet and contented clear into the spring, so that it is not necessary to disturb them until the flowers are again ready for them to work on. I

FIG. 1.—ALEXANDER'S HONEY-HOUSE: THIS CONTAINS THE EXTRACTING-ROOM, THE HONEY-STORAGE ROOM BELOW, ETC.: IT IS PROBABLY THE LARGEST BUILDING OF THE KIND IN THE WORLD.

sometimes think how much easier it would be if we could look ahead and shun these hard problems of life; but then it is much better as it is, for it is through their study that our perseverance is developed, and in this way we are ever passing to a higher and a more intellectual plane.

past the end or side of the cellar sufficient to hold a few thousand cubic feet of fresh air; then ventilate the cellar into these rooms, and you will have the whole wintering problem solved.

The accompanying photos of the sides and the south end of our building and cellar will

FIG. 2.—ALEXANDER'S HONEY-HOUSE, TAKEN FROM A DISTANCE, SHOWING A PART OF THE APIARY.

With the continually changing weather of last winter it would have been almost impossible for us to prevent a very heavy loss of bees had we depended on opening outside doors to ventilate or cool off our cellar; for every time this is done it excites and disturbs every colony.

There are many things to take into consideration in order to winter our bees successfully. Many neglect putting their bees in proper condition as they should, early in the fall. I think this should be done before Oct. 1. Every colony should have a good queen not over fifteen months old; also a good-sized colony of bees with at least 20 pounds of honey. This amount is sufficient if they are wintered in a good cellar, and you expect to do some feeding in the spring to stimulate early breeding, which is very essential in order to secure a surplus of early honey. But if you don't expect to feed any in the spring, then 30 pounds or more is better to carry them through to another season.

In the above I forgot to say that, during the winter, we close the inside blinds of all the windows in the room above the cellar, and the tank-room at the end. This makes these two rooms as dark as midnight, and with the trap-doors partially open, and the doorway into the tank-room covered with a light quilt, there is an even temperature of pure air at all times in the cellar, which keeps the bees as quiet as death, and with them it is like one long unchanging night from the day they are put away until they are carried out in the spring.

In conclusion let me advise you by all means, when you build your bee-cellar, not to stop until you have a good substantial building over it—one that will extend either

help you to understand how we have such easy control of the ventilation and temperature of this cellar. I wish every bee-keeper in the land could have his bee-cellar, storeroom, and shop, as convenient as we now have ours. It would save many colonies from winter losses, and much time in carrying needed supplies from one place to another.

Delanson, N. Y.

[Our correspondent, in what he says of this subject of ventilation, agrees with one of the best authorities on the subject in the United States. I refer to Mr. H. R. Boardman, of East Townsend, Ohio. He has the reputation of bringing his bees through the winter every year in good shape.—ED.]

WAX-RENDERING.

A Brief History of Different Methods, Including the Use of Wax-presses; the Hatch-Gemmil Press and What Can be Expected from it.

BY H. H. ROOT.

Continued from last issue..

We will now take up the actual plan of working this form of press. Since there is no heat applied to the combs during the pressing, it is well to do the work in warm weather or in some room that can be kept warm by the heat of the stove used; for when the air is cold, or when the wind is blowing, the wax has a tendency to become chilled, and the work is hindered. In warm weather, or in a warm room there need be no chilling if the work is properly done. It would

be a good plan to have all the apparatus arranged in order — that is, have the press near the stove and a large can for holding the hot water and melted wax, after it

Fig. 5.—Showing can slid forward on the platform and the burlap spread out ready for the melted combs.

comes from the press, near both. An ordinary wash-boiler on a stove may be used for melting up the comb; or a faster work can be done if there are two such boilers — the second one to be used for heating fresh comb, while that which has already been melted in the first one is being rendered.

The press should stand as near the boiler as possible in order to avoid the drip when the melted comb is dipped from the boiler into the press. A cleat should be nailed each side of the press (Fig. 4) to keep it from twisting around out of place when the screw is turned down, and still allow it to be tipped up on edge when necessary, to let the wax and water drain out. It is best to have the back of the press a little higher than the front at all times.

To begin the work, pour about two pailfuls of water into the boiler and set it on the stove. As this comes to a boil, keep adding old comb, stirring frequently.

As much as half a barrel may be melted in one boiler at a time, or even more if necessary, but it is best not to have too much comb in proportion to the water used since this plan is essentially a washing-out process; and the best results, therefore, can not be secured when there is not enough water. Keep stirring the contents of the boiler until it has all been heated through thoroughly and has boiled until all the lumps have been reduced and the melted comb is of the consistency of mush; then push the boiler to the edge of the stove so that the wax may not burn or become discolored from too high a temperature. Next put a wooden plug in the spout or tube at the bottom of the wax-press can; and after putting the folded-up burlap and follower in the can, fill it with hot water. This is to heat thoroughly the press and all the parts that would come in contact with the cheese, in order to prevent chilling. Then remove the wooden plug, draw off the water, and pour it into the second boiler on the stove, which, as before explained, should be used for melting up the second lot of comb in case it is necessary to do rapid work. Now slide the can forward on the platform, as shown in Fig. 5, and spread the piece of burlap over it. Dip about a gallon of melted comb *and water* into the press and fold the burlap neatly over it, Fig. 6. In doing this don't get the idea that a strainer or dipper with a wire-cloth bottom should be used, for the idea is to transfer *plenty of water with the comb* in order to keep the wax from chilling and also to aid in washing it out. Use an ordinary dipper, then, of pretty good size.

The square piece of burlap should be of such a size that there will be plenty of cloth on top to keep the slumgum from squashing out; but, on the other hand, there should not be so much as to make a great roll of useless cloth that will only be in the way. A foot on each side to fold over is enough. If this burlap cloth be folded over neatly, as one would fold paper in tying up a package,

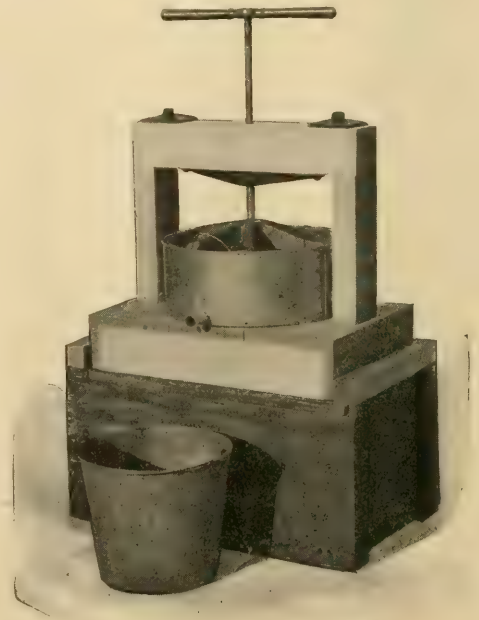


Fig. 6.—All ready for the pressure. No danger of breaking any thing.

there is no need of nails for pinning the edges together.* Place the cleated follower on top of the burlap, with the cleats running toward the spout, and then push the can back under

Fig. 7.—The press tipped up on edge to allow the last of the wax and water to drain out.

the screw. Apply the pressure slowly, turning the screw down more and more as the wax and water run out into the pail or can beneath. When but little runs out, it is best to tip the whole press up on edge as shown in Fig. 7, and keep it there for a few moments to allow all the wax and water to drain out. The screw should be turned down a little more, and then the press tipped up again. This is to be repeated until no more wax runs out, when the screw should be raised, the cleated follower lifted out, (see Fig. 8), and the cheese, which should not be more than ¾ of an inch thick, shaken up or doubled over on itself. The cleated follower is now replaced, and the pressure applied again. When no more wax or water will run out, the screw is raised, the follower set to one side, and the contents of the burlap shaken into a large box near by. This operation is gone through with until there is no more melted comb in the boiler, when work may be begun on the second boiler, the contents of which by this time will have come to a boil, and the first one may be filled with fresh comb and water.

The refuse from the press, which has been shaken out in the large box, *is not yet free from wax*, and I wish to make this point plainly understood. The results which I will give later along with many others not here mentioned show conclusively that one treatment as above described will remove only from 88 to 92 per cent of the total amount of wax. The refuse will look perfectly clean and dry, and many will be deceived and throw it away, thinking it not worth a second melting; but from quite a good many samples that I have tested from different lots of refuse that have been sent in from other producers I am very sure that there is a waste of from eight to twelve per cent of the wax unless the refuse is run through again. For this reason, when a sufficient amount has accumulated it is well to put it back in one of the boilers and boil it again with water. The second treatment will take a little over half the time the first did; but the average beekeeper can well afford to do it.

Since it is necessary to work rapidly and to keep the inside of the press exposed to the air as little as possible to keep it from getting cold, it may seem to many that this process is exceedingly slow and laborious; but a trial will show that such is not the case. I have been able, time after time, to raise the screw, remove the follower, double the cheese over on itself, and apply the pressure again, in only *ten seconds*. I will admit that I worked rather fast; but it is very easy to do all this in fifteen seconds. Or, the screw may be raised, the refuse shaken out, and a new lot of melted comb put in, and the pressure applied again in but thirty seconds. But if one does not wish to work quite so fast he can do it easily in forty seconds. Some producers, instead of putting the refuse back into a boiler and entirely remelting it after it has been through the press once, follow the

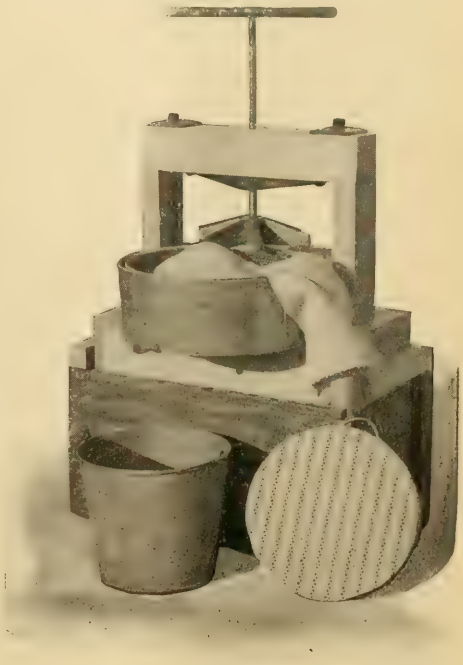


Fig. 8.—The screw raised and the cleated follower removed to allow the cheese to be shaken up.

*Instead of burlap, cheese-cloth has often been used, but in my opinion the wax and water do not run through it as readily, and it is not as strong, either. But the refuse shakes out of it much easier than out of burlap, and it might be well to use cheese-cloth inside of burlap. I have never tried this, however, and do not know that it would be satisfactory.

plan of pouring hot water slowly over the cheese until it swells up thick again, and then applying the pressure. I have tried this quite extensively, but I find that, even when it is repeated three times, there is still apt to be too much wax wasted; and since it takes less time actually to remelt it thoroughly, and the results by so doing are better, I prefer to follow that plan.

When it is remembered that beautiful yellow wax may be removed from old black combs at the rate of from 7 to 10 lbs. an hour, with a total loss of less than three or even two per cent, it will be seen that this is a rapid method. Furthermore, the diameter of the can which I used was only 15 inches. A larger one could be made at but little additional expense, and the output almost doubled.

Some will say that the plan requires a great amount of fuel and time, for heating so much water; but since the water can be used over and over again, instead of using fresh cold water each time, this fuel item does not amount to very much. The wax and water which come from the press are simply poured into a can or boiler having a spout at the bottom. The wax will rise to the top, and the hot water may be drawn from the bottom through the spout as needed. When the work is finished the water should be drawn off until but little remains, and then the wax run into shallow pails or molds to harden, previously soaped to prevent sticking, or left in the can, and taken out the next day in a large cake. When the wax is left in this way, the top of the can should be covered to keep the cake from cracking.

The results of a number of trials have been carefully recorded, and they are here given:

Lot.	Wax obtained at the first melting pressed in unheated press.	Wax obtained at the second melting pressed in unheated press.	Wax obtained at the third melting pressed repeatedly in German press.	Percentage left after one treatm't with an unheated press.	Percentage left after two treatm's with an unheated press.
1	33 lbs.	3 lbs.	14 oz.	10.5 per cent.	2.3 per cent.
2	13 lbs.	15 oz.	5 oz.	8.7 per cent.	2.1 per cent.
3	36 lbs.	3 lbs.	14 oz.	9.7 per cent.	2.1 per cent.
4	22¾ lbs.	15 oz	5 oz.	5.2 per cent.	1.2 per cent.

There are several interesting things to note in the above figures. First, let us look at the percentages of wax left in the refuse after one treatment in the unheated press, as given in the fifth column. The last percentage is much lower than the rest; but in this instance newer comb was used—that is, comb that had been in use but a short time, and, therefore, contained very few cocoons.

The other percentages in this column are truthful statements of the amount of wax that the ordinary producer wastes right along when he runs the melted comb through this form of press but once. It may be well to explain in this connection that these results are a characteristic few similar to many tests, made not only by myself but by several producers as well, who have sent slumgum here to be further tested.

The last column shows the percentages of loss after the melted comb had been treated the second time—that is, after this second treatment there is only this much loss.

It might be well to add further, that, if the work be very carefully done, this final loss can be reduced to about one per cent. This I have carefully demonstrated; but I have preferred to give the higher percentages from other trials, as, in my opinion, they would more nearly equal the average results which would be obtained when no great amount of care is exercised.

In the second and fourth experiments chopped-up hay was mixed with the melted comb. This is a plan which has been advised, especially by German writers, the claim being that the cheese is thus made more porous, so that the wax runs out more easily. It will be noted that, in these experiments, a little cleaner work is done; but whether this would be the case right along I do not know; but it would seem to me that it would be a good plan to use the hay.

It will be seen that, after the second pressing in this unheated press, the refuse was further treated in a German wax-press to determine the amount of wax which ordinarily would have to be counted as waste. Some will want to know how we can be sure that this removed the last particle of wax that could be practicably obtained by any method. In answer to this I will explain that each lot of refuse was pressed for at least two hours in the German press, and was shaken up and pressed again repeatedly long after the wax had ceased to come from it. While there would be, of course, a very little wax left, even after that, yet it is perfectly safe to say that this amount would be only a small fraction of one per cent.

The most important advantage in using the unheated press is that the first cost of the outfit is exceedingly small. In fact, it can be made or purchased at perhaps a fourth or a half the price of a steam or hot-water press. I have shown that this form of press can be so used as to yield at least 97 per cent of the total amount of wax. While better results can be obtained, we will, for the sake of argument, say that, with the unheated press, there is a loss of three per cent. If a bee-keeper, then, produces 300 lbs. of wax in a year, he will lose 9 lbs. of wax, or about $2.50. We will grant for the moment that some form of a steam or hot-water press can be so used as to get 99 or, say, 100 per cent of that wax, thus leaving no waste. Now, supposing, I say, that this is true, it would take a bee-keeper, producing even 300 lbs. of wax, several years to get enough more wax to pay the difference in cost between an unheated press and a heated one. If the difference in

results between the two is only three per cent, I am sure that this fact is important; for if a bee-keeper can make or buy such a cheap outfit that will come so near doing as good work as the more expensive outfit, he will prefer it. I have shown that the wax from very old combs can be extracted in this unheated press at the rate of about 7 to 10 lbs. an hour, and, as I said before, leaving not over three per cent of waste, and in many cases not over two. Furthermore, the work is very easy, as it can be done out of doors if necessary instead of on top of a hot stove. Such a press can be made stronger, so that there is no danger of breakage.

Another important fact that must not be overlooked is that the quality of wax from this press is of the very best. The cakes need only a little scraping on the bottoms, when they are ready for market. The color is good, so that there is no need of refining the wax afterward. After having worked extensively with this unheated press, and in view of the results that have been obtained, I should rather use the method as described than any other plan that I have ever followed. The process of rendering wax from old combs requires a considerable amount of experience. I am well aware that some producers might not be able to do the work quickly and thoroughly at the same time, and that there might be a final loss of as much as 10 per cent. But, on the other hand, this trouble would be found, to a great extent, with any method of rendering that might be used. This fact, however, can not be overlooked: If good results can be obtained in one instance with this cheap unheated press, there is no reason in the world why they should not be obtained in another, providing the work be done in the same way. There is a wrong way of doing almost every thing, and there is no exception to this in the business of wax-rendering. With any method, the success depends almost as much upon the man as upon the press.

THE 1906 OBITUARY OF EMINENT BEE-KEEPERS.

BY W. K. MORRISON.

Early in the year Russia lost a bee-keeper with a world-wide reputation in the person of Ghennadj Kandratieff, born at Vrineschma, in the province of Kastroma, where his family were the hereditary proprietors of a large landed estate, his father being a noble and a veteran of the Napoleonic war when he served under that brilliant general Suwarrow, who so worried the great French leader by his strategy. Of course, young Kandratieff was early initiated in the art of war, and joined, as a subaltern officer, the regiment of the Grand Duchess Pavlovna, a unit of cuirassiers in the Russian army. Young though he was, he served with distinction in the defense of Sevastopol in the war with England, France, and Turkey. But he had no liking for the military art, and was a passionate student of music; so as soon as the war was over he hastened to Italy to study, with intense eagerness, music in all its phases, for four years. On returning to Russia he made a splendid debut as a bass singer, and in a short time became general manager of the Imperial Theater in St. Petersburg. Thus far he had learned nothing about bee-keeping; but among his friends was Mr. Boutleroff, Professor of Chemistry in the Imperial University, who was a very enthusiastic bee-keeper, and who published a bee-paper, chiefly at his own expense.

He soon inoculated his friend Kandratieff with a desperate case of bee-fever which lasted a lifetime. The two friends went so far as to go to the extreme south of Russia, where they established large apiaries, which Kandratieff intended to give over to his son. It is to these men we owe our knowledge of the bees of the Caucasus, for it was under the shadow of these lofty peaks that their apiaries were established. But Prof. Boutleroff died, as did also Kandratieff's only son, so all hopes were dashed to the ground. But to relieve his mind he started a paper, *The Bee Messenger*, after a visit to the leading bee-keepers of Europe, in which he advocated the methods of Langstroth, as did his friend in Switzerland, Bertrand, whose book, the "Conduct of the Apiary," he translated into Russian. On the death of his daughter he suffered from sleeplessness; and, to while away the hours, he translated Langstroth's "Hive and Honey-bee," as revised by Dadant. He also published the unedited letters of Huber. In a word, he "reformed" the Russian method of bee-keeping. To the day of his death he was manager of the Theater Marie, in St. Petersburg, dying at the age of 72.

GLEANINGS has already mentioned the death of Dzierzon, the uncrowned king of apiculture, at the wonderful age of almost 96 years. His was a life of strenuous activity in behalf of bee-keeping, much of which work will endure for all time, or at least as long as men pursue the art of bee-keeping. To be the discoverer of parthenogenesis is glory enough for one bee-keeper. Americans owe Pastor Dzierzon a debt of gratitude for this, and, to a great extent, they owe to him the introduction of the Italian race of bees into this country, for it was he who discovered their superior qualities. He was the inventor of the system of bee-keeping founded on sound sense and scientific principles, and the work he did in this connection can not be measured by any known standard. Perhaps we can not give him any higher praise than this: He was the Langstroth of Europe, doing for Germany, Austria, Hungary, and the central states of Europe, the work assigned to his American colleague in the United States, Canada, West Indies, and Central and South America.

By the death of the Rev. Paul Schönfeld the world of bee-keeping sustained a heavy loss, for his kind of genius was of a sort that is hard to find in any age or country. He was born in Silesia, Germany, in 1821, and

was, therefore, 85 years old when he died. He was trained for the ministry, which profession he followed for 42 years in one place. What started him as a master bee-keeper was the possession of a swarm of bees in a hollow log. This also started him as the most brilliant anatomist and physiologist of the honey-bee in the 19th century. He elucidated the mysteries of the honey-sac and stomach-mouth, showing how, by a simple valve arrangement, the bee was able to use the nectar for its own subsistence or to regurgitate it at will. He was the first to show us how chyle food is produced in the chyle-stomach. He also showed that royal jelly is simply an extra-rich variety of chyle food, and this was proved beyond peradventure by Von Planta's brilliant chemical analysis of chyle food and royal jelly. He further proved the food fed to drones is the same as to the larvæ. As a matter of fact, nearly all we know along this line we owe to Pastor Schönfeld, backed by the work of Dr. Von Planta on the chemistry of the hive. His work along this line will form a monument to Schönfeld which will last far longer than one of granite.

England lost an eminent bee-keeper in the person of John Marshall Hooker, who died January 31 at a ripe old age in the city of Philadelphia, where he had gone to live with his son, Dr. S. C. Hooker. Long ago he was associated with Cheshire, Abbott, and Cowan in building up the new bee-keeping in his native country on sound scientific principles. He was probably the first to use perforated zinc, as bee-keepers now know it, and is credited with the invention of "dummies." He invented an elaborate uncapping-machine at an early date. He was an aggressive and ceaseless advocate of all that makes for better bee-keeping in England.

England, unfortunately, lost during the year her patroness of bee-keeping, the Baroness Burdett-Coutts, who did a great deal to promote scientific bee-keeping in that country. For a generation she had steadily interested herself in the popularization of the new bee-keeping, being the patroness of the British Bee-keepers' Association. She was probably the wealthiest woman in the world, being chief owner of the famous Coutts bank in London. Her aim in assisting bee-keeping was to enable worthy people to gain an honest living. Another hobby was the promotion of goat-keeping among the poorer classes. She was born in 1814, April 21, and died December 30, being 92 years of age. She married a man much younger than herself, but retained her maiden name.

Luckily death has dealt rather leniently with the United States, and we have no long list to report. Mr. J. M. Hambaugh, whose name will be familiar to many readers of GLEANINGS, died in the early part of the year at Twin Valley, Cal. Most of our readers will remember him as the inventor of the foundation-roller, and also the foundation-fastener, which go by his name. At one time he was quite prominent in bee circles, being a director in the National Bee-keepers' Association, and member of the Illinois legislature, where he introduced the foul-brood bill, and also the pure-food bill—two very worthy measures. He was a user of the Dadant hive. He removed from Illinois a few years ago to California for the benefit of his health. He was 60 years of age when he died.

Another prominent bee-keeper crossed the Jordan in the person of Mr. J. C. Acklin, of St. Paul, Minn., who died from a stroke of apoplexy on May 26. He was a quiet, unobtrusive sort of man who did a good deal to promote modern bee-keeping in the section of country of which St. Paul is the center.

On the 27th of January Mr. Ira Barber died at his home, Eddy, N. Y. He was celebrated for his success in wintering bees at a high temperature, and in this connection will be well remembered by the older members of GLEANINGS.

The old Bay State lost a valuable son in the person of James F. Wood, lecturer and demonstrator in apiculture at the Massachusetts Agricultural College at Amherst. He was a comparatively young man, and was born Jan. 11, 1862; but in a quiet manner, in connection with his college work, he did good work for several years in training young farmers in the art of bee-keeping.

Early in the year, there died at Flushing, New York, Samuel Parsons, a celebrated landscape architect and gardener who did a great service to American bee-keeping by personally bringing to this country the first consignment of Italian bees, which he turned over to his friend the late Rev. L. L. Langstroth, who, in turn, carried them to the apiary of W. W. Cary & Sons, Colerain, Mass., where they were propagated for sale and distributed over this country. Mr. Parsons had a long and useful career as a landscapist, nurseryman, and introducer of new plants. He was one of the solid citizens of Flushing, and owner of the oldest American nursery.

THE STATE OF THE MARKET.

The Result of the Comb-honey Canards.

BY CHARLES BENDER.

There is so much being said about the "comb-honey lies" that I feel inclined to put in another word, though it may be only making a bad matter worse. I wish that I could always be candid enough to see things as they are, even when things are disagreeable and admit of no remedy. When I do get an idea that others seem to have missed, I always feel rather chesty, and want to explain. In the next issue of the paper some one will say that my notions are all foolishness, and then I feel better.

The whole scope of country east of the Mississippi River, at least that part of it north of Mason and Dixon's line, has always been used to rather strong-flavored honey until within the last few years. When so much honey began to be shipped in from the West, people who bought it had a faint sus-

picion that something was wrong, but perhaps they never thought of adulteration. They may have remarked that the honey "didn't taste right," and dropped the matter from their thoughts.

Take the case of a man who has always bought clover or buckwheat honey. He goes to the grocery for honey, and is given alfalfa, with no explanation of where it came from, and no hint of its being a new kind of honey. Though the flavor, to some tastes, may be just as good, it is so utterly different from what he expected, that he is disappointed. It tastes like sugar syrup to an easterner. Later on he sees some comb foundation, and hears a lengthy talk about how it helps the bees. Now give him the story about manufactured comb honey, and he will swallow it with delight. He is so proud of having eaten the "artificial honey," and of having seen the artificial comb, that no power on earth could convince him that it is not true. Now get into an argument with him, and in the course of it admit that bee-keepers do sometimes feed their bees. He's fixed, and will do all he can to fix his neighbors.

In speaking of comb foundation, most people who are not professional bee-men call it artificial comb, or bee-comb. At least one of our supply-dealers always bills it in shipping as "bee-comb in sheets." It may be necessary to bill it that way—that's beside the question. But what do the agents think who make out those bills? They are sure that I am buying artificial comb, and are quite ready to believe that I feed my bees to get it filled, if some one tells them so; or even to go a step further and believe that some people fill it by machinery and seal it over with a hot iron, or by "electricity." Just mention electricity and machinery, and you can get the average person to believe any thing.

Now let us consider for a moment what we are going to do about it. I have taken it for granted that we all want to know the truth, even if we can't do any thing. If we are helpless we ought to know it, so that our strength and time will not be wasted in useless struggles. If there is a remedy we shall gain a great deal by studying the case with perfect candor.

In my own market these stories have not caused any great trouble. I sell mostly to people who have known me for years as a bee-man, and my own and adjoining counties take the greater part, so there is no trouble about the flavor. When I find a customer who is firmly convinced that there is bogus honey on the market I try to show him that *my* honey is all right any way. Very often that is all that can be done. If you try to prove that no such thing exists you are trying to prove a negative, which you know is all but impossible. A man tells me that the moon is a huge cheese, and that the dark spots are colonies of skippers. I may be certain that it is not the truth; but I couldn't prove it, to save me.

In regard to the men who live in sparsely settled localities, where a great deal of honey is produced, it is hardly possible for them to avoid shipping to the cities. But it will help a great deal if we will sell at home when we can, and ship only to markets where our particular flavor of honey is well known.

Newman, Ill.

[You are not unorthodox, Mr. Bender, for it is a fact that the importation of honey into an old locality, with a new and hitherto untested flavor, often causes a suspicion of adulteration, or, in the case of comb honey, manufactured. While it is true that the fact, that we have to feed bees at some seasons of the year, and use foundation in sections is liable to give rise to suspicion, yet the full truth ought to allay it in the mind of any candid person. The fact is, bee-keepers have nothing to conceal. They should be perfectly frank with their customers—invite them to come to their yards, show them the use of foundation, and how and why they feed their bees. And when they sell alfalfa in a strictly white-clover district they should explain the fact, stating that the honey is from the West, and has a slightly different flavor. The fact should be brought out that the flavors of honey vary just as much as the flavors of apples, peaches, or other fruit.

The question has been raised about feeding honey instead of sugar syrup; but even if we do this we incur the danger of spreading foul brood through the feed given. Secondly, when outsiders see us feed our bees it makes very little difference whether we feed honey or sugar. Any one who would be suspicious enough to regard the act as one involving dishonesty would jump to the conclusion at once that we were feeding glucose or some other abominable syrup or sugar. If we must feed, why not feed the cheapest and best? The whole truth is the bee-keeper's best defense.—Ed.]

THE USE OF QUEEN-EXCLUDERS.

Are the Slats as Wide as they Should Be?

BY G. C. GREINER.

Ever since I have made the production of extracted honey a part of my bee-keeping I have looked upon the queen-excluder as an instrument of untold agony and torture to the poor bees. At the same time, the advices in favor of them, coming from the pens of our most prominent bee-keepers, together with the advertisements and recommendations of our bee-supply manufacturers, have led me to follow suit and use them without giving the matter any special consideration. Accidentally my attention was called to this matter in such a way that I am now strongly convinced the common manufactured excluding zinc for this purpose, $\frac{165}{1000}$ is the cause of a greatly reduced honey-yield in every apiary where it is used.

In putting on extracting-supers I sometimes find it, for various reasons, convenient to place the empty outside shell on

the hive first and fill out with combs afterward. It happened while doing this, two years ago, that two colonies side by side, equally strong in bees, and apparently alike in every other respect, had excluders of different makes, one having perforations of the customary $\frac{165}{1000}$, and the other, as nearly as I can tell, $\frac{175}{1000}$ to $\frac{178}{1000}$ inch. When removing the honey-board a few minutes later to insert the combs I noticed that the excluder, which had the large openings, was black with bees, completely covering it, while the other had only a few scattering bees above it. The difference was so marked that I was greatly surprised, and induced to investigate a little closer. In looking down I noticed that occasionally a bee would wiggle and twist, trying to get through, and then give up in despair, and retreat. At other places a bee would put forth the same effort and succeed, working its way up in a seemingly exhausted condition. Again, I would see here and there a bee pass up without making any noticeable effort. I could not help wondering at this difference, and tried to explain to myself the cause of these conditions. At first I imagined that the size of the bees had something to do with the case, but found out later that the trouble was all in the excluder. On examining the same I found that the perforations varied from about $\frac{162}{1000}$ to $\frac{168}{1000}$ — a sufficient variation to account for the different actions of the bees.

During all my extracting experiences I always noticed that my colonies with those large excluders, of which I have quite a number, purchased many years ago; greatly outdid all others. I do not claim that this was entirely on account of the excluders, for I usually use these larger ones first, and starting in with my better colonies too; but could they (the excluders) not be accountable for the better showing in some degree?

Why do all the manufacturers make the perforations of their excluding zinc so very small — just large enough so that bees have to make an extra effort to pass through? It always seems to me like going upstairs and crawling through a hole the size of our body at the head of the stairs. Is it because they are afraid queens might cause trouble in our extracting-supers? There is little to fear in this direction with considerably larger openings. Why do queens so seldom start brood in our section-cases, although a case well supplied with bait-combs offers a tempting inducement? In my opinion, one reason may be assigned to the fact that section-cases of all patterns are practically queen-excluders, although the bee-passages range anywhere from $\frac{1}{4}$ to $\frac{5}{16}$ of an inch. The $\frac{178}{1000}$ excluders which I have used for many years had in all this time only once or twice, to my recollection, brood above them, and then only in single instances. But suppose a queen did occasionally stray away from her brood-nest below, and start a few little patches of brood above. Is that such a terrible affair that, to prevent it, we have to compel our bees to crowd themselves through these sharp-edged strainers, called excluders, thereby wearing themselves out prematurely? It can not be otherwise; but what is our honey-yield enhanced in consequence thereof?

If a queen is found above, or if indications by way of started brood would lead us to suspect her there, it is the easiest thing in the world to readjust matters to normal or desired conditions. She is very apt to be on one of the combs containing brood; and if these are shaken off in front of the hive she will follow the bees as soon as they begin to travel toward the entrance, and enter her deserted home, and, in all probability, will remain there.

The reason why a queen will leave the brood-chamber may be on account of a somewhat crowded condition below. She may be looking for a better chance to gratify her maternal desires. But in most cases I think her departure is more accidental. In passing over the combs from one side to the other her passage may be so clogged with bees, or possibly brace or burr combs may be in her way, that an excluder-opening right above her may seem to her the easiest and nearest way of reaching her destination. Once above the excluder, and among the bees there, she would be just as liable to look among the extracting-combs for a chance to free herself from her overloaded condition as to hunt her way back through the excluder; and if she should find any combs adapted for brood-rearing it would be only natural for her to use them for that purpose.

I do not expect that all bee-keepers see things as I have here stated; but I should be greatly pleased if others would investigate this matter a little, and express themselves according to their findings.

La Salle, N. Y.

[The standard zinc of this country put out by most of the dealers in supplies is approximately $\frac{165}{1000}$ of an inch wide. The first zinc that was sold in the early 80's was $\frac{180}{1000}$ wide, but we received a good many reports that queens went through it. We reduced it down to $\frac{170}{1000}$, and still there were complaints about queens passing the metal. We finally reduced it to $\frac{165}{1000}$, and found that, with this size, only an occasional virgin would get through it. While this has generally given satisfaction, it is possible that producers have made too much of an occasional queen passing the metal, and not attached enough importance to freedom of passage for the workers. I am half inclined to think you are right. The manufacturers can just as easily make a wider perforation as one narrower. If $\frac{165}{1000}$ is too narrow, the dies, after the temper is drawn, could be filed a little wider to make up the requisite size.

My own experiments made some 15 years ago showed that $\frac{170}{1000}$ let too many queens through; but this possibly may have been because of the strain of bees that we then had. I have made no experiments lately, and it is possible that the size of $\frac{165}{1000}$ to $\frac{162}{1000}$ is too small.

Strains of bees vary somewhat. Carniolans would probably be a little larger than

the average standard Italians, but only by a very small variation, probably $\frac{1}{1000}$ to $\frac{2}{1000}$ of an inch across the waist. It may be that our correspondent has a race that is a little larger than the average.

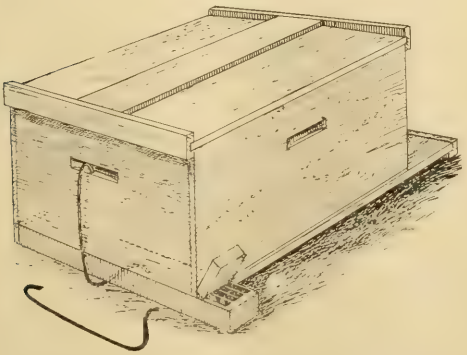
I might quote the late Capt. Hetherington who, some years ago, wrote us that he had been having considerable trouble about queens going through his perforated zinc. He had been using a metal with perforations about $\frac{175}{1000}$ wide, as I now recall. We sent him some with $\frac{185}{1000}$, and with this he seemed very much pleased. He reported that his bees went through it with comparative freedom, and yet the perforations were small enough to exclude the majority of his queens.

I should be glad to hear from extracted-honey producers from all over the country, using all strains of bees. If the standard metal now sold has perforations too small, let's know it—the sooner the better.—ED.]

THE ALEXANDER FEEDER; A WIRE SPRING TO HOLD THEM TO THE HIVES.

We used the Alexander feeder last spring for the first time, and were a little puzzled at first as to how to fasten them to the hive. If blocked up with a piece of wood or a brick they are liable to settle and leave a crack for robbers and cold wind to enter. After studying the matter a little we hit upon the device shown in the accompanying illustration.

It is simply a piece of stiff wire bent in the shape shown, the upper end bent in a short



hook which catches into the hand-hold of the hive, or over the cleat, if cleats are used, and the proper length to go under the feeder when bent into the long curved hook as shown. It can be easily made from any old (or new) stiff wire with a pair of pliers; and if made of the proper length it will go on with a spring, and holds the feeder with a spring pressure. It can also be easily bent or straightened to accommodate any little difference in different hives.

To fasten the covers on the feeders where they project from under the hives we drive a fine cement-coated nail of the proper length to project about $\frac{1}{4}$ inch through each side the cover near the outer edge, which nails are pushed into the feeder with the cover, and hold the same from blowing off.

After trying some without the nails, however, we find that they stay in place very well as the bees soon daub them more or less with propolis.

The same arrangement holds entrance-blocks on nicely too. Just drive a cement-coated nail through the blocks about 2 or $2\frac{1}{2}$ inches from the thin point, leaving the nail-points to reach through about $\frac{1}{4}$ inch or a little less, to be pushed into the alighting-board.

Denison, Iowa. E. S. MILES.

[Your wire-spring arrangement for holding the Alexander feeder in place is most excellent. It is so simple in design, and cheap as well, that we do not doubt many of our readers will be glad to use it.—ED.]

WILL A LARGE NUMBER OF BEE-STINGS CAUSE RHEUMATISM?

1. Last spring, being in a hurry, and the bees being cross, I received over thirty stings during the afternoon on the back of my right hand, since which time my right arm has shown severe rheumatic symptoms. Do bee-stings act on the homeopathic principle when received in large numbers? I am always indifferent to stings, and can not account for the rheumatic attack.

BEE-PARALYSIS AND MALARIA.

2. Have data ever been collected, in regions where bee-paralysis exists, as to whether that section is malarious? During the late 80's and early 90's chills and fever were very bad here; so was bee-paralysis. Both disappeared together. May both bees and humans not have been "shaky" from the same source of water infection?

3. The bees disinfect combs. Why can't we? Would not 24 hours soaking in strong brine, and combs soaked fresh in clear water, bring the answer? I shall try it next season anyhow. W. W. CASE.

Frenchtown, N. J.

[1. We never knew of a case before where a large number of stings *induced* rheumatism; but we have had a large number of reports where they had apparently the opposite effect—that is, cured the malady.

2. We have never seen it stated before, that bee-paralysis and malaria would come and go at the same time. We should be inclined to believe that in this case it was only an accidental coincidence. Perhaps some of our readers who have been troubled much with bee-paralysis could enlighten us.

3. Possibly, but we would not like to take the risk. Brine is only a mild germicide, and

it is doubtful if it would kill the microbes of European and American foul brood. A solution of some of the standard germicides would be better. A strong solution of carbolic acid might answer.—ED.]

WHY IT IS EASY TO SELL THICK HONEY PUT UP IN GLASS.

I think I have hit on a good plan to sell extracted honey. I gave my bees plenty of room this year, making them three and four stories high, and left the honey in the hives until Sept. 10, when I extracted about 200 lbs. of thick well-ripened honey. Knowing that a great deal of honey had been put upon the market early in the season, which was not giving satisfaction, I filled a dozen quart glass fruit-jars with the extracted honey, and labeled them "2¾ lbs. honey, pure and ripe," and put them on sale at our grocer's. In two days it was half sold. By tipping the jars the customer could see it was thick, and visions of hot biscuit and honey did the rest.

Sheldon, Mo. C. A. BIRD.

CAUCASIANS AS SWARMERS; THE STATEMENT OF A RUSSIAN BEE-KEEPER.

The price lists of two breeders of Caucasian queens say that they are great swarmers. I notice your answer to Seward Steffy, page 889, 1906. H. KIRKHAM.

Vladimer, Russia.

SWEET CLOVER; SHOULD BE GROWN IN FIELDS, AND NOT ALONG THE ROADSIDES; ITS VALUE AS A FERTILIZER.

Please don't go to the legislature to have sweet clover stricken off the class of noxious weeds, p. 989, so far as highways are concerned, for the highway belongs (generally) to the public, and looks better cleanly mowed

MISTLETOE OR MESQUITE-TREE; TWO HONEY-PLANTS IN ONE.

See Bee-keeping in the Southwest, on another page.

than with any thing that will grow 7 to 10 ft. high in a season, as sweet clover will. Let bee-keepers raise their sweet clover on their own land, like buckwheat, and not disfigure the highways with it. I have about six acres of sweet clover, not as thick as I wish, but I hope to see it better in the future, and I cut the sweet clover along the road by my place.

There may be States in which sweet clover is classed as a noxious weed, and so that it would be unlawful to raise it, even on our own land. If this is the case, it would not look well to advise raising it there. I have found that sweet clover is worth more for enriching the soil than it is for honey.

I dug a few potatoes yesterday where there was sweet clover last year, and found double the yield out of the same number of hills on the same soil. Where the sweet clover grew, there was no manure last year; and where the sweet clover was not, I had a coat of manure last season. Along the railroad and highways sweet clover does not last more than a few years. It will grow where no plant will, and then other plants take its place. I have in mind a spot where the soil was removed for an embankment—*3 or 4 feet*

MISTLETOE AS A PARASITE — VALUABLE FOR EARLY POLLEN.

See Bee-keeping in the Southwest, on another page.

of top soil, some one sowed sweet clover there, and after a few years of sweet clover other grasses have taken its place. The sweet clover produces the humus to bring about the result, and this spoils the soil for its own growth. A. CHAS. ARMSTRONG.

Warner, N. Y., Aug. 17.

And let fowl multiply in the earth.—GEN. 1:22.

So God created man in his own image; in the image of God created he him; male and female created he them; and God blessed them, and God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it, and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth.—GEN. 1:27, 28.

I don't suppose it ever occurred to you, friends, that there was a chapter in the Bible that particularly referred to the "chicken business;" but here we have it, and it is the very first chapter of all. Besides the verses I have quoted, there is mention in three other places in this chapter (six in all) of the feathered tribes; and, as you will notice, it was God's will and plan that poultry should "multiply," especially with man's assistance, for he is in particular to "have dominion over" them.

Most of you are aware that I have all my life had a leaning toward poultry. In fact, my first hobby, and almost the first money I ever earned, was with chickens. Well, my enthusiasm has been recently kindled by several things. One is that my daughter (Mrs. Arthur L. Boyden, or "Blue Eyes" of thirty years ago), with her two bright promising boys, has recently got a regular craze for chickens. The whole family, almost, talk of nothing else, and read nothing else; and it was a treat to me to look over with them the beautiful new books and periodicals now devoted entirely to poultry. These books and papers suggested making an experiment I have had in mind more or less all the past summer—viz., seeing what may be done in the way of

POULTRY-KEEPING ENTIRELY WITHOUT BUILDINGS OR STRUCTURES OF ANY KIND.

I object to buildings, because, without very great labor, they become sooner or later untidy and uninviting, and, almost in spite of you, harbor insects and disease-producing contagion. And while I think of it I do not know but that *humanity* as *well* as poultry would escape a lot of ills if it moved outdoors and *stayed* outdoors. I once had in mind coops and nests made so cheaply they could all be burned up once a year or oftener.

Well, about Dec. 1 I wrote my good friend Shumard here on our island to save every sitting hen for me till I got around about Dec. 15. A little later, when I began to reflect that my whole "enterprise" was going to depend on unreliable sitting hens I began to cast about for a cheap incubator that could be *made* to sit when the *owner* was ready. Of course this incubator was a departure from strict "nature;" but when I saw an incubator advertised that could be run outdoors right down *on the ground* I sent for it forthwith; and as it weighs only 10 lbs. I packed it in my trunk without trouble. I reached here Dec. 17, and found there was only one *sitting* hen on the island, and the family had been able to save only 41 eggs for my 50-egg incubator.

The weather had been exceedingly hot and dry (no rain of any account for months), and the hens simply *wouldn't* lay. I am told it is hard to get them to lay here in summer. The laying season in this climate is winter. The directions with the incubator said, "Set a hen if possible the day you start the incubator, and roll the eggs, cool them off, etc., just exactly (or as nearly as you can) as this sitting hen does it." That commended itself to me at once, and I "made haste" to get on good terms with that Brown Leghorn sitting hen. I doubt if any of the young men who first get an eye on a nice girl take more pains than I did. Now listen! I gave the hen 15 eggs, and the rest of the 41 to the incubator, adding eggs every day as they were laid until I had 51 in the machine. Well, when we came to test them, on the seventh day, there were *eighteen* of the 41 that had been "saved up" that were not fertile. *Every egg* that was taken from the nest as soon as laid, and put into the incubator, proved fertile. So much in favor of *fresh* eggs for hatching. Three of the eggs under the sitting hen were unfertile, so the fault was not with incubator or management. We dated the added eggs with pen and ink, and this helped me to find out that unfertile eggs can be detected as soon as the third day without waiting until the seventh, as given in the directions. It is true my old eyes are hardly sharp enough to see the "spider web" so early; but the sharp young eyes of the children (Flossie and Clara) were a great help in testing out rapidly. By the way, how many of our rural people use an egg-tester when setting hens? Why, it is just along the line of our recent "corn talks." We *can* "count our chickens before they are hatched" —at least in a measure, if we use our brains as God intended we should use them to have "dominion," etc. I ran across a tremendous illustration just now as follows:

Some years ago Mr. Shumard procured a choice male Plymouth Rock (as he supposed), gave him to a nice flock of hens, and his good wife started *ten* sitting hens with 15 eggs each. *Not a chicken hatched* from all those 150 eggs. The male was no good. Now, all this time, money, and disappointment could have been saved in just *three days* with the first hen that started to sit. We bee-folks

have "select tested *breeding* queen-bees," and, I suppose, of course, poultry advertisers have select tested male birds, and it is a pretty important matter too. Of course, I have a poultry-yard of my own, a small one, and in it I have five beautiful White Leghorn pullets and a rooster. One of the pullets has just commenced to lay, and I put her first egg in the incubator. The third day I found it fertile, so I feel sure my young rooster is "O. K."

In my "printed directions" I found this sentence: "The hens turn (or, rather, stir) their eggs from 12 to 15 times in 24 hours, and the nearer we approach the 'hen method' the better results we can expect."

This was so astounding I placed the sitting hen in her box tight up against the board partition in our cottage, so she was close to the head of my bed. She was as still as a mouse all the evening, and when I went to sleep about 10 P.M.; but toward midnight I woke up in affright. Was it really burglars? Then I remembered, "Turn and *stir!*" Well, I should think so! For about 15 minutes she hustled those eggs around and whacked them against the sides and ends of the box in a way that made me think she would break every one of them. I have heard talk about a sitting hen not getting exercise. This one had exercise, and her chicks had exercise too, even *before* they were hatched. After I had been asleep again for about an hour she had the whole program over again, and so on until morning. My afternoon nap was a little longer next day. Perhaps I should explain Mrs. Root is not here this winter. *She* might have objected to my "nature studies." I have had many instructions in my day, but never before, so far as I can remember, have I "sat at the feet" of a "sitting hen." I am speaking reverently.

Wonderful books by great authors have been written about incubation; but this feathered friend (and companion) of mine is in some respects *ahead of them all.* She is under "*God's* guiding hand." That wonderful thing we call instinct is almost if not quite unerring.

Just about Christmas time we had a week of the coldest weather known on this island. My poultry-yard is in a depression screened by bushes from the cold wind. The cold air settled in this depression, and I found thin ice on the pan of drinking-water one night.* Well, during this weather "biddy" stuck close to her eggs; but when we had a warm day again she took all of a half-hour nooning. She climbed up on the work-bench, flapped her wings, quarreled with the other pullets, and even with the lordly rooster, and gave her eggs a good cooling. I put out the lamp of the incubator and let it cool, just as she did with her eggs.

This locality commends itself to me for poultry for several reasons. No buildings or structures are needed. The soil is so porous and clean there is never any mud or standing water; and where it is scratched over so much, not even the soles of your shoes are soiled when going about among your fowls. The offal from the fish that is almost always on hand gives a great abundance of animal food without cost. Fish can almost always be picked up along the beach that fowls will work at if chopped a little with a hatchet. Green food I furnish in my yard by burying rather more corn and wheat than they scratch out before it sprouts, and they enjoy digging up the sprouted grain fully as much as if they had gotten into your garden.

A year ago Mr. Shumard had about 200 laying hens; but eggs were low, and he had no way of sifting out and disposing of the "drones," so he sold off all but about thirty. These thirty now almost get their living without feed, so he is doing very well indeed with eggs at 35 cts. Of course, to make a business one would need a large number of such colonies, "egg-farm" fashion; and if fences should be needed they would be required only at intervals, from the Bay to the Gulf (twenty rods or less in some narrow places), making them close together or further apart, according to the size of the yards required. I have never yet found any insect enemies on the island, and I am strongly of the opinion that these pests could not well live when the fowls roost in the trees, and there are no houses and "chicken-coops" to harbor them. There are at present no coons or other "yarmint" anywhere near us. Roosters crow, hens sing and cackle, more and louder than in any other region I ever visited. I have got some trap nests. I expect to give you shortly some accurate records of what laying hens will do here.

"AND HAVE DOMINION OVER THE FISH OF THE SEA."

When I commenced this Home paper I had intended to mention only "the fowl of the air" this time; but the events of this New Year's morning have reminded me of the fishes as well as the fowls. For almost two weeks our friends on the island have scanned the waters of the Bay for signs of fish in vain: and this morning when I said, "Well, Jesse, I suppose there are no signs of fish yet?" to my surprise there came a different answer.

"Yes, Mr. Root, there is fish this morning: and just as soon as we can get our breakfast we will be out after them."

Our morning Bible-reading was rather brief, and even God's blessing on the new day (and new year) was rather more hurried than usual. Breakfast over, all hands were at work hustling the nets into the boats. One of the best new nets was out by the Gulf; and while I was roasting some fish for my "biddies" in a little fire outdoors I saw Mr. S., Mr. and Mrs. McAuley, Clara, Flossie, and Florence, all rushing after the missing net. These nets cost a lot of money, and must be handled with care. When the nets were piled in order on the two boats, Jesse and Mr. McAuley started after a "school" that, to their trained eyes, was not more than half a mile away. Mr. S., Flossie, and I followed in a little row boat. Flossie is only thirteen, but I doubt if either of us grown men could

*Nowhere else on the island was any ice seen.

make the skiff skim the waves as she did. The two fishing-boats made a quick movement around the fish so as to encircle the school. This done they took a net of larger mesh and made another circle inside the outer one. Before this was accomplished, however, the great fishes, weighing 2 or 3 lbs. each, discovered they were caught and commenced a desperate and determined effort to jump over the net by springing up in the air. Many of them did get over; but when they found still another net right before them they evidently became exhausted and discouraged. The thrashing and splashing was beyond any thing in the fishing line I had ever witnessed. After we had, by thrashing in the water, and stamping on the boat, scared them into the meshes of the net as much as possible, the two men began hauling in the nets. In less than half an hour we took over a ton of fish. The inside net, with larger mesh, takes the big ones, letting the small ones through, to be caught in the second outside net. These fish are nearly all mullets, that are purchased as soon as caught, by the "ice boat," at 1¼ cts. per lb., live weight. Bluefish bring 3 cts. per lb., and "sheepshead" 2 cts. Of course, fishing is very good business when you can strike a school; but there are so many days (and even weeks) of waiting that the fisherman usually has some other occupation that he can work at meanwhile.

Poultry are very fond of fish; but I am told raw fish should not be fed to laying hens, or to chickens intended for table use, as too much of such food will give both a "fishy" flavor. When cooked or simply roasted whole on a fire outdoors, this objection is entirely removed, and it proves a very cheap and wholesome way of providing animal food.

TRAVELS IN SOUTH DAKOTA, CONTINUED.

When we reached Rapid City the hotel was full; but it was so late that I did not relish hunting up another one. So I asked them if they had not some kind of place they could give me *somewhere*. The landlord said there was a very small room that I could look at and see if it would suit me. I said it would do all right. Now, there was not very much style about that little room; but the bed was neat and clean, and the pillow was right on a level with a wide-open window. Here is what I wrote home to Mrs. Root about it:

Last night I was in an upper room of the hotel, and my pillow was so close to a window it was partly on the window-sill. I fastened the door a little open so the resinous breeze from the mountains blew strong right in my face, and I never enjoyed any thing more. I woke again and again, and drew in the delicious air, and thanked God for it. It seems as if I could stand any amount of "breeze" now. I want such a window at home. *Pure air* with a *push* to it is life.

Rapid City, Aug. 29. A. I. R.

After my refreshing sleep I began to inquire for people who took GLEANINGS at Rapid City. Nobody seemed to know much about them, as the town is pretty well scattered over the prairie. Finally I went around to the groceries to see if they had any honey for sale. I found some that was not very nice-looking, in several places. None of the proprietors knew who it was that brought in the honey. Well, none of this honey was exactly up to date. It was put in sections evidently without separators, was left on the hive until it was travel-stained, and it was not nicely crated up at that. Finally at one grocery I saw some sections that were about as nice as any I ever saw anywhere. The proprietor said it was his impression it was brought in by a couple of young ladies who kept bees up on the side of the mountain. After considerable inquiry I found the place —a beautiful little cottage on the side-hill, with vines over the porch, and flowers and fruits all around. Of course, the ladies were glad to find one of the editors of their favorite journal had got away off among the Black Hills. Their apiary was only a small one, for they had just commenced; but every thing was in apple-pie order, just as you might know women-folks would have it any way. Finally I said, "Why, my good friends, how does in happen that you are the only people in this region who have up-to-date appliances, and are securing a crop of honey that would be a credit to the most advanced bee-keepers?"

The answer was something like this:

"Why, Mr. Root, we got interested in bees; and in looking over Montgomery Ward & Co.'s catalog we saw what they had to advertise for kee-keepers. We sent there and got our hives and sections, and then found out about you folks, and that is how we came to be bee-keepers."

After a very pleasant visit I went to a livery-stable and got a rig to go out into the country. By the way, Rapid City is where two great railroads are going to strike, coming in from the east. These railroads will make a short cut toward Chicago and other large cities, without going away around horseshoe fashion to Omaha. For fully ten miles I saw teams and scrapers and plows busily moving the dirt for the new railroads. My friends out in the country were keeping bees a good deal in the old-fashioned way. I found an old gentleman and his wife out under an apple-tree folding up sections and putting in foundation. The bees were rolling in the honey from alfalfa, and they were in a hurry to give them room to work; but their sections and appliances for doing the work were crude, and much behind the times. I attempted to explain to them a better way; but as they did not take GLEANINGS, and knew nothing about it, they were suspicious of a stranger. Perhaps they thought I had

some patent right to sell, or that I was a runner for some particular firm. Here, too, I found trees loaded and breaking down with the most beautiful apples, dead ripe and ready to market. But they were short of help, and it was a question which was suffering more—the rosy-cheeked apples or the bees that were swarming because they had no place to put their honey. Some wide-awake boy or girl might have helped these old people to save a lot of money.

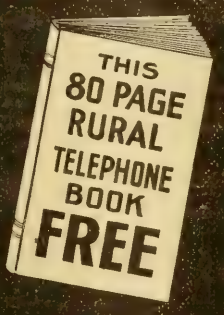
In the afternoon I went over to visit the Indian school, about two miles from Rapid City. As I had been having a buggy-ride of about twenty miles I thought I would enjoy a couple of miles on foot. When a little over half way I ran across a fellow with an Olds automobile that he could not make go. After I had explained to him that I had run a machine like the one he had, several thousand miles, he let me assist him. Pretty soon we had the machine going, and got up to the Indian school in fine style. Now, my visit happened to be the day before the school opened; and the fathers and mothers from all over that region round about were bringing in their boys and girls to school. Oh how I did enjoy looking into the faces of those rude but *good*-looking people! The boys and girls were, of course, dressed up in their best, and it was evident that the parents of many of them had scrimped to get their children in decent shape for school. They came in all sorts of vehicles, and they looked with wonder—such a look of surprised wonder, in fact, as is characteristic of the Indians. Even if they are savages or semi-savages, they are greatly curious to know about new-fangled things. The Indian boys and girls were exchanging *greetings* all around, even if they did not *shake hands* very much, meeting their old comrades after vacation. They were very anxious to be carried about in the automobile; and as my friend who owned it was employed in the institution he loaded on as many of the children as he could, and then gave them an automobile ride around the grounds. The sight of those Indian girls with their gay-colored ribbons flying around the campus in an automobile was a sight indeed. I was introduced to the officers of the institution as well as to the matrons who look after the physical comfort of these young sons and daughters of the forest; and I assure you that these Indian schools scattered all through the far West are doing God's work. I asked the superintendent whether they had much trouble from intemperance among their boys, for I noticed the saloons were running wide open at Rapid City. He said there was comparatively little. Once in a while they had one or two boys who made them trouble in this way. Why can't we have a law similar to the Tennessee law, forbidding saloons within four miles or more of an Indian school? I would have it forty miles instead of four, and four hundred would suit me still better. After you get out in the country the homes are far between. Sometimes it is two or three miles from one farmhouse to any other neighbor's; but Rapid City seems to be rapidly building up, and that is perhaps where it gets its name.

Now, I ought to have stayed longer in the Black Hills. Since coming back home I have received letters of protest from towns where I did not call, and I have felt sorry I did not stay longer. But I was not feeling very well, and traveling did not seem to be very conducive to an improvement of my special malady, so I took a hurried trip back to the town of Mitchell, located in the central part of the State. Mitchell, too, is growing, and I am specially interested there, as I have owned only a little way out of the city, for several years, half a square mile of land. As the years go by, the farmers are learning what crops are suitable for that locality. They are learning, also, how to handle the ground to better advantage. Mr. C. M. Peck, who has been for many years connected with the American Sunday-school Union, is now on a farm of his own, eight miles out of the city, and I think the whole family are enjoying farm life. They have a beautiful garden containing almost every thing that grows here in the East. Mrs. Peck has a great lot of chickens, some turkeys, some ducks, some guinea fowls, and last, but not least, some pet lambs. These lambs she calls her "bottle babies" for the reason they were brought up on a bottle. Something happened to their mothers, or they got under the weather, and would have died had she not fussed with them and brought them through. There is a little schoolhouse near their home, and it was my pleasure to attend and talk to a country Sunday school. The farmers of Dakota do not have as much trouble in disposof their crops as they did some years ago. While I was there a man came, wanting some sheep and lambs. Friend Peck did not particularly want to spare them, but the man kept raising on his bid until Mr. Peck finally said he could have them. I think the sale included these same "bottle lambs." Now, I do not know much about sheep. I never had the sheep fever; but I drove the buggy while friend Peck and his boy drove the sheep eight miles into town, and I studied sheep quite a little while on that trip. They had a shepherd dog, but he was only a puppy, and had never been educated to drive sheep. Now, that shepherd puppy was a revelation to me. He was full of antics and mischief, like any other puppy; and when we started out friend Peck said he would be a lot of help if they could only make him understand what was wanted. We made several miles, however, before the puppy was of any use; in fact, he sometimes did more harm than good. He would jump over the sheep, get in among them, scatter them, and sometimes drive them off the wrong way. But friend Peck was patient with him, and kept explaining, etc. A man who has spent a great part of his life in organizing Sunday-schools ought to have patience with even a puppy. Well, after we had got about half way this puppy seemed to have caught on to what we were trying to do. It was intensely interesting to me to watch his looks and actions, and see

that he was actually learning to be helpful. When his master patted him on the head, and called him a good dog because he was really helping, his enthusiasm and delight knew no bounds. He would look at the sheep, then look up into his master's face and listen to his voice, and you could almost hear the puppy say, by actions if not by words, "Oh, yes! now I see. Now I understand what you are trying to do." He was so delighted with the work that, when the sheep were in their pen at their destination, he wanted to be of some use still.

We left the horse and buggy, and prepared to make some visits around town. Friend Peck said, "Now, I can not have that dog along everywhere we go, so I will put him in the seat to watch the buggy, and chain him fast so he can not get away." Before we got out of sight, however, the dog was hanging by his collar over the back end of the buggy. He had hopped out to go with the crowd, and had not calculated on the chain. While hanging by the neck he could not very well bark or yelp, so he was in a perilous fix for sure. After this I shall always feel an affection for shepherd dogs that I never had before.

Now about the sheep. Friend Peck confided to me that he had not expected very much over $100 for that little bunch of sheep; but when the check amounted to something over $170 he declared he did not know of any better way of making money in South Dakota than raising sheep and lambs. By the way, it is so expensive moving bulky freight to market in the South Dakota regions that hay is often sold at a dollar a ton, and sometimes it will not even bring that. Now do you see why it is a good business raising sheep and cattle in that locality when prices are as good as they are now?



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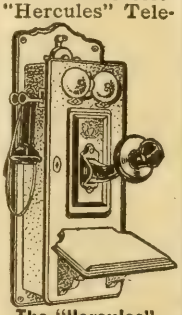
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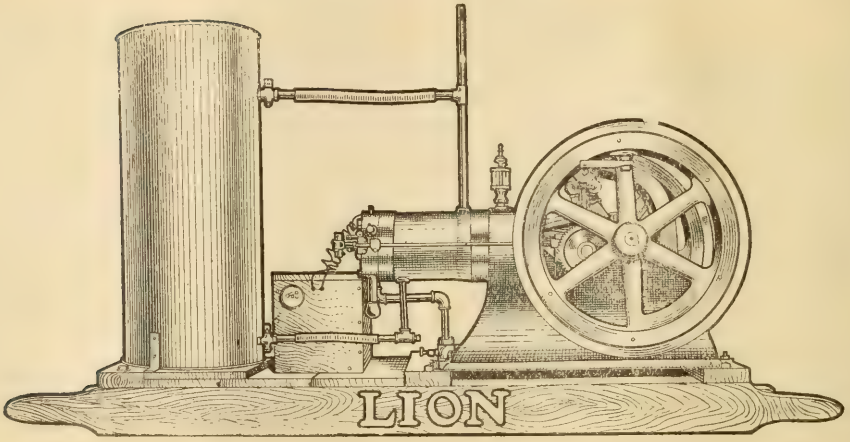

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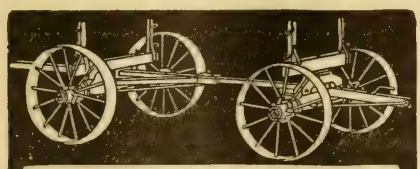

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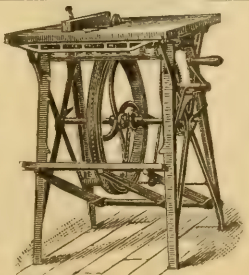

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Is there any offer we could make fairer than that.

Could we afford to make such an offer if we were not sure that Paroid is better than other ready roofings?

It is better; we are sure, and this is why:

Four things enter into the making of a good roofing:

The *felt;* the *saturation;* the *coating;* and the *method of laying.*

Paroid excels on all four points.

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The *felt* is the foundation. If it is not right to start with, no treatment of any kind can make it into a good roofing.

We *know* that our felt is right because we make it in our own mills (established in 1817.)

We make it because we cannot buy a felt elsewhere *good* enough for Paroid.

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We couldn't give you the money-back guaranty we do if we did not make the complete roofing under our direct supervision.

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Paroid roofing is not merely *dipped* in a solution, but is *soaked* in a water proofing mixture of our own, which renders every fibre of it—through and through—absolutely water proof.

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And then the *coating.* Paroid is coated on *both* sides with a *smoother, thicker, tougher* and more *flexible* coating than is on any other roofing *made.*

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But even the best roofing must be *properly applied.*

In every roll of Paroid you will find a complete roofing kit, with a supply of *square, rust-proof, water-proof* caps. The only rust-proof cap made.

These caps are patented. You get them *only* with Paroid.

Being square, they give you larger binding surface and so hold the roof more securely.

Being water-proofed on *both sides,* they do not *rust* and *work loose* and cause a *leak,* as all other caps do, sooner or later.

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And when the roof is laid, you not only have a *good* and *durable,* but you have a sightly roof. Its smooth, uniform surface, makes it the best in appearance of all ready roofings.

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And there you are:

The best felt for a foundation;

The best and most thorough water proofing saturation;

The best and most flexible coating;

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Will you try it on these terms?

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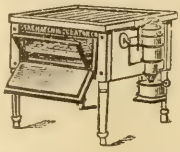

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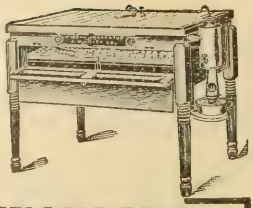

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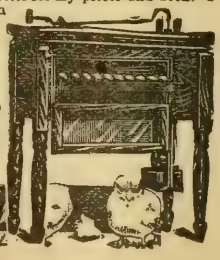

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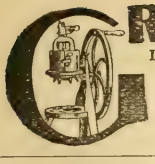
Heat uniform, case tight, ventilation gives strong chicks, regulator reliable. Ten minutes work daily. New catalog free. Santa-Bender Mfg. Co Dept. 23, Ligonier, Ind.



GREEN BONE MAKES EGGS

Lots of them, because it is rich in protein and all other egg elements. You get twice the eggs, more fertile, vigorous chicks, earlier broilers, heavier fowls, bigger profits.

MANN'S LATEST MODEL BONE CUTTER cuts all kinds of bone, with adhering meat and gristle, easy, fast and fine. Automatic feed, open hopper, never clogs. Cat'lg free.

10 Days Free Trial. No money in advance. **F. W. MANN CO., Box 37, Milford, Mass.**

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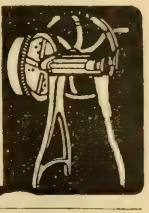

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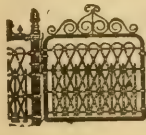

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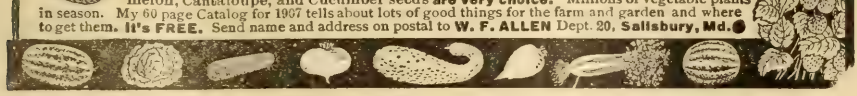

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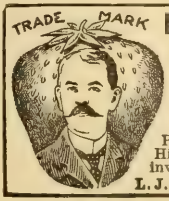

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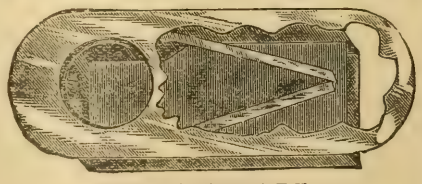

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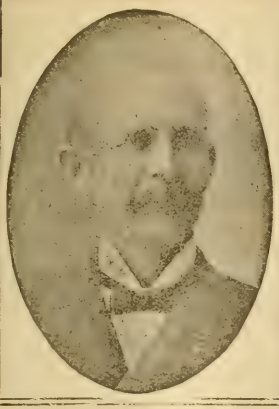

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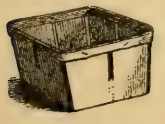

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Box 18, Beeville, Bee Co., Tex

Bees and Queens for 1907

I am fully alive to the importance and value of good queens for profitable keeping of bees. I think I can raise just as good queens as anybody. I will book orders for 1907 at the following prices: Each, 55c; $6.00 per dozen; $45.00 per 100. Also eggs to hatch, Buff Wyandotte, R. I. Red, S. C. Buff Orpington, Barred Rock. Circular free.

A. H. Kanagy, Milroy, Pa.

Read the ad. in the Dec. 15th issue about bee-goods and specialties from A. MESS, Herenthals, Belgium. Write for catalog or for wholesale prices.

The Early-order Discount!

This is the dull season in the supply line, and we are offering a VERY LIBERAL discount for orders now. We furnish every thing a bee-keeper uses. . . . . Catalog free.

I. J. Stringham, 105 Park Pl., N. Y. City
APIARIES, GLEN COVE, L. I.

Big Reduction in Supplies!

Until May 1

Big stock of Dovetailed hives and one-piece sections to draw from. FREE—a year's subscription with order amounting to $15.00 or over. Send for 32-page illustrated catalog free. . . . . .

W. D. Soper, Jackson, Mich.
Rural Route 3

Classified Advertisements.

Notices will be inserted in these classified columns at 20 cents per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Help Wanted.

WANTED.—An apiarist accustomed to large apiaries. State age, experience, and wages.
DR. GEO. D. MITCHELL & CO., Ogden, Utah.

WANTED.—An assistant in apiary of 300 colonies. Produce both comb and extracted honey. A good chance for an active young man to learn bee-keeping.
ERVIN BARTON, R. F. D. 3, Delanson, N. Y.

WANTED.—Active young man of good habits to assist in apiary, and on dairy farm when not needed among bees. Lives with family.
P. H. ELWOOD, Route 3, Fort Plain, New York.

WANTED.—A good man, single, to work on small farm by the year. Would take a man who wishes to learn bee-keeping. Tobacco and liquor users not wanted. State salary expected—age, experience, etc.
EDW. WILKINSON, Wilton, Wis.

WANTED.—Two or three good men to work in apiary during season of 1907. Write, stating when you can come and what experience you have had with bees.
APPLETON & BAGNALL. Simi, Ventura Co., Cal.

WANTED.—A steady, bright, industrious young man who knows how to handle bees. To a man of the right stamp a good opening is offered by an extensive bee-keeper of New York State. Address
W. J. LUCH, care of A. I. Root Co., Medina. O.

WANTED.—Young man, preferably one with at least a little experience with bees, as assistant apiarist for five to seven months. We run several yards, over 600 colonies, latest methods, fine climate. State age, experience, and wages desired, all in first letter. Give references. No tobacco, etc.
E. F. ATWATER, Box 37, Meridian, Idaho.

WANTED.—Local representative to handle the sale of our new Unrivaled Series of Charts and Surveys, showing every State and foreign country, reliable, historical, and descriptive matter, beautifully illustrated. We anticipate sale large enough to net our representatives from $300 to $800 in every county.
Address Rand, McNally & Co., Chicago, Ills.

NAVY offers excellent opportunities to young men of good character to receive instruction fitting them for promotion; good pay at start, advancement as soon as qualified. Apply to Navy Recruiting Station, Commercial Bank Building, Cleveland, O., or Postoffice Building, Cincinnati, O.

For Sale.

FOR SALE.—4000 ferrets; some trained. Prices and book mailed free. N. A. KNAPP, Rochester, Ohio.

FOR SALE.—Fine job-printing outfit.
C. A. STEBBINS, Broad Creek, Va.

FOR SALE.—Smith Premier, Hammond, and Oliver typewriters. Prices from $25 up. Will exchange for wax or honey. THE A. I. ROOT CO., Medina, O.

FOR SALE.—Comb foundation, both brood and surplus. Beeswax worked into foundation at a very low price. Send for price list and free samples to
THE DELTA APIARIES, Delta, Colo.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE.—Till Jan. 1, best Wisconsin sections per 1000, $4.00; No. 2, $3.40; plain, 25c less. Big discount on Danz. hives and other Root's goods; also berry-boxes. H. S. DUBY, St. Anne, Ill.

FOR SALE.—Lhommedieu's "Happy-thought" introducing queen-cage to the readers of GLEANINGS that have trouble in introducing queens. 10 cts. for a sample cage. D. E. LHOMMEDIEU, Colo, Iowa.

FOR SALE.—115 acres of good farming and fruit-growing land especially adapted to trucking and fruit raising; also 20 colonies of Italian bees in eight and ten frame hives. N. V. LONG, Biscoe, N. C.

FOR SALE.—50 8-frame dovetailed hives, in good condition, each with eight straight all-worker combs, wired, and two Ideal supers, using plain sections and fence separators, half the supers filled with sections and foundation. The lot, $2.00 per hive.
JOHN H. NORTHROP, Ellicottville, N. Y.

FOR SALE.—Angora and Persian cats; mostly all colors. Persians pure white with blue eyes. Everybody admires these beautiful pets. Women make money raising them Good profits. Cats and kittens for sale at moderate prices. Also have ferrets for sale. Send stamp for circular.
MRS. J. F. SKEES, Marion, Ohio.

FOR SALE.—$500 will buy fruit, vegetable, and candy store, with established trade of $400 per month; rent $15; coast town, 2500; pay-roll over $4000 per month. Poultry business takes my time, and one must go. Why stay in the cold when this chance is open under sunny skies? Further information write quick. TOWNE'S POULTRY YARDS, Pinole, Cal.

FOR SALE.—Ninety second-hand double-walled chaff hives, no inside furniture, at $1.00 each, f. o. b. car here. They consist of 40 ten-frame Quinby and 50 thirteen-frame Gallup. These hives are in fairly good condition, and the reason for selling is that, with our system of out-yards, we do so much moving from place to place, we have decided to put our bees into single-walled hives. Write for particulars.
E. D. TOWNSEND, Remus, Mich.

FOR SALE.—Three four-frame Cowan honey-extractors, used only two seasons, are in perfect condition, having collectively extracted less than 40,000 lbs. of honey. The baskets are perfectly true and square, the same as when they left the Root Co.'s factory two years ago. The fact is, they have had such good fare that, were you to look at them, you would call them new. I offer them, crated, and delivered on board the cars here, at $18.00 each. This is a bargain that will not stand open long. The reason for selling is, I want to put in larger machines.
E. D. TOWNSEND, Remus, Mich.

Bees and Queens.

FOR SALE.—100 colonies of bees, in Higginsville ten-frame hives. R. L. WEBB, Waverly, Mo.

FOR SALE.—400 colonies pure Italian bees in lots to suit. Write for prices. F. A. GRAY,
Redwood Falls, Minn.

FOR SALE.—32 colonies Italian bees, 800 plain sections, drawn combs in supers, 8 extra hives, 50 combs, 2 lbs. super foundation. $100 buys lot.
P. MCGRATH, Rt. 3, Shepherd, Mich.

FOR SALE.—450 colonies Italian bees free from disease, in eight and ten frame Dovetailed hives heavy with honey. Super with each hive all painted two coats, $2.75 per hive, on Sacramento River.
ALBERT LANE, Vordan, Sac. Co., Cal.

Poultry Offers.

FOR SALE.—Choice poultry. Ten leading varieties for the farmer or the fancier. Circulars free.
A. H. DUFF, Larned, Kan.

FOR SALE.—M. B. turkeys. Hens, $3.00 each; Toms, $5.00 each; eggs in season, $3.00 per dozen.
A. P. YOUNG, Cave City, Ky.

FOR SALE.—White Wyandotte cockerels. Good stock at a low price. J. F. MOORE, Tiffin, O.

FOR SALE.—25 White Plymouth Rock cockerels, also pairs and trios. Eggs, $3.00 per 15, $5.00 for 30. *Fishel strain.* Write your wants.
DR. C. L. VAN ORDOL, Dillsboro, Ind.

FOR SALE.—Rose Comb White Leghorns, cockerels and pullets, prize stock, scoring 90 to 94 in show-room. $1.50 to $2.00 and $2.50 each. Singles, pairs, or trios.
WM. ANDERSON, Dover, Illinois.

Wants and Exchange.

WANTED.—Early American and foreign books on bee-keeping. A. L. BOYDEN, Medina, Ohio.

WANTED.—To exchange a 6x9 improved Victor hand and foot lever self-inking printing-press, almost new, cost $60, for foot-power circle and scroll-sawing machine, extracted honey, books, offers, type, etc. Particulars free. W. H. GARDNER, Roxabel, O. Rt. 1.

WANTED.—To let, apiary of over 300 colonies on five years' time. Produced $6.00 per colony this year. Great opportunity in Colorado.
MILLER PRODUCE CO., Timnath, Colo.

WANTED.—100 hybrid queens, common black and Italian, 1907 hatch, for early May delivery. Address
H. A. HARTMAN, Yerington, Nev.

WANTED.—I should like to correspond with party that would let his bees on shares in Colorado, Wisconsin, or Nevada. C. S. HURLBUT, Ft. Collins, Col.

WANTED.—Ten-inch foundation mill for deep-cell heavy brood. OLIVER FOSTER, Boulder, Colo.

WANTED.—To exchange, three colonies bees for 200-egg sure-hatch incubator, used one season.
JOHN W. OLSON, Rt. 1, Stratford, Ia.

WANTED.—To exchange Reliable incubator complete for Edison phonograph, 32-40 Marlin rifle, or offers. LORENZO CLARK, Winona, Minn.

WANTED.—To print you 100 up-to-date calling or business cards, for 40 cts. in stamps. 500 for $1.00.
H. H. HAWLEY, JR., Concord Junc., Mass.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange modern firearms for Indian relics. WM. S. AMMON,
4432 So. Grand Ave., St. Louis, Mo.

WANTED. Old combs for rendering. Also slumgum and beeswax. State quantity and price.
F. W. LESSER, Sta. A, Syracuse, N. Y.

Honey and Wax Wanted.

WANTED.—Fancy white-clover comb honey. Write us. INDIANAPOLIS DAIRY CO., Indianapolis, Ind.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.
R. A. BURNETT, 199 S. Water St., Chicago, Ill.

WANTED.—Beeswax. We will pay 30 cts. per pound for fancy pure yellow beeswax delivered in New York until further notice. CHAS. ISRAEL & BROS.,
486 Canal St., New York City.

WANTED.—20,000 pounds pure clover honey. Send average sample and state best price.
J. E. CRANE & SON, Middlebury, Vt.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here. GRIGGS BROS., Toledo, O.

WANTED.—Well-ripened basswood or clover honey. Prompt payment on receipt; 8¼ cts. per pound, f. o. b. West Bend. H. C. AHLERS, West Bend, Wis.

WANTED.—Immediately, honey in large and small lots for spot cash. Only dealer in Utah selling Root's goods at factory prices. Write us.
SUPERIOR HONEY CO., Ogden, Utah.

WANTED.—In large or small lots, No. 1 white and amber extracted honey in 60-pound cans or barrels. Send sample and quote lowest cash price delivered in Preston. M. V. FACEY,
Preston, Fillmore Co., Minn.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—To sell 4000 lbs. of white-clover extracted honey, put up in 2-lb. paper bags, and 1000 lbs. of same in 5-lb. bags at 9 cts. per lb., f. o. b., Flint, Mich. Cash to accompany order. This honey was not extracted until dead ripe, and is solid now.
LEONARD S. GRIGGS, Flint, Mich., Rt. 5.

Honey and Wax For Sale.

FOR SALE.—Clover honey in 60-lb. cans at 8 cts.
MRS. C. L. PARKER, Sta. A., Syracuse, N. Y.

FOR SALE.—Fall honey in 60-lb. cans at 7 cts. per lb. C. E. CROWTHER & SON, N. Kingsville, O.

FOR SALE.—Buckwheat honey in 60-lb. cans, at 6c per lb. C. J. BALDRIDGE,
Homestead Farm, Kendaia, Seneca Co., N. Y.

FOR SALE.—50,000 pounds California water-white extracted honey by the case or car.
H. J. MERCER, 731 E. Third St., Los Angeles, Cal.

FOR SALE.—Four barrels broken comb honey, white clover; weight about 600 lbs. Price 8 cts. per lb., cash f. o. b. C. H. W. WEBER, Cincinnati, Ohio.

FOR SALE.—Fancy basswood and clover honey in barrels or 60-lb. cans; sample 10 cts., which may be deducted when ordering. ROBT. A. HOLEKAMP & SON,
4263 Virginia Ave., St. Louis, Mo.

FOR SALE.—2000 lbs. of Colorado alfalfa extracted honey. It is ripe, rich, and thick; 60-pound tin cans, two in a case, at $10.00 a case.
A. A. LYONS, Fort Collins, Colo.

FOR SALE.—Choice extracted clover and basswood honey in 60-pound cans. It was extracted at end of season, and is very thick and well ripened. Sample free. J. F. MOORE, Tiffin, Ohio.

FOR SALE.—541 lbs. of No. 1 buckwheat comb honey; also 293 lbs. of clover that was finished out with buckwheat. It is in 24-section no-drip shipping-cases that weigh from 21 to 24 lbs. net per case. It is in 4¼ sections. This is a fine bunch of honey, and can not be compared with the ordinary; 12½ cents buys it F. O. B. here. E. D. TOWNSEND, Remus, Mich.

Bee-keepers' Directory

This department is for the exclusive use of all-year-round advertisers. If you have any thing the bee-keeper needs, your card in this department keeps your name always before your prospective customers at half our flat rates. We reserve the right to reject or modify any ad. not eligible to these special rates.

2 lines, 24 issues and GLEANINGS one year $ 5.00
3 " " " " " " 7.50
4 " " " " " " 10.00

Cash in advance. Ad's can be changed only in the first issue of January, April, July, and October.

FINEST Golden and red-clover queens, Caucasian and Carniolan. DANIEL WURTH & GRANT, Pitkin, Ark..

ITALIAN AND CAUCASIAN bees and queens of best quality; price list free. A. E. TITOFF, Ioamosa, Cal.

MAPLEWOOD APIARY.—Choice comb honey, Italian bees and queens. GEO. H. REA, Reynoldsville, Pa. R. 2.

ROOT'S SUPPLIES at factory prices; wholesale and retail. ANTON G. ANDERSON, Holden, Mo.

ITALIAN BEES, queens, and bee supplies.
H. H. JEPSON, 182 Friend St., Boston, Mass.

ITALIAN BEES, queens, beeswax, honey, and bee-keepers' supplies. M. E. TRIBBLE, Marshall, Mo.

FOR SALE.—Bee-keepers' Supplies. Write for catalog. Lengst & Koenig, 127 S. 13th St., Saginaw, Mich.

ITALIAN BEES and queens—red clover and golden strains. E. E. MOTT, Glenwood, Cass Co., Mich.

ITALIAN BEES, queens, honey, and bee-keepers' supplies. A. T. DOCKHAM, Box 95, Rt. 1, Eagle Bend, Minn.

SWARTHMORE APIARIES—Golden, Caucasian, Banat, Carniolan, Cyprian queens. E. L. Pratt, Swarthmore, Pa.

QUEENS. Free list giving safe method of introducing, ready Feb. 15. E. E. LAWRENCE, Doniphan, Mo.

ITALIAN BEES. queens, honey, and ROOT'S bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

GOLDEN-ALL-OVER Caucasian Banat bees and queens. We book orders for early queens from our best imported breeding stock for honey, with 600 twin mating-boxes. THE SNYDER APIARIES, Lebanon, Pa.

QUEENS.—Improved Red-clover Italians bred for business; June 1 to Nov. 15, untested queens, 60c; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

FOR SALE.—Honey, bees, and queens; cartons at half price, and some other supplies. Bees on Danz. and L. frames. Free circular.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

HATCH WAX-PRESS.

The wax-press illustrated and described in our last issue will be listed in our catalog for this year at $6.00, and will be known as the Hatch press. We will also list the Root-German at $12.00. A kettle or boiler is necessary with the Hatch press to use in melting up the combs ready for pressing. With the Root-German press much greater speed can be made by melting the combs in a separate boiler, but if you have plenty of time you can get along with the press alone.

SECOND-HAND FOUNDATION-MILLS.

We have the following second-hand comb-foundation mills to offer. We give a brief description of each, and shall be pleased to mail a sample of foundation, representing any one or more of these mills, to those interested, on application:

No. 058. 2½x6-inch hex. thin-super mill in good condition. Price $12.00.

No. 059. 2½x6-inch hex. exrta-thin-super mill in good condition. Price $12.00.

No. 072. 2½x10-inch hex. medium-brood mill in fair condition. Price $15.00.

No. 074. 2x10-inch round-cell brood mill in old-style high frame, in fair condition. Price $10.00.

No. 077. 2x10-inch round-cell brood mill in old-style high frame, in good condition. Price 12.00.

No. 075. 2x9 hex. brood mill in the oldest-style wood-base frame. Origina price of this machine was $80.00. We offer it for $10.00.

BEE MODELS—THE ANATOMY OF THE BEE.

There are a good many bee-keepers who will admit they ought to know more about the anatomy of the bee; but owing to the difficulties surrounding the subject they have thus far been unable to acquaint themselves in the least with the marvelous structure of the honey-bee. For such persons there has been constructed a *pasteboard* bee, showing all the internals of a queen and also of a drone in a manner that leaves little to be desired. With the aid of the key any intelligent person may soon become well acquainted with the anatomy of the bee and the proper name of each organ. First there is a life-like representation of the queen and drone (separately). By lifting the outer covering the breathing apparatus and digestive system are unfolded; lifting again there will be found the reproductive system and poison-glands; and by again lifting, the nervous system is clearly outlined. Every thing is as clear as daylight, as each part and organ is numbered, and the key which we send gives the correct scientific name of the same. Our models of the queen measure 6½ inches, while those of the drone are 5½ inches. We can furnish either with key at 50 cts. postpaid. Our stock will be ready about Feb. 1.

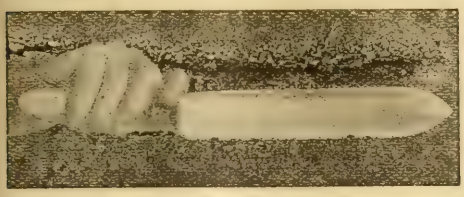
IMPROVED BINGHAM KNIFE.

Last season Mr. Townsend, of Michigan, suggested the above method of holding a Bingham knife in uncapping. To make an easier grip for the thumb and forefinger than the edges of the shank connecting the blade with the handle the writer conceived the idea

TEST SEEDS - GROW PLANTS

A New Idea. Great for Farmers and Market Gardeners to test seeds. Starts seeds, plants, roots, bulbs, slips, etc., for early planting. Has propagating tray over patent circulating warm water reservoir, heated with lamp. A perfect little hot-bed or propagating house. **Simple, durable, cheap,** easy to operate. **Costs a cent a day.** Every farmer and housewife needs it. Send for Booklet with pictures. Tells prices and all about it. **The Templin-Crockett Co., 765 Caxton Bldg., Cleveland, Ohio.**

of making the shank wider and rolling the edges over. This not only serves as an easy grip for thumb and finger but stiffens the shank as well. A patent was issued to The A. I. Root Co. on this improvement in No-



vember, and we will be prepared to supply this as well as the old style. Either one at the same price, 70 cts. each; by mail, 80 cts.; a longer and heavier knife for 10 cts. extra.

BOOKS RECEIVED.

SCIENTIFIC CONFIRMATIONS OF OLD-TESTAMENT HISTORY, BY GEORGE FREDERICK WRIGHT.

In some ways this is a remarkable book. It deals with an old subject on entirely new lines. To argue fairly and squarely on purely scientific lines for the truthfulness of the Bible narrative is really something. For example, the destruction of Sodom and Gomorrah is accounted for by an explosion of natural gas right beneath them, because the geological strata in that country favor this. The author gives proof of this probability by the enormous production of oil and gas in the Baku region in Russia, where the formation of the earth is similar.

The Deluge is accounted for on purely scientific evidence, for there is excellent proof in many parts of the world of a deluge. Usually when authors write on a subject like this they are deficient in some respect—they either lack in scientific knowledge or they suffer in the opposite direction, and are not sufficiently well educated in Biblical knowledge, and frequently they try to prove too much. It is not so in this case, for the author evidently possesses a wide knowledge of the science of the earth, coupled with an excellent knowledge of the geography of the world, gained by traveling over an immense portion of the earth's surface. The writer is well known as the author of several popular scientific books. In addition he is a deep student of the Bible, being Professor of the Harmony of Science and Revelation at Oberlin College, Ohio. This is a valuable book to Bible students.

(The Bibliotheca Sacra Co., Oberlin, O. $2.00 net.)

Convention Notices.

The 32d annual convention of the Vermont Bee-keepers' Association will be held in the parlors of the Addison House, Middlebury, Vt., Jan. 24.

W. G. LARRABEE, Sec.

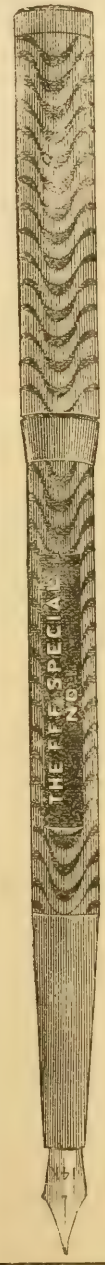
The annual meeting of the Wisconsin State Bee-keepers' Association will be held in the court-house, city of Madison, Wednesday and Thursday, February 6th and 7th. Reduced rates on all railroads; but if you can not obtain them, ask your agent for full-fare receipt. The question-box will be the main feature, and we want every bee-keeper who has one or more questions of interest to mail them to the secretary, prior to the convention, that they may be properly arranged. Bring choice samples of honey or any thing of interest for a good honey display.

GUS. DITTMER, Secretary, Augusta, Wis.

The 27th annual session of the Colorado State Bee-keepers' Association will be held in the Chamber of Commerce Building, Denver, Colorado, January 22, 23. The State Horticultural Association, the State Forestry Association, the Dry Farmers' Congress, the American National Stock-Growers' Association, the Colorado Cattle and Horse Growers' Association, will all hold their annual sessions in Denver during the same week. Besides this there will be the greatest live-stock show held in Denver that ever came off west of Chicago. The railroads have made a fare of one and a third for the round trip for this week, which should assure us a large attendance. A section-putting-up contest will be a feature of our meeting.

FRANK RAUCHFUSS, Vice-president.

Fountain Pens Virtually Free



A Grand Premium Offer

Take Advantage of It while It Lasts

WE ARE in a position for the **Next 90 Days** to supply our subscribers (old and new) with a celebrated make of Fountain Pen, guaranteed by the makers

Fourteen Carat Solid Gold

Virtually Free. This elegant pen, which is beautifully chased, and **warranted** not to leak, scratch, or blot, will be sent to old and new subscribers upon receipt of a year's subscription and fifty (50) cents additional. The pen compares favorably with any $2.00 pen on the market to-day, **and every reader of this paper should secure one while the offer lasts.**

A Fountain Pen is a Necessity of the 20th Century

Steel corrodes, ink-stands become dry, but not so with a **Solid Gold** Fountain Pen. It is always ready for use, and, moreover, pointed with iridium, it is well nigh indestructible.

Remember that this is for Ninety Days Only

Subscribe to-day and secure an article of merit and usefulness. . . . . The cut shows the exact size of the pen.

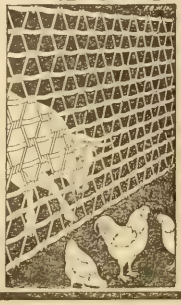
Gleanings in Bee Culture
Medina, Ohio

WON'T RUST
BROWN FENCE
25 to 35 PER ROD
STRONG

TEST IT BEFORE YOU BUY

Sample Sent Free **Brown Fences** are made of the highest grade of Spring Steel Wire. Both strand and stay wires No. 9 gauge, thickly galvanized. Test our sample for strength. File the galvanizing and see how thick the coating. Any trial will prove it strong, solid, substantial and durable. Requires less posts than most fences and is guaranteed to outlast any two of light weight fences. Ask for free sample and catalog of 133 styles. **Freight Paid on 40 Rods or more. THE BROWN FENCE & WIRE CO., Cleveland, O.**

Strongest Fence Made



When you buy our **High Carbon Coiled Spring Fence** you buy strength, service and durability combined. Twenty years of experience—hard knocks, taught us that the best fence is made from heavily galvanized **Coiled Spring Steel Wire**

CLOSELY WOVEN FROM TOP TO BOTTOM

Our Fence is so closely woven that small pigs cannot "wriggle" through it. So strong the vicious bull cannot "faze" it. We have no agents and do not sell to dealers but sell direct to the user

AT WHOLESALE PRICES FREIGHT PREPAID

Coiled Wire provides for expansion and contraction and prevents sagging between posts. Every pound of wire used in the construction of our fence is made in our own mill from the best high carbon steel obtainable. We give

30 DAYS FREE TRIAL that our customer may be sure they are satisfied. We make a full line of FARM AND POULTRY FENCE. Our wholesales prices will save you money. Catalog Free.

COILED SPRING FENCE COMPANY
BOX 101 WINCHESTER, INDIANA.

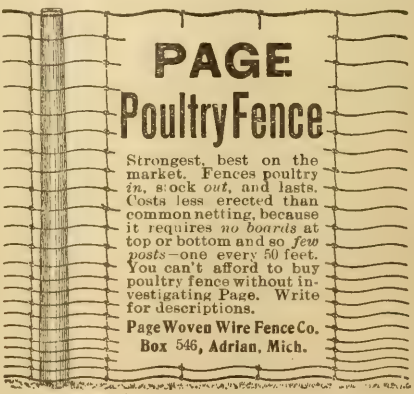
COILED SPRING FENCE

Closely Woven. Can not Sag. **Every wire and every twist is a brace** to all other wires and twists full height of the fence. **Horse-high, Bull-strong, Pig-tight.** Every rod guaranteed.

30 DAYS FREE TRIAL

and sold direct to farmer, freight prepaid, at lowest factory price. **Our Catalogue tells how Wire is made—how it is galvanized—why some is good and some is bad.** Its brimful of fence facts. You should have this information. Write for it today. Its Free.

KITSELMAN BROS.,
Box 21, **MUNCIE, INDIANA**



PAGE
Poultry Fence

Strongest, best on the market. Fences poultry *in*, stock *out*, and lasts. Costs less erected than common netting, because it requires *no boards* at top or bottom and so *few posts*—one every 50 feet. You can't afford to buy poultry fence without investigating Page. Write for descriptions.

Page Woven Wire Fence Co.
Box 546, Adrian, Mich.

DOUBLE QUICK WASHING
Half the time, half the work.
100 Pieces an Hour
with the
"Busy Bee" Washer
The machine with a record. No rubbing No dirt left. **AGENTS WANTED.**
Exclusive territory. Busy Bee Washer Co., Box 103, Erie, Pa.

THE "BEST" LIGHT

Produces a safe, white, powerful light, brighter than acetylene or electricity. 100-candle power at a cost of 2c per week.
Made in over 100 different styles—every one warranted. Agents wanted No dirt, smoke, or odor. Everywhere.
THE BEST LIGHT COMPANY,
806 E. 5th St., Canton, Ohio

PATENTS **No attorney's fee until patent is allowed.** Write for "*Inventor's Guide.*"
FRANKLIN H. HOUGH, Atlantic Bldg., Washington, D. C.

PATENTS.
Twenty-five Years' Practice.
PRINDLE & WILLIAMSON,
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Patent Counsel of The A. I. Root Co.

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SELLS LIKE SIXTY
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for Pumping, Cream Separator, Churn, Washing Machine, Ice Cream Freezer, etc.
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and also a new firm name, but in the same place with the same management. We have just put in a complete

Weed Process Comb Foundation Factory

of the very latest type, and we are now ready to work up wax for western bee-keepers at low prices. . . We want several thousand pounds of beeswax at once, and will pay top market price for same. Let us hear from any one having wax to offer. .·. .·. .·.

Buck & Wilson, Augusta, Kan.

Butler County

One step won't take us very far;
We have got to keep on walking.
One word won't tell folks what we are;
We have got to keep on talking.
One inch won't make us very tall;
We have got to keep on growing.
Promptness once won't do it all,
We have got to keep on moving.

Single orders are good enough in their place,
But more are necessary to keep up our pace.

No doubt you are planning for next season's supplies. Write us for catalog and other information. Give us a trial. We can please you. By handling the Root Co.'s goods, with excellent shipping facilities, promptness, etc., we can serve you in a satisfactory manner.

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.

Mr. Texas Bee-keeper:

I should like to talk to you *personally.*

First, I want you to know about my supplies. I handle Root's Goods, of course; for I believe in giving my customers complete satisfaction—for that's better in the long run than low prices. My place of business is on the S. A. & A. P. Ry., just opposite the passenger depot, where I have built a warehouse 40×250 feet, and I have filled it full to the brim, for I handle Root's goods by the carload. This means I can furnish you with supplies with the utmost promptness.

Then, too, I have installed a complete Weed-process Foundation factory. I can turn out 500 lbs. a day. I can work your wax into foundation. In fact, my facilities in this line are not surpassed in Texas.

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Nothing pleases me better than for bee-keepers to make their headquarters at my office when in San Antonio. You are always welcome. I have fitted up my office with plenty of desks and chairs, with writing-material, a reading-table, and all the bee journals on hand. Consider yourself invited.

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I can supply Red-clover and Golden Italian queens promptly.

I am now paying 23c cash and 26c in trade for average clean beeswax delivered here. Save your slumgum. I will buy it. Let me know how much you have, in what condition the slumgum is, and in what kind of an extractor it was rendered, and I will make you price I am paying.

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Bee-gloves—long arms, fleece-lined in two sizes—large for men, small for ladies.....35 cents
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Ladies' unlined for wearing at night or doing light housework.....40 cents

Early-order discounts on bee-supplies (excepting above and a few other articles) as follows:
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If you haven't our 1906 catalog send for one and a free copy of The American Bee-keeper (50c a year).

The W. T. Falconer Manufacturing Co., Jamestown, N. Y.

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New Warehouse : Root's Goods : Prompt Shipment : Low Freight

Everything for the Bee-keeper at Savannah, Georgia

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for the West

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565, 567 West Seventh Street

GLEANINGS IN BEE CULTURE

VOL. 35 FEB. 1, 1907 NO. 3.

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MEDINA, OHIO.

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Revue mensuele illustree,

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augmentee et completee par des collaborateurs Europeens, reconnus comme Apiculteurs eminents.

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Beeswax taken in exchange for supplies.

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Let me book your orders for queens. I breed the finest GOLDEN ITALIANS, RED-CLOVERS, CARNIOLANS, and CAUCASIANS. Can furnish NUCLEI beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White and Yellow Sweet-scented Clover, Alfalfa, Alsike, Crimson Clover, Buckwheat, Phacelia, Rocky Mountain Bee-plant, and Catnip.

C. H. W. WEBER

Office and Salesroom, 2146-48 Central Ave.
Warehouse, Freeman and Central Avenues.

Cincinnati, - - Ohio, U. S. A.

Honey Markets.

CINCINNATI.—The market on comb honey is rather easy. Prices rule in jobbing ways from 14 to 14½c. single cases, 16c for No. 1 white. Off grades not wanted at any price. Extracted is very firm. Light amber, barrels, 6 to 6½; white clover, in barrels, 7½; in cans, 8½. We are paying for beeswax, 30c per lb. delivered at Cincinnati.
C. H. W. WEBER,
Jan. 25. 2146 Central Avenue, Cincinnati, O.

NEW YORK.—The stock of white comb honey is pretty well exhausted, and we do not expect any more arrivals of large lots from now on. Prices are firm, and we quote from 15 to 16 for fancy white, 13 to 14 for No. 1; 12 for light amber. There is some dark and buckwheat on the market, but no overstock, and we think that all of it will be disposed of before long at present prices, which we quote from 10 to 12, according to quality. Extracted honey is very firm, with sufficient supply to meet demand. California white sage is bringing from 8 to 8½; light amber, 7½; amber, 6½ to 7; buckwheat extracted is in fairly good demand at 6 to 6½. Beeswax firm and steady at 31.
HILDRETH & SEGELKEN,
Jan. 18. 265-267 Greenwich St., New York.

ST. LOUIS.—There is no change in the situation in the honey market, except that the demand is very tame. Prices are unchanged, and we quote as follows: Fancy white comb honey, 16; No. 1, 15; light amber, 14 to 15; broken and inferior, less. Extracted light amber, California, 7½; Spanish needle, 7½.
R. HARTMANN PRODUCE CO.,
Jan. 18. St. Louis, Mo.

KANSAS CITY.—The receipts of comb honey have been more liberal during the last week or two, and the demand light, market weaker. Market is practically bare of extracted, and there is quite a little inquiry. We quote, No. 1 white comb, 24-section cases, $3.10; No. 2, $2.75; amber, $2.50. Extracted, white, per lb., 7½ to 8c; amber, 6½ to 7c. Beeswax, 27.
Jan. 25, C. C. CLEMONS & CO., Kansas City, Mo.

DETROIT.—The demand for honey is somewhat light at present, but with no particular change in prices; also very little honey is offered. Fancy and A No. 1 comb honey, 15 to 16; No. 1, 12 to 13; No. 1 dark comb, 11 to 12; extracted honey, white, 8 to 8½; darker grades, 6½ to 7½. Beeswax, 29 to 30.
Jan. 21. M. H. HUNT & SON, Bell Branch, Mich.

CINCINNATI.—The comb-honey market, at the present time, is very quiet. Holders of this article are not trying to realize a profit — merely disposing of what they have, at cost. Fancy comb honey is selling at 14½ to 16. Quote extracted amber honey in barrels at 6 to 7; fancy light amber in cans at 7 to 8; fancy white, 9. For strictly choice beeswax we are paying 30, delivered here.
THE FRED W. MUTH CO.,
Jan. 9. 51 Walnut St., Cincinnati, O.

ZANESVILLE.—The demand for honey, both wholesale and retail, has been very light, though there has been some revival within a week. No change in prices since last quotation, fancy white bringing $3.85 to $4, and No. 1 $3.75 to $3.85 per case. Little honey of off grades is being offered. I quote light extracted at 8 to 12½, according to quantity; pound jars, $2.20 per dozen, wholesale. Beeswax, 29 to 30.
Jan. 19. E. W. PEIRCE, Zanesville, O.

CHICAGO.—As stocks are moderate, especially of the best grades of honey, we find the maket a steady one, but the volume of sales is small. No. 1 to fancy comb brings 15 to 16; the off grades, 1 to 3 cts. less; extracted, white, 7½ to 8; amber, 7 to 7½; dark, 6 to 6½. Beeswax, 30.
R. A. BURNETT & CO.,
Jan. 18. 199 So. Water St., Chicago, Ill.

BUFFALO.—All grades of honey are selling slowly in our market. Dark, No. 2 white, and all off grades, are much slower than white; hardly any white comb here, but plenty of buckwheat. Fancy white comb, 16 to 17; A. No. 1, 16 to 17; No. 1, 15 to 16; No. 2, 13 to 14; No. 3, 11 to 12; No. 1 dark comb, 10 to 11; No. 2, 9 to 10; mixed dark comb, 10 to 11; White-clover extracted, 7 to 8; amber, 6½ to 7; dark, 6 to 6½; jelly-tumblers, 85 to 90 per dozen. Beeswax, 30 to 32.
Jan. 21. W. C. TOWNSEND, Buffalo, N. Y.

TOLEDO.—The demand for comb honey does not seem to be as good as it did a month ago. We are getting, in a retail way, 16 for fancy white comb, with very little demand for lower grades. Buckwheat goes begging at 14. Extracted is in better demand, and would bring 7 cts. in barrels and cans, delivered here. Beeswax is firm at 26 to 28.
THE GRIGGS BROS. & NICHOLS CO.,
Jan. 18. Toledo, O.

INDIANAPOLIS.—Market on comb honey is very quiet, regardless of the short crop. Fancy white comb brings 16 to 17; No. 1 white, 14; amber, 12 to 13. Best grades of extracted honey bring 8 to 9; amber, 6 to 7. Good average beeswax sells here at $33 per 100 pounds.
WALTER S. POUDER,
Jan. 18. 513 Mass. Ave., Indianapolis, Ind.

SCHENECTADY.—Comb honey continues to sell very slowly. There is some demand for both light and dark extracted in 60-lb. cans and 160-lb. kegs, and stock on hand is very small. Producers still having either should forward the same at once, as the season will soon be over.
CHAS. MACCULLOCH,
Jan. 21. Schenectady, N. Y.

ST. PAUL.—Fancy white, No. 1, in 1-lb. sections, new, 15 to 16; No. 2 white clover, in 1-lb. sections, 13 to 14. Extracted white, in 60-lb. cans, per case, 9 to 10.
Jan. 19. W. H. PATTON, Sec., St. Paul, Minn.

BOSTON.—Our market on honey continues to be about the same figures. Fancy cartons, 16 to 17; No. 1 white, 15 to 16; No. 2, 14 to 15; extracted, 7 to 8½.
Jan. 19. BLAKE, SCOTT, & LEE CO.

Honey and Wax Wanted and for Sale.

See Classified Ads. on pages 206–207.

BEE SUPPLIES.

We handle the finest bee supplies, made by the W. T. FALCONER MFG. CO., Jamestown, N. Y. Big Discounts on early orders, let us figure with you on your wants.

MUTH SPECIAL DOVE TAIL HIVES, have a honey board, warp-proof cover, and bottom board, think of it, same price as the regular styles. Send for Catalog.

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HONEY

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We are always in the market for WAX at highest market prices.

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265-267 Greenwich St. 82-86 Murray St.

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FOR SALE.--Extracted honey, strictly pure, buckwheat, 6½c; clover mixed, 7c in 60-lb. cans and 150-lb. kegs. This State production; best flavor.

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From this date until further notice we will pay 30 cents cash, 32 trade, for average wax delivered here or at our branch offices. This is a higher price than we have ever paid before at this season of the year. If any of our readers have any wax to dispose of we shall be pleased to hear from them. Be sure to mark your shipment with your name so that it may be identified on arrival, and mail us shipping receipt with gross and net weight of shipment.

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2 Blank bars, 2 Cell-bars,
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1 Swarm-box with lid, 1 Needle, 1 Stick.

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Distributing Agents for E. L. Pratt

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Circulation 32,000

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$1.00 per year

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

Published by
THE A. I. ROOT CO., Medina, Ohio

J. T. CALVERT, Business Manager
A. L. BOYDEN, Advertising Manager

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Just at present, for the sake of inducing new men to give the Review a trial, each man who sends $1.00 for the Review for 1907 will receive, free of charge, the complete volume for 1906; and it contains many articles, any one of which is worth many dollars to the man who is keeping bees to *make money*.

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Gleanings in Bee Culture

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One of the excellent catalogs received is that of L. L. Olds Seed Co. They make a specialty of seed corn, oats, and potatoes. Their catalog is worth sending for. Their address is found in their ad. appearing Jan. 1.

"Plants that Grow" is the title of a 44-page book sent out by our friend W. N. Scarff, New Carlisle, O. We notice particularly his $5.00 Model Fruit Garden, containing 27 different varieties of fruit. It's worth your while to look at the list. Write him at above address.

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A woman on the farm is always looking for ways and means to make every penny count. She appreciates that a "penny saved is a penny earned," and we are glad in this issue that we can direct her to some money-saving plans that are new, and worthy of her consideration. We might tell you of all Crofts & Reed's plans, but you had better turn to the advertisement and then send for the book, which explains them clearly. When you write, be sure to mention GLEANINGS.

IT WORKS LIKE A HEN.

Since man first tried to equal nature by hatching eggs and raising chicks artificially, the constant effort of incubator men has been to produce a machine that would most nearly reproduce the method of old mother hen. Cycle Hatcher Co.'s "metal mother" is claimed to have nearest reached this ideal. By addressing the Cycle Hatcher Co., Elmira, N. Y., and mentioning this paper, any of our readers can secure a copy of their handsome illustrated 1907 catalog, which gives full particulars about this new machine.

A GREAT SEED CATALOG.

The finest seed catalog that has reached our table in many years is that just issued by that old well-known and reliable seed-house, The Ratekin Seed-house, of Shenandoah, Iowa. This new seed-book was all re-written during the past season, right in the fields and plots where all their seeds are grown and tested, and is practical and to the point in every sense of the word, and is chuck full of such information as the farmer, gardener, and truck-grower want to know. A postal card addressed to Ratekin's Seed-house, Shenandoah, Ia., will bring a copy. See their advertisement on another page of this paper.

"HOW TO MAKE MONEY IN POULTRY AND INCUBATORS."

We have just received the complete catalog of the Cyphers Incubator Co., Buffalo, N. Y., entitled "How to Make Money in Poultry and Incubators." In the space at our disposal it is quite impossible to do justice to this magnificent catalog of 260 pages. We know from the inquiries received in this office that an unusual number of our readers are interested in poultry, and while we often have occasion to recommend some catalog which may be had for the asking, it is seldom that we find one which appears so complete, interesting, and valuable as this one. We feel that the Cyphers Co. are very generous when they offer to send it without charge, and inasmuch as they agree to do this we hope many of our readers will send for it and be profited thereby. The index of items mentioned in the catalog alone contains nearly 175 items, and nearly every thing wanted in poultry-keeping is found within its pages.

Books Received.

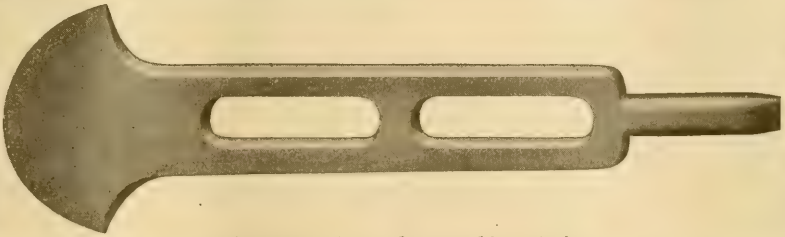
SQUABS FOR PROFIT. A practical treatise on the raising of squabs from the egg to market. Being a handbook for the beginner and a guide for the experienced breeder. By William E. Rice and William E. Cox. Profusely illustrated: 125 pages; 5x7 inches. Cloth. Price 50 cents. Orange Judd Company, New York.

The Weekly American Bee Journal is in its 47th Year

Something New=The Ideal Hive-Tool

Bee-keepers have long needed a Tool with which to work among the hives during the bee-season. The Tool shown here was invented by Wm. Muench, a Minnesota bee-keeper, some years ago, but it was not on the market before. We have lately bought this Tool, and all rights, from Mr. Muench's widow, and have had the first lot made. They are ready for delivery now.

Best Hive-Tool



Only 30c, by mail

(This picture is exactly one-half the size.)

DESCRIPTION.—The Ideal Hive-Tool is made of high-grade malleable iron, much like wrought iron, 8½ inches long. The middle part is 1 1-16 inches wide and 7-32 thick. The smaller end is 1⅞ inches long, ½ inch wide, and 7-32 thick, ending like a screw-driver. The larger end is wedge-shaped, having a sharp semi-circular edge, making it almost perfect for prying up covers, supers, etc., as it does not mar the wood.

What Dr. Miller and Miss Wilson Say of It:

In the first edition (1903) of Dr. Miller's "Forty Years Among the Bees," page 58, he says: "Of all the hive-tools I have tried, I like best the Muench tool." On Jan. 7, 1907, he wrote us saying he thought "just as much of the tool as ever."

Miss Wilson, Dr. Miller's assistant, says this of the Ideal Hive-Tool: "It is an ideal tool. In fact, I don't see how it could be improved upon. I am sure we would feel utterly lost in the apiary without it.....You will have to try one yourself if you want to know its worth."

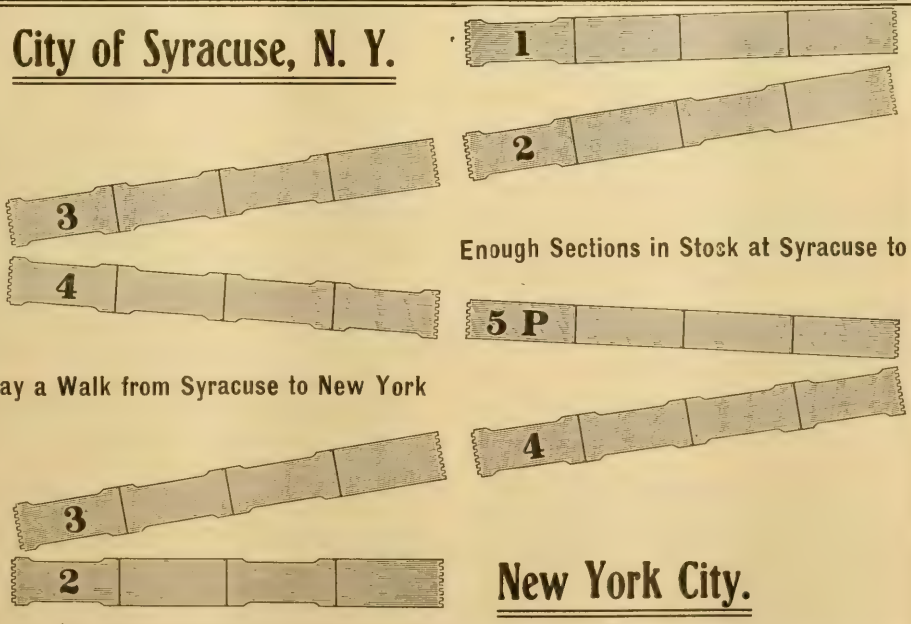
The Ideal Hive-Tool Free to a New Subscriber.

To a **new** subscriber to the **Weekly Bee Journal** for one year (at $1.00), we will mail an Ideal Hive-Tool **free**; or we will mail the Hive-Tool alone for 30 cents (stamps or silver, if more convenient). Sample copy of the Weekly American Bee Journal sent on request; **or a 3 months' "trial trip" for only 20 cents.** Address,

GEORGE W. YORK & CO., 334 Dearborn Street, CHICAGO, ILL.

The Oldest and Only WEEKLY Bee-Paper in America

City of Syracuse, N. Y.



New York City.

The A. I. Root Co., Syracuse, N. Y.

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Our Advertising Rates.

Twenty cents per agate line, flat.
Fourteen lines to inch.

SPACE RATES (To be used in one issue)

One-fourth page....$11.00
One-half page.... 21.00
One page.... 40.00

Preferred position, inside pages, 30 per cent additional.
Preferred position, inside cover pages, 50 per cent additional.
Outside cover page, double price.
Reading notices, 50 per cent additional.
Cash-in-advance discount, 5 per cent.
Cash discount, if paid in 10 days, 2 per cent.
Bills payable monthly.
No medical or objectionable advertising accepted.

"A Square Deal."

We believe that every advertisement in this paper is backed by a responsible person. But to make doubly sure we will make good any loss to paid subscribers sustained by trusting any deliberate swindler advertising in our columns, and any such swindler will be publicly exposed. We protect subscribers against rogues, but we do not guarantee to adjust trifling differences between subscribers and honest responsible advertisers. Neither will we be responsible for the debts of honest bankrupts sanctioned by the courts. Notice of the complaint must be sent to us within one month of the time of the transaction, and you must have mentioned GLEANINGS IN BEE CULTURE when writing the advertiser.

Catalogs Received.

Every one planting field or garden seeds will be interested in Bateman Mfg. Co.'s splendid catalog of seeders, cultivators, and wheel hoes. See their advertisement on another page.

There seems to be a general complaint of poor galvanizing on fence wire. Kitselman Brothers, of Muncie, Indiana, fence manufacturers, claim to have an improved process of galvanizing wire that adds much to its lasting qualities. They have just issued a 96-page catalog fully describing the above process.

A. T. Cook's (Hyde Park, N. Y.) new seed catalog for 1907 is larger, finer, and perhaps more liberal in its offers than ever before, and he still, even in his catalog, exhorts to righteousness, purity and temperance (especially in regard to tobacco). See his ad. on last page of cover.

The United Factories Co., of Cleveland, Ohio, announce a new incubator book issued in conjunction with twelve other factories, catalogs bound under one cover, and sent free to our readers. Just say, "Send me that combined book as advertised in GLEANINGS IN BEE CULTURE."

There are two things extra that the Brown Fence and Wire Company, Cleveland, Ohio, do for the farmer. 1st: They send a free sample of the fence so that every man can examine it at his leisure. He can hammer it, file it, dip it in acid, heat it—test it any way he chooses. The sample will be no better than the actual wire sent him when he pays his money; 2d: They pay the freight on all orders of forty rods and over. This is a great convenience. A man knows exactly what his fence will cost laid down at his home station. Prepaid freight usually is delivered sooner than the "bill to follow" kind. A 56-page catalog gives a detailed explanation of 138 different styles of fences for poultry, hogs, horses, bulls, and stock of all kinds. It is sent free to any one mentioning GLEANINGS.

The HOME MAGAZINE

"Interests All the Family"

FOR A YEAR with your choice of these Four Famous Books by the people's most Popular Poet, JAMES WHITCOMB RILEY $1.00

1 Love-Lyrics 3 Farm-Rhymes
2 Songs o' Cheer 4 Child-Rhymes

Magnificent Gift editions, Beautifully Illustrated, Handsomely Bound in Scarlet and Gold, and Printed on Finest Grade Paper

THIS remarkable special offer involves:

First: An exquisite volume by James Whitcomb Riley, the poet laureate of the American people, the most popular poet of his age and race. A volume containing the cream of his verse, lavishly illustrated by a leading artist. A GIFT worth giving and a gift worth receiving.

Second: A year's subscription to THE HOME MAGAZINE, the great periodical for home-makers, home-lovers, home-builders and every one else in the home.

In presenting the book free of charge with the magazine, we are not giving something for nothing. We are acting on a sound business principle established by experience. The principle is this:

EXTRAORDINARY value may be offered with the FIRST year's subscription to THE HOME MAGAZINE, because NEW subscribers almost invariably become OLD ones.

THE HOME MAGAZINE HOLDS the friends it makes.

* * *

YOU never saw a publication just like the HOME MAGAZINE. There is none. It is unique among magazines, with a place all its own.

There are many good magazines,—women's publications, the young people's magazines, periodicals for children, magazines for men, and all kinds of scientific, religious and literary publications.—

—But there is but ONE high grade magazine edited and published EXCLUSIVELY in the interest of the home.

The HOME MAGAZINE is issued monthly.

Feature articles of peculiar charm and vitality appear in each number. Master writers of Fiction contribute fascinating stories of Love, Romance, Mystery and Adventure.

Among the famous artists whose work is to be found in the HOME MAGAZINE are Howard Chandler Christy, Harrison Fisher, A. I. Keller, John Cecil Clay, H. C. Wall, George Brehm and Worth Brehm. These names tell their own story! * * *

EXPERIENCED men and women of proved ability conduct departments which cover every interest that centers in the home.

Landscape and Flower Gardening is covered each month by Mr. Eben Rexford, author of Home Floriculture, etc.

Mr. Charles S. Sedgwick, the eminent architect, contributes practical plans for home building.

The department of Hens and Chickens is under the management of Miller Purvis, editor of the well-known magazine, POULTRY.

Minnie McIntyre, editor of BIT AND SPUR, has charge of the department, The Horse and the Stable.

The department, The Dog and His Care, is conducted by Eugene R. Cole, editor of DOGDOM.

* * *

NOW, don't forget the Riley Books.

You know we give you your choice of the four beautiful volumes named above. Each contains about 200 pages, with nearly 100 illustrations.

Be sure to state which Riley Book you want. We will send the entire set in a convenient holder for four subscriptions.

You take no risk. We refund money promptly if The HOME MAGAZINE or the Book fails to please you.

You love your home and your home folks. Can you invest a trifling sum in any way that will give them more real pleasure?

Then, why not send us the coupon today?

The regular price of the Home Magazine is $1.00 a year, 10 cents a copy at news-stands

The Bobbs-Merrill Co. *Publishers* **Indianapolis**

Your Money Back

Our faith in the ability of THE HOME MAGAZINE to satisfy you is so great that we agree to return your money, if you want it after reading the first number.

Mail the Coupon Today!

THE BOBBS-MERRILL COMPANY *Publishers* Indianapolis

I enclose $1.00 for a year's subscription to THE HOME MAGAZINE and Riley Book No._____

My Name is_____

My Address is_____

All four books—the entire set—will be sent for either one four years' subscription ($4.00), or four separate subscriptions, $1.00 each—$4.00.

"If Goods are wanted quick, send to Pouder."
Established 1889

Bee-Keepers' Supplies

Distributor of Root's Goods from the best shipping-point in the Country. My prices are at all times identical with those of The A. I. Root Company, and I can save you money by way of transportation charges.

Special Discounts for Early Orders!

New Metal-spaced
Hoffman Frames
are Here in Stock

Headquarters for the
Danzenbaker
Hive

**Dovetailed Hives, Section Honey-boxes,
Weed-process Comb Foundation,
Honey and Wax Extractors, Bee-smokers,
Bee-veils, Pouder Honey-jars, and,
in fact, Every Thing used by Bee-keepers.**

BEESWAX WANTED!

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight. Always be sure to attach name to package.

If you wish to secure finest grades of Honey with which to supply your neighbors, write for my market Quotations of the Indianapolis honey market, free.

Certificate guaranteeing purity with every shipment.

Catalog Free

Walter S. Pouder

513-5 Massachusetts Av., Indianapolis, Ind.

Root's . . . . . Goods

Stand for

Reliability

Uniform excellence . . . . . always maintained.

Popularity

Everywhere in high favor.

Quality

Material and workman- . . . . . ship unexcelled.

In Other Words-----It's Root Quality

We Sell the Root Quality Goods in

MICHIGAN

Write for prices and discount on your list of goods for the coming season.

"Where Quality Counts, We Win."

M. H. HUNT & SON

Bell Branch, Wayne Co., Michigan

Dittmer's . . . . . Comb Foundation

Why do thousands of bee-keepers prefer it to other makes? . . Because the bees like it best, and accept it more readily.

Dittmer's Process . . . . . is Dittmer's

It stands on its OWN NAME and its OWN FOUNDATION —to which alone it owes its reputation and merits. . . We are now ready to make prices for next season for

Working Wax for Cash

and for full line of supplies. WHOLESALE and RETAIL. Free catalog and samples.

Gus Dittmer, Augusta, Wis.

4 per cent Discount During February

In order to liven up business during the dull months we will give four per cent off all supplies, in the catalog, wholesale or retail, during February for goods for this year.

Jobbers for

Central : Pennsylvania

— for —

ROOT'S GOODS

Now's the time to save money on goods for next season. Send for catalog. Best shipping facilities in the State.

Frank W. Prothero

Dubois, : : : Pennsylvania

Established 1881 YES! Same Place 1907

THIS IS THE MAN

WHO HAS HANDLED ROOT'S GOODS ALL THESE YEARS

and is now selling at wholesale and retail at Root's catalog prices. He has carloads of the finest sections, of all kinds and sizes; the Danzenbaker hive, the best single-walled comb-honey hive in use; all kinds of single-walled hives shown in catalog, and supers that match; the Hilton double-walled hive, of which more are used in Michigan than any other. It has stood the test for thirty years. We can't name them all, but send for his 36-page illustrated catalog, and that will tell it all and give prices. Cash or goods in exchange for beeswax at all times of the year.

Geo. E. Hilton, - Fremont, Mich.

SPECIAL BARGAINS

In dovetailed HIVES, plain and beeway SECTIONS, Hoffman BROOD-FRAMES, Section-holders, Separators, etc.

We are enlarging our FACTORY, and all of these goods have to be moved. If you want any thing in your apiary, you will do well by writing us at once, and we will make you DELIVERED PRICES that will surprise you. Our stock is all new and up-to-date. We do not keep poor or second-grade goods. Our sizes are standard. Quality and finish can not be surpassed by any one. We make any thing used in the apiary, and can save you money and delay at any time of the season. Give us a trial and be convinced. We aim to please our customers, and guarantee all our goods to give entire satisfaction or refund the money.

MINNESOTA BEE-KEEPERS SUPPLY COMPANY,

NICOLETT ISLAND NO. 20. John Doll & Son, Proprietors. **MINNEAPOLIS, MINN.**

OLD PRICE

Bingham "B" Smokers

Best on Earth for 29 Years.

Cost Five Cents More to Make in 1907 than in 1906

Now is the time to buy while they are cheap. Copper, tin, leather, steel, wire, and wood are rising every day.

T. F. BINGHAM

FARWELL, : MICHIGAN

Northeastern and New England

BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine

MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

Boston Headquarters

—FOR—

Bees-Queens-Supplies

H. H. Jepson, - 182 Friend St.

Root Goods

for the West

Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS.

My shipping facilities are unsurpassed any where. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

Write for estimate with liberal discount for orders sent in now.

Jos. Nysewander, Des Moines, Iowa

565, 567 West Seventh Street

A Four-Per-Cent Investment

WITH the money absolutely safe and always available is an ideal disposition of individual savings.

This bank accepts deposits in any amount, and pays four per cent interest —compounded every six months.

Our booklet describe our methods and management, and explains the advantage of our simple banking-by-mail system. Write for the booklet to-day.

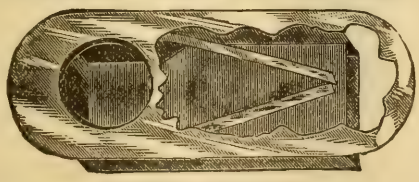
Assets over One-half Million

THE SAVINGS DEPOSIT BANK COMPANY

MEDINA, OHIO

A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.
E. B. SPITZER, Cashier.

PORTER BEE-ESCAPES



HIVE ESCAPE

When taking off surplus this is the greatest saving device. It does away with the shaking of the heavy supers, the cruelty of excessive smoking which causes the bees to uncap their honey and start robbing. You can as well afford to be without a smoker as without the Porter Bee-escape.

PRICES—Each, 20c; dozen, $2.25; postpaid. With board, 35c; 10, $3.25; by express or freight.

HOUSE ESCAPE

To be used over the doors and windows in the extracting-house, or any place you wish to clear of bees. Some bee-keepers make a practice of taking off the filled supers and stacking seven or eight in a pile. The Porter Honey-house mounted on a board makes the best kind of escape.

PRICES—Each, 25c; dozen, $2.75; postpaid.

For Sale by Dealers Everywhere!

R. & E. C. Porter, Patentees

SEND - ORDERS - TO - YOUR - DEALER

Swarthmore Books!

BABY NUCLEI (2d ed.)—The second edition of this popular treatise is off the press. This book thoroughly covers the field of small mating under management. The experience of twenty years in mating young queens in baby nuclei is given. A delightful little book—good printing, enjoyable reading, and easy understanding. Price 25 cts. postpaid.

SIMPLIFIED QUEEN-REARING.—A revised edition of this book just out. It tells the honey-producer how to rear queens by the very simplest method ever published. Good queens for little money and little trouble, in just an effective and economical plan for the bee-keeper who works for profit. Price 25 cts. postpaid.

INCREASE.—Don't depend entirely upon swarming for your increase. It's too slow and uncertain. Swarthmore tells of a way in his delightful little book entitled "Increase"—a natural way, simple and safe, no labor, little trouble. Colonies formed on this plan will work like prime swarms, and store a surplus. Price 25 cts. a copy postpaid.

CELL-GETTING.—The plan that has revolutionized queen-rearing throughout the world. The entire process is fully explained and illustrated by photos from actual life. Price, postpaid, 50 cts.

SWARTHMORE QUEEN-REARING TOOLS.—Complete outfits or separate parts. Write for price list.

FOR SALE BY

The A. I. Root Company

ALL BRANCHES AND AGENCIES

Wouldn't You Like

to have us show you the wonderful opportunities existing in the South, and how you could improve your present condition?

The

Seaboard - Magazine

Devoted to the agricultural and industrial development of the South, will point out many of the advantages of a location in our mild climate where life would be a greater pleasure as well as profit by reason of being able to carry on work throughout the entire year. Why battle against the elements? If you want a stock or grain farm, a fruit farm, truck farm, where lands are fertile and productive, in fact, any thing, and want it in Virginia, the Carolinas, Georgia, Alabama, or Florida, the magazine will assist you. Sent FREE on request, together with other handsomely illustrated literature descriptive of the South—its wonderful resources and progress.

Special low round-trip rates for home-seekers, prospectors, and investors.

J. W. White, Gen'l Indust'l Agent
Portsmouth, Va.
Seaboard Air Line Railway, Dept. "F."

How to Keep Bees

By Anna Botsford Comstock

228 pages. 32 pages of illustrations.

A charmingly written manual describing clearly and in detail the outfit, first steps, and methods. The author's well-known literary ability has combined with her enthusiasm for a subject to produce a very unusual volume. It is a handbook for those who keep bees for happiness and honey, and incidentally for money. It serves as well as an introduction to the more extended manuals already in the field. "Finally with all due deference to the authors of the excellent books on bee culture which we have already, my opinion is that this new book, 'How to Keep Bees,' is the best one for a beginner, or one who does not wish or expect to keep more than a dozen colonies, that has yet come before the world."—*A. I. Root, in Gleanings, July 1, 1906.*

Chap. 1, "Why Keep Bees," urges honey, perhaps money, recreation, love of nature study, and the need of bees in "a perfect garden," as good reasons for keeping bees. The second chapter tells "how to begin" in a small way, and we may get all the necessary detailed information for management from later chapters, arranged in order of demand for information.

Price $1.00. Postage 10 cents extra.

Money refunded to any dissatisfied purchaser.

The A. I. Root Co., Medina, O.

Fountain Pens Virtually Free

A Grand Premium Offer

Take Advantage of It while It Lasts

WE ARE in a position for the **Next 90 Days** to supply our subscribers (old and new) with a celebrated make of Fountain Pen, guaranteed by the makers

Fourteen Carat Solid Gold

Virtually Free. This elegant pen, which is beautifully chased, and **warranted** not to leak, scratch, or blot, will be sent to old and new subscribers upon receipt of a year's subscription and fifty (50) cents additional. The pen compares favorably with any $2.00 pen on the market to-day, **and every reader of this paper should secure one while the offer lasts.**

A Fountain Pen is a Necessity of the 20th Century

Steel corrodes, ink-stands become dry, but not so with a **Solid Gold** Fountain Pen. It is always ready for use, and, moreover, pointed with iridium, it is well nigh indestructible.

Remember that this is for Sixty Days Only.

Subscribe to-day and secure an article of merit and usefulness. . . . . The cut shows the exact size of the p .

Gleanings in Bee Culture
Medina, Ohio

PHOTOGRAPHIC - COMPETITION

We are pleased to announce another series of prizes for the best photographs submitted to us, as described below, in two series, American and foreign, under the following conditions:

FIRST.—The competition opens January 15th and closes October 1st, 1907. All photographs intended for this competition must be in our hands by the last-named date.

SECOND.—Competition for these prizes is limited to bee-keepers or some member of the family. Entries may be made for as many different classes as may be desired.

THIRD.—A photograph entered in one class can not be entered in any other class.

FOURTH.—Each photograph should be marked on the back with the name and full address of the sender, and the class in which it is entered. This is important.

FIFTH.—In judging the photographs, the general appearance, neatness, etc., of the apiary or exhibit or yard will be taken into consideration. Photos may be sent unmounted. We rather prefer them this way, and in a solio or reddish-brown tone if possible. However, send such as you can get most easily.

SIXTH.—With each of the photographs submitted we would like a brief statement of the conditions under which the apiary was photographed or honey produced, or similar information regarding the photograph. This should be limited to about one hundred words.

SEVENTH.—All photographs and correspondence regarding the same should be addressed to Advertising Department, GLEANINGS IN BEE CULTURE, Medina, Ohio.

EIGHTH.—We reserve the right to limit the number of awards or make no awards in any class if there are no suitable entries for that class.

AMERICAN COMPETITION — Including Canada and Mexico—AND FOREIGN COMPETITION

The following are the classes in which entries may be made:

CLASS A.—Photographs of any apiary in village, town, or city.

CLASS B.—View of an apiary not exceeding six hives in town or city.

CLASS C.—Apiary in town or country of not less than six hives or more than fifty hives.

CLASS D.—Apiary in town or country of fifty hives or more.

CLASS E.—Photograph of comb honey produced by a single colony of bees; not less than ten sections, and this preferably in plain sections.

CLASS F.—Photograph of a bee-keeper's home showing some view of the apiary if possible. The apiary need not be prominent in the picture, however.

CLASS G.—Photographs of a crop of honey from any number of colonies, six or more.

CLASS H.—Photographs of any apiarian exhibit of bees, supplies, or honey taken at fairs or shows of any kind.

CLASS I.—Photographs of any work in the bee-yard, such as hiving swarms, extracting, or any other operations with the hive.

CLASS J.—Photographs of any other subject relating to bee-keeping not classified above.

PRIZES

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FIRST.—One leather-bound "A B C of Bee Culture," 1907 English edition, or cloth-bound French or German..	$2.00
SECOND.—One half-leather "A B C of Bee Culture," 1907 English edition..	1.75
THIRD.—One "How to Keep Bees" and any two Swarthmore books.....	1.50
FOURTH.—One full cloth-bound "A B C of Bee Culture," 1907 English edition	1.20
FIFTH.—One "How to Keep Bees," by Anna Botsford Comstock.....	1.10
SIXTH.—One No. 1 bee-veil, all silk...	.80
SEVENTH.—One No. 2 bee-veil, silk face	.50
EIGHTH.—One illustrated book, "Bee Culture in Foreign Countries".....	.50
NINTH.—One Bee Model Queen (see Special Notices)	.50
TENTH.—One Bee Model Drone (see Special Notices)	.50

Ten prizes are offered for each class: Ten for Class A, Class B, Class C, etc.—one hundred prizes for each contest, American and Foreign, two hundred in all if that number of entries are received, the prizes offered being identical for each class for the American competition and for the Foreign.

If the winner of any certain prize has already the prize offered, we will, on request from him, furnish a selection of other items from our catalogs, of equal value.

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Advertising Department, Gleanings in Bee Culture
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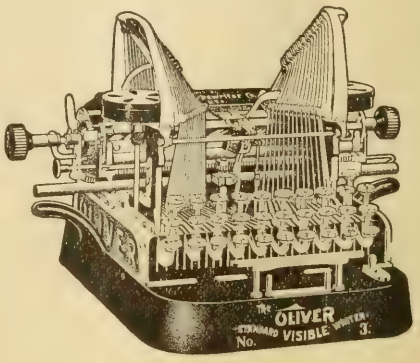

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GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests
Illustrated : Semi-monthly : One Dollar per Year
Published by The A. I. Root Company, Medina, Ohio

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STRAY STRAWS

By E. R. ROOT

LOOSE HANGING FRAMES when well made and in level hives "will hang true and plumb every day in the week," p. 94. But, friend Woodward, in this locality, as the frames grow old you may space the top-bars perfectly, and if you tip up a hive and look under you will find the bottom-bars at any thing but regular distances. [That is our experience.—H. H. R.]

B. CHASE says that witch-hazel bloom begins early in October and lasts about four weeks, being the last flora to bloom in New England. His bees get much pollen from it, and he thinks it might have given my late pollen. Possibly, although I am not sure that I ever saw any witch-hazel here. It has the unique habit of blooming late in autumn when the leaves are falling.

TO ACCOUNT for failure of clover-bloom to yield nectar, J. E. Crane suggests, besides the weather, soil. But, friend Crane, it was the same soil that gave me bumper crops in other years that gave me a failiure in 1906, and the weather seemed to be all right. Was there some hidden weather influence, or have you some other guess? [It certainly looks as though the soil were not to blame in your case.—H. H. R.]

POWDERED SUGAR is preferred to confectioners', p. 99, as the latter "is apt to contain starch." Will the pure-food law eliminate the starch? [As I understand the law, it would not, for the reason that starch is not a deleterious substance. But all such sugar containing starch will have to be *so* marked or labeled. From the standpoint of the bees, the starch would be very injurious, according to Mr. Morrison, and so the powdered sugar had better be used.—H. H. R.]

J. E. CRANE, page 87, counts about 2 cts. a pound for freight, commission, etc. About the same rate here in shipping 66 miles. Is Mr. Townsend's additional 2 cents for a longer haul? [According to our experience the actual amount deducted for commission, freight, cartage, etc., on shipments of honey sent to commission men can not be figured closely as applying to all markets; and for a moderate distance, say less than five hundred miles, the freight will be less of a factor than the other charges. We recently had occasion to inquire as to the amount of commission charged by well-known merchants in large cities and we find representative commission houses charging 5, 7½, 10, and even 15 per cent; and a complaint has come to us that the house which states that their commission was 15 per cent actually charged 20 per cent from one of our well-known bee-keepers to which he of course made vigorous protest. We have advice from several parties that in the absence of some agreement it is doubtful if there is any legal recourse. This emphasizes the necessity of a definite understanding of what shall be the fixed charges before shipping to any market.—A. L. B.]

PROBABLY 50 hives face south for every one that faces north, the idea being that the sun entices bees out to work. I suppose it is not so important to entice them out in the heat of the day as it is mornings and evenings. Did it ever occur to you that from the third week of March to the third week of September the sun shines into a north entrance in the morning before it shines into a south one, and that in the evening it shines into a north entrance after a south entrance is left in shadow? It may be well, also, to note that, for a number of weeks in sum-

mer, the sun shines into a north entrance an hour and a half before it touches a south entrance in the morning, with a like advantage to a north entrance in the evening. Is it better in summer to have a hive face north or south? [These ideas throw new light on the subject. But photography brings out the point that the sun, in the very early morning or in the late evening, is not nearly as bright as it is more in the prime of day. So, all things considered, when one hive is taken with another the year round, it is doubtful whether the direction in which the hive faces has very much to do with the amount of honey produced.—H. H. R.]

"WHAT AILS this granulated sugar? It is so yellow I am afraid there is something wrong with it," said my wife. "It's the pure-food law that ails it," I replied. "You ought to be glad to see it yellow, for that is because the manufacturer no longer dares to poison it by putting in blue coloring to whiten it." I remember one year, when feeding a large amount of sugar, there was a blue sediment in the bottom of the tub, that would go a long way toward bluing a whole washing. [It would not be bad if they used only bluing to make sugar white; but we are informed they use sulphuric or hydro-chloric acid to bleach it, and this is not always eliminated by the subsequent process. This is why white sugar injures teeth. Straw-colored sugar with large crystals possesses a rich sweet taste. The larger the crystals, the better it is. Molasses sugar, which is soft and moist, ought to be carefully avoided. It is made from the "dregs" of a sugar-factory. The pure-food law will stop it soon, however. The blue sediment referred to indicated that the sugar came from beets. Raw beet sugar has a bluish cast. Under the pure-food law sugar ought to be cheaper and at the same time better.—W. K. M.]

E. WESTPHAL writes me from Germany that the fireless stove ("Kochkiste" they call it) is coming into universal use there. Different makes can be found in the stores, and home-made ones are common. He sends me a pamphlet written by Elise Hannemann, *Vorsteherin vom Haushaltungs-Seminar des Lette-Vereins*, which gives full instructions for constructing and using this up-to-date invention which is a saver of fuel, time, and trouble, and adds to the palatability and wholesomeness of food. It is a great boon to rich and poor alike. [Glad to see that you keep up your interest in this great invention, or, as it perhaps had better be called, *discovery*. I don't see why more people don't try it. The fireless stove is especially valuable in those homes where a saving of fuel means real economy. But, aside from the economy, this method of cooking has many other advantages. The rich flavor of the food is preserved. I have been roasting or baking potatoes in my old trunk that I have fitted up. May be others have done the same thing; but the plan is original with me, any way. I take an old pan, of pretty good size, and put in coarse gravel until it is over half full. This is heated on the stove until every small piece of stone is pretty hot, and then a hole is scooped in the gravel, the potatoes put in and well covered up. The pan is now put in the trunk and well covered on all sides with the cushions. Several hours later, when we are ready to sit down to dinner, the pan is taken out and the potatoes are found to be steaming hot and *perfectly* cooked. Try this if you have not done so already; and if you do not pronounce them the best potatoes you ever ate I'll miss my guess.—H. H. R.]

AFTER READING that very interesting article on wax-rendering, p. 102, I'd like to have H. H. Root stand up in a straight row and answer a few questions.

1. How would it do, instead of emptying out each ¾-inch cheese of slumgum, to pour directly upon the cheese a fresh lot to be worked?

2. Would there be advantage in doing the work during a hot day or in a hot room?

3. How small an amount of wax annually do you think would make it worth while to own both the unheated and the German?

4. For an annual amount of 25 lbs. of wax would you advise the unheated, or the German?

5. For 300 lbs. annually, which kind would be preferable?

6. Suppose you have combs from which to extract 300 lbs. of wax melted three times in an unheated press: what would be the relative time to extract the same amount of wax from the same material, in a German press?

Before you begin your answers, allow me to thank you for emphasizing the point that plenty of water with the comb must be used. With only a little dab of water and comb it would be so promptly chilled that no wax would be obtained; but by using water enough to fill the press, even a few ounces might work. In other words, the beginner with only a small quantity of wax to extract is likely to make the mistake of thinking that the water must be in proportion to the wax; instead of that he must have a large quantity of *water and wax*, no matter how little wax he has. [All right; here I am in as straight a row as I can get. It's "kind o'" hard to answer you, for you sometimes get me all tangled up. But I'll tell the truth and do the best I can.

1. I don't think it would do at all. There would be just that much more refuse each time, and the thicker the layer of refuse the greater the percentage of loss. The wax from the upper cheese would run down into the lower one, and there would have to be more time spent in getting it out.

2. Yes, I say on page 101 that I think it would be better to do the work in warm weather or else in a warm room.

3. I wouldn't use the two presses together for any amount of wax, no matter how large. My only object in using the German press was to prove the small amount of waste left after the second treatment in the Hatch press.

4. The unheated Hatch press, by all means,

5. That depends. For simply rendering the wax I should prefer the Hatch press every time. But if any one objects to working so constantly, he might want the German press, for that can be set going on the stove and left to steam away by itself if necessary. Furthermore, with the German press it is not absolutely necessary to have another boiler for melting up the comb. This is sometimes an advantage, especially when there is an unlimited amount of time and but a small amount of wax to render.

The German press also has the advantage in that it can be used for an uncapping-can if necessary. Then, when it is full, the honey can be pressed out, steam generated, and the cappings melted into wax without further handling. Yet, as I said before, for rendering bright yellow wax in large quantities the unheated Hatch press is the best for the man who is not afraid of a little work.

6. The time taken for rendering wax in the two presses is very nearly the same when an extra boiler is used in connection with the German press as well as with the Hatch press. If there is any difference, it is probably in favor of the latter. But you should remember that the Hatch press which I used was only fifteen inches in diameter. A larger one could be made at but slightly greater expense that would have twice the capacity. Here's the point, however: With the German press, the wax will be of a dirty green color, while with the Hatch press it will be bright yellow and all ready for market.—H. H. R.]

SINCE the editor could not return from the Pennsylvania State Bee-keepers' Convention in time, the answers to *Stray Straws* in this issue are by the associate editor.

THE honey business is not the only one which suffers from the yellow press. The prune industry has been seriously checked by stories derogatory to that product. So has the cheese industry. The olive-oil industry, likewise, has been seriously misrepresented by many on account of cotton-seed oil being stated to be just as good, which it isn't; and, by the statement, it is usually mixed with the latter. Verily we need a law protecting food products from willful and well-paid-for misrepresentation.

HUNT'S LIVE-BEE DEMONSTRATION IN BIG RARIDS, MICH.

MR. ELMORE HUNT, of M. H. Hunt & Son, Bell Branch, Mich., has been handling live bees in a wire-cloth cage before the Michigan State Bee-keepers' convention held at Big Rapids recently. The stunt that he performed attracted considerable attention from the general newspaper press, for the papers contained quite a lot about it, the *Detroit News* showing a half-tone of Mr. Hunt in the cage.

We have repeatedly called attention to this form of advertising, and respectfully suggest again that local bee-keepers who have nice honey to sell, and who would desire to dispose of it in their own vicinity at good prices, would do well to make one of these live-bee exhibitions in the windows of one of the retail stores in some of the principal towns or cities in their vicinity.

When you are ready, call in the newspaper men and give them a sample or two of both comb and extracted; and be free to answer all their inquiries.

HIVES FOR ANTS.

IT is not generally known that ant-hives are often constructed by persons interested in the study of ants. We are reminded of this by a perusal of Mrs. Adele M. Fielde's little monograph on the construction of portable ant-nests, issued from Woods Holl, Massachusetts, Marine Biological Laboratory, which gives instruction in the method of making an ant-hive. These things are nothing new, and it is a notable fact that the Huber family were responsible for much of our knowledge of ants. The Lubbock ant-hive sits on an island in a basin of water. The Forel nest is surrounded with a wall of plaster of Paris (which the ants can not negotiate), and the Janet nest is of porous stone to allow the ants hiding-ways and a home out of the light. Mrs. Fielde's ant-hives are constructed of panes of glass on the plan of a single-comb observation hive, and in this respect must form a very decided improvement for study purposes, and, besides, are very portable.

THE "EDITORIAL WE" AND OUR EDITORIAL FORCE.

THE reader will, perhaps, notice a little change in the use of pronouns in these columns. The editor will hereafter adopt the editorial *we*. While this will, to a certain extent, obscure individuality, GLEANINGS has come to be so big that one man will not, as heretofore, do all of the editorial talking. While it is probably true that E. R. Root will do the larger part of the editorial and footnote work, as heretofore, some of the matter that he has formerly gathered himself will now be collected by others. He now has as assistants in this office H. H. Root and Mr. W. K. Morrison. The latter has devoted an entire lifetime to bees and bee literature; and in addition to all this he has traveled all over beedom, taking in parts of Europe and a very large portion of the American tropics. He has spent not a little time in various parts of the United States in study-

ing the peculiar local conditions as they affect bee-keeping. He reads several of the foreign publications, and in every way is well qualified to render aid in our editorial work.

H. H. Root selects two-thirds of the copy, preparing it for publication; then this copy is all turned over to our old assistant W. P. Root, who inserts the punctuation and otherwise verbatimizes the copy for the convenience of the printers.

But there is still another reason why we should adopt the editorial *we*. The editor has a corps of assistants in the bee-yards doing experimental work. It would be impossible for him to perform personally the detail of all this work. When the experiments are in full progress he is called out to the yards, notes the results, and prepares the matter for publication. While the pronoun *we* will very largely, and almost entirely, for the present at least, reflect E. R. Root's opinion, that opinion will be influenced to a great extent by the opinions and the findings of his assistants.

In the matter of facts and figures relating to the honey market he will have the help of our honey-men, Mr. A. L. Boyden and Mr. Jesse Warren. There will be no change in the editorial management; in fact, the editorial buzzings will emanate from the same source as heretofore. But the editor feels that the time has come when it would be mere egotism to take the singular *form* of the personal pronoun any longer; and, to a certain extent, a usurpation of the "other fellow's thunder." In most cases his assistants will write under their own signatures. Nine-tenths of the matter with "—ED.]" attached to it will be the dictation of E. R. Root, although part of the material may have been supplied by others.

FORESTRY AND BEE-KEEPING.

THERE has been considerable criticism of the President's action in setting aside so much land for public forest reserves, and efforts will be made to curb his power in this respect. It is to be hoped these efforts will fail. At the present rate of cutting the forests, it will be about twenty years when there will be no lumber to cut, and we shall be face to face with a lumber famine, seriously curtailing the ability of this country to manufacture goods in which lumber is the most important part of the raw material. The idea now is to cut the trees no faster than they grow, and therefore preserve the forests for all time as a commercial necessity and as a national asset. In Europe the state forests are a source of profit to the country, and it should be so here.

What has this to do with bee-keeping? A great deal of harm would be done to bee-keeping in more than one way by the destruction of these forests. Some of the areas already set apart as forests by the United States government are excellent locations for bees, and two new reserves are proposed—one known as the Southern Appalachian and the other the White Mountain forest reserve. Both might be termed bee-keeping reserves, as the timber on both is largely of a nectar-producing kind; and by careful handling it will get better. A bill to create these two reserves has passed the Senate, without a single dissenting vote, and the House will probably agree. As this is to be a short session, write your Congressman, requesting him to urge the immediate consideration of the forestry-reserve bill. This will place in the hands of the government vast tracts that are now being laid waste by the ruthless hand of commercialism that looks not to the future, but to immediate gains; hence it is that thousands of young trees are being cut now, which, ten years from now, would yield many fold more lumber than at present. As well might a farmer kill his chickens, his pigs, and his calves, when only two weeks old, rather than let them grow to an age when they would be worth something.

If the government gets hold of these tracts timber will be cut at an age that will yield the best returns. The young trees that are now being destroyed because they are in the way will be saved. We have known all this for half a century, but did nothing. Now is the opportune time to do something. Do it now, and thus help to confer a blessing on your children.

To get lumber enough for our needs we shall have to import; and should the tariff be removed it will have a strong tendency to prevent further advances, for the time being at least. Protection on lumber means the destruction of the beautiful and valuable forests we have.

While you are writing your Congressman, urge him to support any bill that will remove the tariff on lumber, that protects nobody but a few mill-men. The old "stand pat" doctrine of letting the tariff alone has done much mischief already. Admitting that some articles should be protected, lumber is an item that ought to go free.

There is also now a strong opinion among expert foresters that it will pay to plant trees, and there are already artificial woods which are paying a fair profit. In Ohio the catalpa and the black locust (both honey-yielders) are being seriously tested by various parties who hope to realize a good return. It is said, however, the most promising tree of all is the Australian eucalyptus, which grows very rapidly and yields lumber of very high value. Practically all the eucalypti are honey-yielders. Unfortunately they are fitted only to the sub-tropics. California, Arizona, South Texas, the Gulf Coast, and Florida, will reap the benefit.

There is also another strong reason why tree-planting should be begun, and that is to protect the farm lands from spring freshets and summer drouths. Forests act as dams, holding the water back in spring and giving it off in summer. There is also a considerable need of trees on the highways. We could materially improve the prospects of the bee-keeper of the future by suggesting

that nectar-bearing trees have the preference when planting has to be done; and where the bee-keeper is diplomatic in stating his case this will probably be done. Forest trees do not cost very much, and it might pay a bee-keeper to donate the young trees.

THE PENNSYLVANIA STATE CONVENTION.

THE Pennsylvania State Bee-keepers' convention was held in Harrisburg, Pa., Jan. 17 to 19. About 175 members paid their dues, showing a substantial gain in membership over last year. A little conflict, begun at the meeting a year ago, seemed well nigh irrepressible at this convention. The first two sessions were a little "stormy," but the clouds soon passed over, and clear sky and plenty of sunshine prevailed for the rest of the sessions. As the matter at issue related only to the constitution and policies of this association it will not be necessary to bring them up here.

The papers and general discussion were of a high order. Dr. E. F. Phillips, of the Bureau of Entomology, and foul-brood inspector Charles Stewart, of New York State, delivered several addresses that received the enthusiastic attention of all the members. Both spoke along the lines of foul-brood legislation—a subject in which the Pennsylvania bee-keepers are deeply interested at this time; for be it known the Keystone State has no bee-disease legislation of any sort.

Prof. H. A. Surface, the zoologist in the Department of Agriculture, at Harrisburg, suggested that a committee of three be appointed to wait on the new Governor and invite him down to the meeting, for his offices were just overhead of the convention-room. As a result of the conference it was arranged that the whole convention call on Governor Stewart. A good-sized crowd filed past him. Each member, as he shook hands with His Excellency, was introduced by Prof. Surface. When this was over Dr. E. F. Phillips, at the request of the convention, in a few well-chosen words, explained the very urgent need of a foul-brood law in Pennsylvania. He spoke as follows:

Mr. Governor:—The Pennsylvania State Bee-keepers' Association represents the progressive bee-keepers of your State. I would, however, call your attention to the fact that there are within the confines of this commonwealth over 20,000 persons interested in the keeping of bees, with an invested capital of over one-half million dollars.

The industry is endangered in this State by two infectious diseases which attack the developing bees, and the bee-keepers are asking that laws be passed providing for the inspection of apiaries. To illustrate to you what losses may be caused by these maladies, I would cite the epidemic of the Mohawk Valley in the State of New York. In 1899 the actual loss to the industry was over $25,000, and the disease was spreading rapidly. Inspection was begun, and as a result the ravages have not only been held in check but the loss has been reduced so that last year it was less than $1000. In this State, both diseases have found a foothold in a number of places widely separated, and the bee-keepers may expect similar losses, constantly increasing in extent unless inspection is instituted, as has been done in over a dozen States. In eight other States the bee-keepers are now working to the same end.

Inspection of apiaries is made more necessary by the fact that so many bee-keepers are interested to only a small extent in the industry and do not inform themselves about disease. Infection may get into the apiary, and the loss is attributed to "bad luck." A competent inspector can do much toward educating these men in improved methods of bee-keeping, and at the same time keep them from endangering the property of their neighbors through ignorance and neglect. Under proper supervision the industry may become vastly more important than it is to-day, and the resources of the State may be considerably increased. To protect those in bee-keeping on a business basis, the Pennsylvania State Bee-keepers' Association asks for the enactment of legislation of the nature mentioned.

I wish also to state that I have no desire to influence legislation unduly, but merely wish to help the bee-keepers by putting at their disposal such information as may be at hand, which will help them in getting the protection which the industry warrants. On behalf of the bee-keepers of this State, represented by the State Association, I thank you for your consideration of this subject.

The Governor listened attentively, but did not commit himself.

At this convention we had the pleasure of hearing B. A. Hadsell, of Buckeye, Arizona. Mr. H. is one of the most extensive bee-keepers in the country. Last year he produced and sold $7000 worth of alfalfa honey, but he had to feed $4000 worth of sugar, so that, with his labor, his 2000 colonies did not net him so large a sum after all.

FOUL-BROOD LEGISLATION; SOME PROPOSED LAWS CONCERNING FOUL BROOD, PURE FOOD, AND SPRAYING FRUIT TREES IN BLOOM, THAT ARE OF VITAL INTEREST TO BEE-KEEPERS OF FOUR STATES.

WITHIN the last two days four communications have been received at this office relative to bills before the legislatures of Connecticut, Illinois, Minnesota, and Missouri. All of these were received too late to go in our regular department of *General Correspondence* for this issue: and since it is quite important that these matters be put before our readers as soon as possible, we are glad, therefore, to devote this space to the publication of the different letters as they were received. We hope that our readers for the several States will notice and heed the calls for help.

CONNECTICUT.

LACK OF INTEREST WILL CAUSE FAILURE.

Our new "foul-brood bill" will be presented to the legislature before February 1st, but we shall probably not be granted a hearing until March 1st. Two years ago we failed to get a law enacted; and, while it might have been defeated if it had progressed far enough to be voted upon, yet the only real reason we know of for its defeat was the very general lack of interest on the part of the bee-keepers. But a law was needed then, for what you now term European foul brood was at that time ravaging a number of apiaries in Fairfield Co., and large districts are atpresent infested by the disease.

I am now informed on good authority that one apiarist has had his colonies reduced from 80 to 3 during the past season. As each colony died he set out the brood-frames for his bees to clean out, and so spread the disease all through his apiary. In several large sections of Fairfield Co. I am informed that the keeping of bees is practically prohibited by the presence of foul brood unless a continual fight is kept up against it. But it is difficult to arouse the enthusiasm of those apiarists that are not in any way troubled by the disease.

J. ARTHUR SMITH,
Sec. Conn. Bee-keepers' Ass'n.

ILLINOIS.

FOUL-BROOD AND FRUIT-TREE-SPRAYING BILLS.

I desire to call the attention of the bee-keepers of Illinois to the necessity of helping the passage of the bills which are now pending before the legislature of the State, in the interest of bee culture, as follows:

A bill for an act making an appropriation for the Illinois State Bee-keepers' Association.

A bill for an act providing for the appointment of a State Inspector of Apiaries, and prescribing his powers and his duties.

A bill for an act to prevent the spraying of fruit-bloom.

The first of these bills has already passed the legislature before, and all that is needed is a renewal of the same bill, in the same way that bills are passed for the support of the State agricultural and horticultural associations. The appropriations formerly granted have given our State Association Secretary, Mr. Stone, an opportunity of spreading information on bee culture, and have made our State Society a permanent institution, besides helping it to destroy foul brood within the State.

The second bill is needed to give power to the State Inspector of Apiaries, who has thus far been employed by the State Association, and has done very good work in the destruction of foul brood under the direction of the Association, but might be handicapped if it became necessary to destroy diseased colonies of ignorant or recalcitrant apiarists. It is also needed to put a penalty on the shipping or selling of diseased colonies of bees. The proposed law is almost a duplicate of the Wisconsin foul-brood law. Twelve States or more have foul-brood laws, and it is time that Illinois should fall in line with other progressive States on this point. The proposed law had already passed the Senate of the previous Assembly, and failed in the House only on account of lack of time. It should pass during this session.

The third bill is intended to prevent the wholesale poisoning of bees by a misunderstood or misapplied use of tree-spraying. Fruit-trees should be sprayed when the fruit is forming, but the blossoms should be allowed to fertilize first. In this way the danger to bees and to those who might eat of the poisoned honey will be avoided, and spraying will serve its real purpose — that of destroying the insects that prey upon the formed fruit. Spraying just after the bloom has fallen is the most advisable, though ill-informed dealers in spraying-apparatus often recommend spraying during bloom. Spraying during bloom is an injury to the pollen, which often becomes diluted in the poisonous liquid and becomes inert. So, even if the bees were in no danger it would be inadvisable for horticulturists to spray before the bloom is out.

Senator Berry, who is a leading member of the General Assembly, has promised his help, and urges us to use all our influence upon our respective members of the legislature in recommending the passage of these bills; so I trust that every one of our Illinois readers will write to the Representative and Senator of his district to ask careful consideration of these measures.

All favorable answers to your requests — in fact, all the correspondence concerning this matter, should be forwarded to Mr. James A. Stone, of Springfield, in order to put him in possession of all necessary indications. A concerted action will surely result in success when the way is already so well paved.

C. P. DADANT,
Chairman of Committee on Legislation.

MINNESOTA.

A COPY OF THE BILL BEFORE THE LEGISLATURE.

I inclose herewith a copy of the bill that the Minnesota Bee-keepers' Society has had introduced in both chambers of the legislature. The bill is Senate file 74, and House file 52. I hope it will fare better than it did two years ago. WM. RUSSELL

Minnehaha Falls, Minn., Jan. 21.

A bill to create the office of Inspector of Apiaries; to provide for the suppression of contagious diseases among bees, and to appropriate money therefor.

Be it enacted by the legislature of the State of Minnesota.

SEC. 1.—The Governor shall appoint for a term of two years a State Inspector of Apiaries. Said inspector shall, when notified of the existence of the disease known as "foul brood" among apiaries, or other diseases infectious in their nature, and injurious to bees in their larval, pupal, or adult stages, examine all reported apiaries and all others in the same locality, and ascertain whether or not such disease exists; and, if satisfied of its existence, shall give the owner or person who has charge of such apiaries full instructions as to the manner of treating them. Within a reasonable time after making such examination the inspector shall make another examination thereof; and if the condition is such as in his judgment renders it necessary, he may give notice to the owner or person in charge of such apiaries, prohibiting the sale, barter, or removal of any bees, honey, or appliance from such affected apiary.

SEC. 2.—After inspecting infected hives or fixtures, or handling diseased bees, the inspector shall, before leaving the premises, or proceeding to any other apiary, thoroughly disinfect any portion of his own person and clothes, and any tools or appliances used by him which have come in contact with infected material, and shall see that any assistant or assistants with him shall likewise thoroughly disinfect their persons and clothing and any tools and implements used by them.

SEC. 3.—Any bee-keeper who shall be aware of the existence of foul brood in his apiary, or who shall receive notice from the inspector as provided in Section 1 of this act, and who shall sell, barter, give away, or remove any such apiary or any honey, appliances, or bees from such apiary, any bee-keeper who shall refuse to allow the inspector to examine his apiary, honey, and appliances, shall be fined not less than $50.00 nor more than $100.00, or be imprisoned in the county jail not less than one month nor more than two months.

SEC. 4.—The Inspector of Apiaries shall make, at the close of each calendar year, a report to the Governor, stating the number of apiaries visited, the number of those diseased and treated, the effect of such treatment, and the disposition made of such apiaries.

SEC. 5.—The compensation of said Inspector of Apiaries for service and expense is here fixed at $1000 per year; and there is hereby appropriated out of money in the State treasury, not otherwise appropriated, the sum of $1000 each year for the maintenance of said Inspector of Apiaries.

SEC. 6.—This act shall take effect immediately after its passage.

MISSOURI.

FOUL-BROOD AND PURE-FOOD BILLS.

Missouri bee-keepers, attention! "The Apiary Bill," providing for an inspector of apiaries to aid and assist in the development and protection of the honey industry, and for the prevention and suppression of diseases among honey-bees, such as foul brood, etc., has been introduced in the senate of the 44th general assembly, and is called Senate bill No. 145.

I earnestly request all bee-keepers of Missouri to write to the Representative of their county in our legislature, also to the Senator of their district, a letter, urging them to vote and work for Senate bill No. 145, as it is of the utmost importance to the bee-keepers of the State that this bill may pass and become a law. It would assist me in my work if each one who has written a letter to our Representatives and Senators would send me a postal card stating to whom he has written, as I, when I approach our legislature at Jefferson City, will know that they have heard from home:

Brother bee-keepers, let us all work for the "Foul-brood Bill," and we shall succeed in having it passed.

There is another bill which is before the legislature now, which is of great importance to the bee-keepers; that is, the "Pure-food Bill." A bill has been introduced in the Senate, being Senate bills Nos. 47 and 48, also in the House, being House bills Nos. 215 and 216 (the Senate and House bills read alike), which, if they become a law, will stop the sale of any article under the name of honey which is not the pure product of the honey-bee.

It will be seen that the demand for honey must increase if these bills pass and become a law, as it will stop the adulteration of honey by mixing honey with glucose and calling it honey, or by putting a small piece of comb honey in a tumbler and filling it up with glucose and calling that honey.

Bee-keepers, write to your Representatives, and Senators also, to support these bills. Write to the Senators to support the "Apiary bill" No. 145, and the "Pure-food Bills" Nos. 47 and 48. Write to your Representatives to support the Apiary bill, Senate bill No. 145, and the Pure-food bills, being House bills Nos. 215 and 216.

Bee-keepers, don't miss this chance to do something for yourselves. ROB'T A. HOLEKAMP,

Sec. Mo. State Bee-keepers' Ass'n,
4263 Virginia Ave., St. Louis.

OPPOSITION TO THE PURE-FOOD LAW.

THE recently enacted national pure-food law is now meeting with considerable opposition, and it seems very clear that the adulterators have been reserving their fire for the Hon. Secretary of Agriculture and his assistants, who have to interpret the law. It is also evident that the brewers and glucose-makers will attempt to carry a certain sentiment with them by claiming to be friends of the farmer because they are large purchasers of corn. As a matter of fact, the new law will undoubtedly be of great benefit to the honest farmer, more particularly the producers of maple syrup, cane syrup, sorghum syrup, cane sugar, and beet sugar; and last, but not least, the honey-producers

of America. It is hoped, also, to create a jelly, jam, and preserves industry, now that buyers are sure of the purity of the product. Other agricultural industries will similarly be benefited, hence the farmer is very much interested in a rigid enforcement of the law, and we think we know the bee-keepers of the country well enough to say they will be very earnest supporters of the new law, and will work with the Department of Agriculture in enforcing it. Unless all signs fail, it is only a matter of time when every State in the Union will possess a pure-food law framed in strict conformity with the national law. Vermont has a new pure-food law based on the national or Hepburn law. Indiana, Louisiana, Colorado, California, Missouri, and Kansas are getting in line to pass similar laws.

It may seem to some that GLEANINGS has harped rather too much on this matter; but the adulteration evil threatened to destroy our industry, and we shall feel safer when every State has an efficient pure-food law.

Honey is one of the finest foods known, hence it has every thing to gain and nothing to lose by the enforcement of pure food laws, which is practically all the protection we require to establish our industry on a safe and sound basis.

BROOD-REARING IN WINTER.

Last March I told of having found brood in a number of hives in February. January 10th I found quite a patch of brood in all stages in a colony that had been moved a couple of weeks before. Dec. 15th I found brood in all stages in a strong colony that was in a normal condition and had not been disturbed previously. Apparently, under some conditions some colonies of bees will breed more or less all winter. Whether this is injurious or the reverse is something I am trying to find out.

CAPPINGS COLORED BY LAMPBLACK.

Last fall I found a few sections which had a curious gray appearance, shading downward from the top of the comb. At first I thought it had been caused by ashes from the smoker, but close investigation showed that the one who put in the starters had carelessly allowed the lamp to smoke. The lampblack, mixing with the melted wax, had smeared the inside of the top of the section with black wax; and, though there was only a very small quantity of it, the bees had carried enough of it out and mixed it with the capping to color it considerably. This is a good thing to avoid.

FEATHERS FOR BRUSHING BEES.

E. W. Alexander, on page 1357, says he has always thought that there was nothing that would irritate bees to the stinging-point like brushing them with feathers, and intimates that one who uses feathers for that purpose must be ignorant in handling bees. If I am not mistaken, the editor of one of our bee journals recently administered a similar castigation to some one who expressed a preference for feathers. I wonder how much of this is real observation and how much the survival of an old notion—I might almost call it a superstition. I would not recommend a turkey wing for brushing bees, as some do; but for a limited amount of brushing I know of nothing better than one of the stiff quill feathers from the left wing of a goose or turkey. A feather from the right wing is all right for a left-handed man. The whole wing is not desirable, because only the outside feathers on one edge can be properly used for brushing. A feather will not stand rough usage. When it becomes daubed with honey, or the barbs become so mussed up that bees become entangled in them, or so broken down that the bees are brushed with the stiff midrib instead of with the soft barb or plume, the bees are naturally irritated, not because it is a feather, but because the bee-keeper is careless. I have never seen the slightest indication that the right kind of feather, properly used, angered bees, and I know of a number of old bee-keepers who prefer feathers for brushing bees.

HIVE-LIFTING DEVICES.

Frank McGlade's symposium on hive-lifting devices, page 1506, is rather amusing; but such things should not be allowed to distract the bee-keeper's attention from the fact that such devices are badly needed by some, and that they are bound to come into more or less general use. The devices that have been illustrated are undoubtedly practical to a certain extent; but they have the disadvantage of being somewhat clumsy and difficult to move around and adjust under all circumstances, and in some apiaries none of them could be used. They require more room and clear space for operation than some bee-keepers can readily allow for each hive. Some of them can not be used except on level ground, and all of them hinder work with the hive to a considerable extent. A more practical plan for many would be to utilize the shade-shed in common use in many parts of the West as a support for a lifting device. Pictures of these have been frequently given, and most of the readers of GLEANINGS doubtless know how they are arranged. The hives are set in long rows, generally two rows back to back, with space sufficient for working between. Overhead is erected a shed, the roof consisting of brush or similar material laid over a framework of poles or wire. To adapt these for hive-lifting devices, all that is necessary is to have the timbers directly over the line of hives substantial enough to support the weight of

a hive at any point. Hang from this a "safety lift." This is a block-and-tackle arrangement with self-locking device. With this the load is readily raised or lowered, and left suspended at any point without attention by the operator. A small size, costing about $1.25, complete with rope, will answer for lifting hives, and is an exceedingly useful tool for many other purposes. I have used one for several years, and would not be without it for several times its cost. With this, one man can easily lift up to 300 lbs. The next larger size, costing about $2.00, might be more generally useful. I have just got one still larger, for heavy work.

Some sort of clamping device is necessary for attaching to the hive. With some hives a simple rope loop would answer. Hook your lift to the rafter above the hive; attach your clamp to the hive, and you can readily lift the hive or any part of it and leave it suspended while you adjust supers or make any needed examination of the brood-chamber.

An improvement over this arrangement would be to bolt to the rafter overhead a steel track, such as is used for hanging barn doors. On this run the ordinary barn-door hanger and suspend the safety lift from that. It would be possible to construct your track so that a hive, after being lifted, could be easily run to any point on the line, but this would require so high a track that it might not be practical. I have just installed such a track for other puroses, and will experiment with hives to see what can be done. In most cases, though, it would probably be more practical to lift the hive, run a wheelbarrow under it, and use that for transportation. With space enough between the hives to run a wheelbarrow, the track and hanger would enable you to move the load over the wheelbarrow easily and save a lot of back-breaking work.

GOVERNMENT LEASE OF BEE TERRITORY.

It is possible that the editor is correct in saying at the close of the article by R. F. Holtermann that government control of bee territory is a will-o'-the-wisp that we shall probably never attain. Certainly we shall never attain to it unless there is a demand for it; and if we leave the discussion of it to those who, having given the matter little thought, imagine difficulties where none exist, there is not likely to be much enthusiasm in its favor. I hope my readers will pardon me for taking space to discuss a subject of little immediate value It may become of vital interest sooner than we expect. Much might be said on the subject, but I will confine myself to some of the points usually brought up. If we say any thing about denying to any one the right to keep bees, some are up in arms at once. The farmer, they say, produces the nectar, and he should be allowed to keep bees to gather it. Suppose we grant this. If he has the right to keep bees to gather the nectar his land produces, undoubtedly his neighbor has also the same right, and likewise every other land-owner. It does not by any means follow that he has a right to keep an unrestricted number. Some one has well said that one man's rights leave off exactly where another man's rights begin.

There are few things we know less about than the number of colonies a given area will support most profitably, and a sane man would hardly think of restricting the number of colonies to be kept on a square mile, the rule to apply to all localities alike. But we can make an approximation. Taking the general consensus of opinion among the bee-keepers of the greater part of the United States and Canada, it seems that a bee-range is considered to have a radius of about three miles, and that not over 100 colonies of bees should be kept in this territory. This bee-range, six miles in diameter, contains 28.27 square miles, 18,092 acres, or something over 113 farms of 160 acres each. It will be seen, therefore, that, following the generally accepted ideas as to a bee-range and its stocking, each 160-acre farm is entitled to keep just about one colony of bees as its share of the general average of bee pasturage. The land-owner who keeps more than this, provided his land is not above the average in nectar secretion, does so, not by any moral right, but simply by seizing on the rights that others have failed to assert. He would be occupying the territory by "squatter's rights," just the same as if he did not own a foot of land or produce an ounce of nectar. I would not try to deprive any producer of nectar of the right to keep a few bees Remembering that my figures are only approximate, and that the territory is not covered evenly by a single apiary, I would concede that each owner of 160 acres of land of average nectar secretion should have the right to keep two colonies of bees. In some places this figure would be two low. I believe there are many localities where it would be too high. If he has an orchard, or if he raises crops of alfalfa, alsike, sweet clover, buckwheat, or other plants of recognized value for honey, he might be allowed a certain definite increase in the number of colonies he might keep, according to the amount of land so occupied. This land-owner's right should be only for bees to be kept on his premises, and strictly nontransferable. In nearly all localities, after all who cared to had availed themselves of this right, the bee-range would still be far from being fully occupied. Will any one tell me how the rights of anybody would be infringed on if the government should take possession of these unused rights and dispose of them, by auction or otherwise, for the general good? Details are unnecessary; but I would suggest that for a bee-range the congressional township, six miles square, into which many of our States are divided, would be a very good size. If it were thought best to limit the number of colonies the lease-holder might keep in his one apiary, this might be fixed by a commission for the purpose, and it might be well to provide that no commercial apiary should be started within a fixed distance from an established apiary in any adjoining range.

CO-OPERATIVE EXPERIMENTS.

The Ontario Agricultural and Experimental Union, which consists of students, ex-students, and the staff, past and present, of the Ontario Agricultural College, Guelph, Ont., was inaugurated during the student years of the writer, 1880. The most important work is co-operative experiments in agriculture, and it has steadily grown until, during the past year, it had 5700 experimenters. Of it, Prof. W. M. Hays, Assistant Secretary of Agriculture for the United States, said in his address (for he honored the convention Dec. 11 and 12 with his presence), the experimental union was recognized, in the great work which it was achieving, by all prominent agriculturists and stock-raisers throughout the States. The experimental union was one of the very brightest stars in the whole realm of agricultural organization throughout the world.

APICULTURAL EXPERIMENTS PAST AND FUTURE.

It was this union which, under the direction of the writer, carried on, so far as I know, the first systematic experiments to determine to what extent, if any, and under varying conditions, the bees thinned out the septum of comb foundation. The object in part was to draw attention to the need of thinner section foundation than many used.

The writer brought in a resolution which was indorsed by the members, that, during the coming year, a series of co-operative tests be conducted to determine various matters as to the percentage of formic acid in honey; to see if the percentage varies in the honey put up by varieties of bees, and also if the percentage varies in individual stocks of the same variety, particularly if the temperament varies as to gentleness and irritability; again, to what extent it varies in honey from various sources, such as clover, linden, and buckwheat; and if it shows a gradual increase in percentage of formic acid as the season advances; also to determine at what stage of storing and ripening the formic acid is put into the honey.

QUALIFICATION FOR WORK.

We want 25 to 35 careful bee-keepers to co-operate in this work, and we should be pleased to have a dozen or so from the Northern States, those having pure Italian, Carniolan, and, if possible, black bees, and, if possible, varying temperaments will be welcomed. The test is to be with clover, basswood, raspberry, and buckwheat honey—any or all of them—the more the better. Four-ounce samples will be required. Experimenters will not be advertised for; but any seeing this article can signify their willingness to co-operate by writing me at Brantford, Canada. This work should result in valuable light being thrown upon the above question.

SHADE FOR BEES.

On page 1498, W. F. Card states, "We have been unable to see any marked difference between those that are in a position where the sun strikes them early in the morning and those that are in heavy shade. Both dig out at about the same time." This is my experience: Bees on a cloudy day do not remain in the hive. It is a matter of nectar in the blossoms, dew or little or no dew on the blossoms upon which they have to work, and temperature of the atmosphere.

PARTHENOGENESIS IN PLANTS.

On page 877 G. M. Doolittle, in the course of one of those excellent conversations, has the following; "There is no pollen produced by the basswood or linden, as you know."

"Yes, I know there is not; but the bees gather it from the wild grape and other sources."

J. E. Crane, page 1355, says "wild grape blossoms early in June." This is true of Ontario. More surely the man who can prove that plants reproduce themselves generation after generation by the principle of parthenogenesis* should have a monument erected to his memory. Do the bees not gather less pollen when there is an abundance of nectar in the blossoms? Again, buckwheat and other pollen keep over winter with us in Canada, and surely the atmosphere of New York State can not be more corrupting than our own. There is a pretty good lot of bee-keepers in York State—in fact, I would almost take them for Canadians knowing some good things we have not heard of in Canada.

IRASCIBILITY.

Under the above caption D. M. M., in *British Bee Journal*, page 371, writes: "The season of the year, the nature of the flow, the amount of interference they are subjected to, as well as climatic conditions, all go to explain the uncertain temper of bees at times. Race also counts considerably, and the blending of certain races almost invariably produces "cross" bees; for, although we must very frequently indeed seek the prime cause for ill temper in the actions and conduct of their owners, yet I am confident that the introduction of certain new strains, with the object of securing the energy and vitality which some preachers tell us are lacking in our natives, has produced an amount of temper in my own bees I have

*The word parthenogenesis is hardly applicable here. Many plants are self-fertilizing. The sugar cane, banana, and life-plant (Bryophyllum) are excellent examples of plants which are not reproduced from seed, except occasionally.—ED.

hitherto been a stranger to . . . Heather men know that bees generally are more cross-tempered during the late flow, especially on very hot days near its close. They sting, too, at that time with a degree of force and venom unknown at other periods of the year. Their whole being seems to be so impregnated with the eager desire for indefatigable and uninterrupted work that any check or hindrance is at once markedly resented. Here, too, their line of flight is not in one particular direction in front of their hives, and so straight for the foraging fields, as is the case at other times of the year."

In the first portion of this extract there is the foundation for a whole sermon to beginners and even somewhat expert bee-keepers. The *nature* of the interference has perhaps more to do with the temper of the bees than the *amount*. Bees must not be crushed. If queen-cells are removed, the "royal jelly" should be carefully removed from the reach of the bees. I have had practically no experience with the wasteful practice of uncapping drone comb. I get rid of the comb, but they say such practice angers the bees. Frank Benton taught me that, in crossing bees, the physical characteristics are largely inherited from the queen, and the temperament from the drone. This has proved correct in my experience with the progeny of Cyprian queens mated with Carniolan drones. These bees were gentle.

For several years it has been my firm conviction that the theory that bees are more gentle as the honey-flow is greater is a wrong theory. No doubt that, with a moderate honey-flow, the bees can be handled with greater comfort than with no flow; but I am inclined to think that in a very heavy honey-flow, no matter what the source, the bees are inclined to act as described in the latter part of the extract. Do the nerves of the bees become tired with overwork, and does the strain tend to irritability? It would be well and interesting to have the United States and Great Britian carry on the formic-acid tests in a co-operative way, as outlined by the Experimental Union.*

Prof. W. M. Hays, in his address before the Experimental Union, stated that, in the matter of exchanging ideas on the progress of agricultural science, there was the fullest reciprocity between Canada and the United States. Prof. Hays might have included many other countries in this reciprocity. An apicultural publication contains very little which is not applicable to all countries. Circulation and success then depend upon giving the best value for the price.

The new tariff before the Dominion house still further reduces the duty on beeswax if coming from Great Britain and British West Indies. Originally it was 10 per cent to all countries; then these countries had ⅓ preference. It has now been reduced to 5 per cent. Who is the power behind the throne to effect this last change?

* Since writing the above it has been my pleasure, and to my solid profit, on account of ideas gleaned from members there, to attend the Michigan State convention at Big Rapids. Several of the best and most careful bee-keepers in the State are going to join in the formic-acid experiments.

BEES, LOCATION, AND THE APIARIST.

"Say, Doolittle, what are the three great essentials in bee-keeping?"

"Think a minute, Jones. Can there be any such thing as bee-keeping without bees?"

"Why, no—of course not."

"Then the bees must of necessity be first, must they not?"

"Yes."

"Then you have answered regarding one of the essentials without my telling you, have you not?"

"Yes; but it is necessary that I know something more about the bees than just simply that I have them, in order to make a success, is it not?"

"I suppose so. But can you not answer the knowledge part as well as you did the bee part?"

"No. I want you to tell me some of the particulars about the bees that it will be necessary for me to know in order that I may make a success at keeping bees."

"Well, first of all I will say that what you study out about the bees yourself will be of much more value to you than what some one tells you. Procure one of the books on bees, and study it till you are thoroughly familiar with all it contains, and it will make an impression on your mind of greater value than will that which I tell you personally."

"I do not know how you make that out."

"Just like this. In reading, if you run across something which you do not fully understand at first, you will stick to that one thing till you thoroughly master it; while if I tell you things I shall pass along from one to another so rapidly that you will lose the first while I am talking about the second, and so on and on, till you will hear so much at one sitting that you will not fully grasp any of it, to an extent that it will enter into the 'warp and woof' of your life."

"It is possible that you are right; but you tell me something further about bees and I will run the risk of remembering it."

"Very well. First among the bees of any colony is the queen. She is the all-important factor. If she is A No. 1 in all respects your chance for success from that colony is good, and from there down to failure, just in proportion as she is good. The queen lays all of the eggs from which bees mature; hence, the more eggs the more bees. Do you catch on here?"

"Yes, I think so."

"The time from the laying of the egg to the emerging of the perfect bee is 21 days. From the emerging of the bee until it goes into the field to labor is 16 days. From the day the egg is laid until the bee is a field worker is 37 days, when every thing is in a normal condition. From this you will see that the time when the eggs are laid is *very* important, and has more to do with our success than all else in the matter of the bees."

"I had not thought of this. But go on further."

"A further going-on will bring us to the second of the three great essentials which you asked about at the start."

"How is that?"

"What is the bee good for?"

"Securing honey, of course."

"Where is the bee to secure the honey?"

"From the flowers."

"Again you have answered about the second great essential. Without the flowers the bees would be of no use; and the flowers are included by the bee-keepers' term 'location.'"

"That is so. I see now what you are after, and again I ask you to tell me something about location as regards success."

"Most of us are bound by ties to a certain locality. The man who is free should carefully select his location; but the man who makes a success in a poor field is entitled to more credit than the one in a good location."

"Again I begin to see. I may have read of these things, but they never took hold of me as this talk is doing."

"All right. That gives me courage to go on. A thorough examination of a location is of *great* importance. It is only in exceptional locations that there is a continuous honey-flow during the summer season. With only one source of supply, extra care and management are needed to secure the bees so that they be in readiness when it comes."

"Well, there — surely that must be right; and the eggs must be laid at least 37 days before the ascertained time that the supply is to come. I begin to see why you place the bees and the location as two of the great essentials."

"If you can hold on to this till you are able to bring the bees and the location together—that is, the maximum number of bees at just the right time to meet your supply in *your* location, I shall feel confident that you will answer '*here am I*' to the third great essential."

"How is that?"

"The third great essential is the *bee-keeper*. The bee-keeper must be a man of *push*. Most day laborers and month hands glance at the sun occasionally to see when it reaches the meridian (dinner), and again to see how near it is to going down; but whoever heard of a successful apiarist doing this, unless to see if he could possibly finish some job of work already begun? To the *true* bee-keeper his work among the bees is as fun."

"I guess you are right, for I almost begin to feel my fingers itch to be at work with them in the summer sunshine."

"Which shows me that you may be a successful apiarist or you may not."

"How is that?"

"'Tis winter now, and your fingers may cease itching before the summer sun ever shines. If your fingers were itching to commence this minute at the work, and reading for the winter, which is necessary to prepare you for a successful summer's work, I should feel more hopeful of you. The man who spends his time after the honey harvest is over till spring opens up in the corner grocery, or in playing checkers, backgammon, or other games, being more interested in them than in preparing for the coming season's work with the bees, is not liable to make a successful bee-keeper in the fullest sense of the word."

"Are you not a little hard on me?"

"Possibly so. But I wanted you to realize fully what this last of the three great essentials means. You seemed to realize more perfectly about the two first. Remember that it devolves on *yourself* more largely than on any of the rest, even though I have placed the bee-keeper as third in the three great essentials. It is for you to understand that the greatest point in bee-keeping is to have the bees at the *right time for the harvest.* There is no sense at all in working for bees or stimulating breeding when the harvest is over and gone."

"Yes; but that is next summer's work, is it not?"

"It *should* be. But unless you have every thing made and prepared this winter, and your mind filled with useful knowledge, you may be making bee-fixtures, and ignorant, next spring, at just the time when you should be pushing the bees for all they are worth toward securing the maximum number in time for the harvest. The *winter* is the time to prepare for next summer, and no successful bee-keeper will slacken his pace till he has his hives, sections, etc , and mind, all in thorough readiness to use at a moment's no-when the season with the bees opens up for 1907."

THE SCHULTZ METHOD OF SHEETING WAX: MR. SCHULTZ AS AN INVENTOR; TREE-PLANTING IN GERMANY.

In the early spring, while I was yet in Berlin, I spent one day with one of the ablest bee-keepers of Germany, Mr. Schultz. He is not only a man of rare intelligence, but he possesses at the same time exceptional inventive genius. Among the many things

that I saw there was his method of producing wax sheets for the ordinary foundation. These are made on a huge revolving hollow cylinder. This cylinder, I should say, was as much as six feet in diameter, and fully as long. In revolving, the lower portion of the cylinder dips in the hot wax, and the number of revolutions required to fashion sheets of the required depth is easily determined by taking off a shaving of these wax sheets. It is easy to remove these great wax sheets from the cylinder, after which they are cut to any desired form and size. Then, by passing between rollers something like the rollers of a ringer, these sheets are thinned to any required weight.

INVENTIONS.

It will be remembered that Mr. Schultz was the first to invent and manufacture the "Good candy." I found he had also invented many other very interesting pieces of apparatus. But, strange to say, he uses hives that open only at the end. The frames are much like our own, but, of course, are removed with no slight difficulty. Mr. S. makes a large number of these hives for sale.

SETTING TREES FOR HONEY.

In the great city of Berlin, as also in most of the rural villages of that country, one of the most charming features of the landscape is the uniform planting of trees along the streets and highways. Only one kind of tree is planted on any particular street in the city of Berlin. One has only to see these magnificent avenues of trees to become quickly converted to this style of planting. The effect is certainly very charming. There is one thing that surprised me very much as I toured about the streets of the capital city of Germany. There is never a tree missing, and all trees are uniform in size. It is not to be believed that no trees have ever died, and, of course, dead trees must have been replaced by living ones. How, then, could there be such uniformity of size? I think I have the solution. One day I saw some foresters setting a tree in Berlin which I think must have been twenty feet high and of corresponding size. Of course, this was no light task, but it was done so carefully that I have no doubt of the success of the undertaking. Yet we must remember that labor is painfully cheap in this great metropolis. Laborers there receive only from one-half to one-third as much as is paid in this country, even where wages are lowest.

One of the things that pleased me much was to note how many trees in the streets and along the roadsides were useful for other purposes than ornament. The linden is a very common tree in Germany, and, like the American linden, the European linden ranks high as a honey-producing tree. The honey-locust is also another very common tree. This often produces large quantities of nectar. There were other trees of like character. I think we can not urge too frequently the desirability of this practice. The linden and the tulip in the northern part of our country; the sourwood in the South, and the eucalyptus in California and other arid regions of the West, may well come to the front in all our tree-planting. These trees are not second in beauty, and are also famed as honey-producers.

PHACELIA.

In the region about Mr. Schultz' apiary the landscaping is certainly most attractive. Great avenues of honey-locust were to be seen along the streets as one walked from the depot to the apiary, perhaps a distance of half a mile. I asked Mr. Schultz to what plant he gave preference as a honey-producer in his vicinity. He replied, "I think the phacelia is one of the very best." I was glad to hear this praise of one of our most common flowers of Southern California. This plant is known to science as *Phacelia tanacetifolia*. There are two families of plants represented in California by numerous species which are peculiar in their method of blooming. This is said to be scorpioid inflorescence. The spikes of flowers coil so that they resemble exceedingly a worm or caterpillar. This similarity is sometimes so striking as to be almost startling. One of the families is *Boraginaceæ* to which belongs the common borage, also famous as a honey-plant, and the other a closely allied family, *Hydrophyllaceæ*, which contains the phacelia. We have numerous species of these phacelia here at Claremont, most of which are very attractive, and to me peculiarly so, as they are all scorpioid. This *Phacelia tanacetifolia* was introduced from America into Germany, and has become very much prized for its nectar secretion.

EUROPEAN VS. AMERICAN FOUL BROOD.

The Cure Given in the Nov. 1st, 1905, Issue Never Intended for American Foul Brood; the Bees Not Able to Remove Larvæ, Diseased with American Foul Brood, from the Cells; the two Diseases Compared.

BY E. W. ALEXANDER.

[The reader should note that the new names for the brood diseases are used in this article. That is, the old foul brood is now called *American foul brood;* and "black brood," *European foul brood.*—ED.]

I do wish I could impress on the minds of all bee-keepers that I have never recommended any cure for American foul brood, and I wish to have it understood that I don't think that, up to the present time, there has ever been a comb that was affected by Amer-

ican foul brood cured of that disease. You might as soon expect a colony of bees to clean out their combs if filled with paint as to expect them to be able to remove the rotten larvæ from American foul-brood combs. I will admit that there are some things seemingly about the same in European foul brood and American foul brood, but in other respects they are no more alike than the mildest case of bowel trouble and the Asiatic cholera.

Many bee-keepers are continually speaking and writing of these two diseases as one and the same. Now, if it were not for the young and inexperienced bee-keeper I would not notice this mixing up of a very important matter. Then when my critics go still further and speak of the cure I recommended some time ago for European foul brood as failing to cure American foul brood, and in that way belittle that cure when I from the first wrote that I did not think it of any use for American foul brood, they do me injustice. You might as well expect to cure American foul brood by throwing a cup of cold water in the grass in front of your hives as to expect to cure it by requeening as I recommended for European foul brood.

The reason why American foul brood has never been cleaned out of a comb is because a larva that dies from that disease is so much like glue that the bees can not remove it in its soft state; and before it dries down it penetrates with its spores into the cocoons of the cell until it becomes a part of the comb itself, where it can not be reached by any disinfectants, nor removed by the bees. Such infected cell becomes ever afterward worthless to rear brood in. But not so with European foul brood. Even in its very worst stages, after the larva dies with this disease it soon dries up and cleaves from the cell, and is easily removed by the bees; consequently the cell is soon ready for another egg which often matures into a healthy bee.

Another point of difference is, a larva affected with American foul brood seldom dies until about old enough to be capped over, or after it is capped by the bees, while a larva dying from the effect of European foul brood seldom lives to be capped over, as it usually dies when from two to four days old. There is only one course of treatment for American foul brood, that is of any use. This is now known as the McEvoy treatment. That is, to remove the bees from their combs and put them on comb-foundation starters, and in two or three days remove them again to full frames of foundation. This treatment will save the bees, but is no cure for the combs, which are worthless except for wax. Fifteen years fighting this disease forty years ago, when this part of New York State was badly affected by it, gave me lots of experience. At that time I lost several hundred colonies with American foul brood, as we had no foundation then to use, and our only way was to cut out the combs as fast as it appeared and melt them up, and let the bees build new combs again. We cut the combs across just above the brood, leaving the honey in the hive with a strip of comb as a starter to build on. We did not then think the honey diseased, but I now know it was with American foul brood; but with European foul brood I have my doubts as to the honey being affected.

I have given many combs of honey from colonies badly diseased with European foul brood to healthy colonies, and have never seen a case where it had a bad effect. This fact, and that of the honey, combs, and pollen of a colony badly affected with European foul brood becoming perfectly healthy when requeened with a young virgin, as I recommended in my cure for European foul brood, is strong evidence that the honey is not the means of spreading this disease. It is very easy to cure an apiary of European foul brood; but the old American foul brood is incurable. As I said before, you can save the bees by the McEvoy treatment, but you can not save the combs.

I am well aware that on some points in the above I am crossing swords with those who are considered good authority; but on this subject in question I write the same as on other subjects, simply from long and extensive experience. I don't take any thing as fact until I have thoroughly tested it on at least 50 or 100 colonies for two or more years. This jumping at conclusions because some one says so and so, I think but very little of.

European foul brood will spread much faster through an apiary than American foul brood, and kill the brood quicker than any other disease that I ever dealt with. Coming as it does before the colonies become very strong in the spring, it soon reduces them to a mere handful of discouraged bees unable to accomplish any thing, and it is hard for their owner to realize that he will ever again have strong healthy colonies in those hives.

But don't be discouraged. I have been through it all, and what we have done you can do. All that is necessary is to follow the plan I recommended in the Nov. 1st, 1905, issue, and you will in a short time have as strong healthy colonies as you ever saw.

When we had this disease, black and hybrid bees were about the only ones affected. I sometimes think that, if the apiaries of some bee-keepers were attacked with this disease it would be a blessing in disguise, for it would necessitate requeening their colonies at once with some good honey-gathering strain of Italian bees; and if this were done about the first of June these requeened colonies would be in a fine healthy condition for an August harvest; and then with a good working force of Italian bees their owner would secure a larger surplus than he could possibly have had if it were not for requeening to cure the disease. I think these black and hybrid bees cost us nearly all we can get from them, and what they lack in squaring accounts with honey they make up in stinging and boiling over and under their hives when one attempts to handle them.

Delanson, N. Y.

[At the foul-brood convention in San Antonio the feeling was expressed that the Alexander treatment would not work in a locality where the European or black brood had just gotten a foothold—that it was only when the disease had practically worn itself out that the dequeening method would effect a cure. We shall be glad to receive reports from those who tried the Alexander cure.

Our correspondent makes a fairly accurate comparison of the two diseases. In some repects there are marked differences, especially in the condition of the brood-comb after the larvæ have died. It seems very clear that the bees can polish up the combs, and possibly disinfect them, after the ravages of European foul brood, when it would be impossible for them to do any thing with combs affected with the American disease.

We wish to bear testimony that Mr. Alexander never made any claims for his cure in the case of American foul brood. The suggestion was made by one or two correspondents, and by the editor, that possibly the treatment *might* do some good with that disease; but no claims were made.

When Mr. Alexander speaks of American foul brood as being incurable he does not mean, as we take it, that the McEvoy treatment, which has given such excellent results through Canada, Wisconsin, Michigan, and elsewhere, would not prove effective. As we understand him, he means that no treatment can disinfect combs that have been affected with old-fashioned (American) foul brood, and he is probably correct. The gluey, varnish-like character of the dead matter of this disease hardens down like so much cement; and when the stuff is smeared over the cells, and dried on, it renders the disinfection of the combs by means of formaldehyde difficult and uncertain.

It will be noted that we have started the use of the names European and American foul brood, The editor believes it is wise to adopt these names in order that we may be more sure of retaining the protection of legislation that specifically mentions *foul* brood, but says nothing about *black* brood. It is difficult at best to get foul-brood laws, and when once secured it is better to let well enough alone. By calling both diseases "foul brood," drawing the distinction by means of a qualifying adjective, we solve all difficulties at once.—ED.]

SYSTEM.

Some Crude Methods and their Disadvantages; a Thin Board for Keeping a Complete Record of all the Colonies in an Apiary.

BY PHILIP E. CRANE.

Mr. Editor:—While reading *System* a few days ago I came across a statement among the editorials that interested me greatly. It was to the effect that one of the best known of the Boston paper-houses some time ago installed some new systems in their business, and that in the first fourteen months after the installation the company had saved sixty per cent on its expenses over the corresponding period preceding. Being somewhat of a system crank myself, as well as interested in bees, I at once thought how true this might be of a great many bee-keepers. There was a time when business men found it necessary to look up the condition of their business only at the end of the year, while now they must know the exact standing of the business each morning before any thing further is done. The same is true of the bee-keeper. Years ago, at the end of the season he looked to see if each colony had a queen, nothing more. To-day he must be able at any time through the season to tell the exact condition of any colony if he would be in any way successful.

For years I have watched the journals to see how different bee-keepers kept their records in the apiaries. One of the worst problems is to devise a system that will meet the needs of all; indeed, this is next to impossible, for there are so many methods of carrying on the pursuit that what will do for one will be of no value to another. Many have offered suggestions, some of which applied to one kind of hive, some to another. Many were practicable for the man with a few swarms of bees, but were of no value to the person with a large number. Out of them all I have never seen any that met the needs of the large producer who makes the production of honey his entire business. The profits arising from the sale of honey are not large, and it behooves the producer to get along with as little help as possible and do the work properly.

For several years two of us have carried on from five to six apiaries, ranging from two and one-half to ten miles from home, and containing from 60 to 150 colonies of bees. Our ability to do this is to a great extent due to our system of records. These admit of our looking up the condition of any swarm from the beginning of the season till the end within five seconds, and without stirring from our tracks.

Let us look for a minute at some of the plans that have been suggested from time to time. One man places a stone on different corners of the cover to denote different conditions of the colony. It is plain to be seen that this plan applies only to those using hives with flat covers, and, besides, even if we used such there would not be corners enough on the cover to answer our purpose. Some one else suggests that you carry a little blank book with a page for each colony, and, as you finish work at the hive, "jot down its condition." This may do for the man with a dozen colonies; but life is too short to write out the condition of each hive; and, too, suppose a colony across the yard swarms – just think of turning over the leaves to find the place, and especially those that are stuck together with honey and propolis!

I might mention one more. Some write it on a slip of wood and drop it inside the

hive, or even tack it on the outside. The objection to this is that you must go clear across the yard to find out in what shape you left a certain colony, or, perhaps, go running all around the place to find an empty hive in which to put a new swarm.

Suppose you take a smooth board, six inches wide by four feet long. This will easily accommodate 125 colonies for a whole season. It is taken for granted that the hives are numbered. Next number the board; and it is also advisable that the board be ruled to prevent any possibility of mistakes, for they are liable to be costly. Many, no doubt, wonder how the record for a colony of bees is to be kept for a whole season in a space ½ inch wide by six inches long, and this is, indeed, very important. It is done by a system of shorthand. This must, of course, be varied by each person to meet his own needs.

Here are a few lines from one of our boards for the year 1904 that will give an idea of how the method is carried out.

1. C (–6/13) □ 6/21 (B7/21) 0.

The first thing in the spring, as soon as we are able to look over the bees, we look up the queens and clip their wings where necessary. The first record to go on the board, then, is the age of the queen. Suppose that we find her wings have never been clipped. We then place a C after the number of the hive. If her wings are clipped we look on the board for the season before, and see how old she is. If she was raised in the season of 1902 the C would have a line drawn across it. If raised the season before that, there would be two lines, and we should know that she was a fit subject for removal. (–6/13) shows that, on the 13th of June, eggs were found in the queen-cells. The parenthesis is used simply to prevent its becoming mixed with what goes before or after. If a larva had been found instead of an egg there would have been two lines before the 6; and if sealed queen-cells, three lines. When we came to this colony eight days later the condition was such as to warrant the removal of the queen. When this is done it is marked with a square, followed by 6/21. As the queen was still good she was evidently removed with a comb or two of brood, and used to start a nucleus; for, further down on the board, we find the following:

8. N6/21C1.

(This shows that this hive was empty, and that on the 21st of June a new colony was started with the queen from No. 1). The next week we cut out all the queen-cells, and simply drew a diagonal line through the square (not shown). When the new queen was introduced we drew a diagonal / the other way. Later we found that, for some reason, the queen was not accepted, so we gave them a comb of brood from some other hive, allowing them to raise a queen to suit themselves. This was marked (B7/21). When we found eggs showing that a young queen was laying we marked it 0.

Down further we will look at another line.

13. C. (F7/7) □ 7/7 (C6/22) (7/7)×7/24.

The interpretation of this is as follows:

On the 7th of July we shook this swarm on to foundation. In the course of an hour or two we discovered that, in the operation, the queen had been lost or killed, so we marked them queenless. Some time during the day we removed a queen (that had been raised earlier in the spring, and was clipped June 22d), from some other hive and introduced her to No. 13. 7/24 signifies that, on the 24th, the colony was all right.

Take another line.

75. N. V. 6/13 (□ 7/7).

This shows a new swarm with a virgin queen, June 13; queen removed July 7, etc.

From these few examples a general idea can be obtained of the methods employed in this system, and each person must vary and change the signs to meet the local conditions and his own methods of caring for the bees.

The board is always at your hand; and if a colony clear across the yard is swarming you can see just the condition in which you left it the week before without moving from your work. The leaves are never getting stuck together with honey or propolis; and, even if it does become sticky, it is an easy matter to wash it. Can any thing be more convenient or simple than this?

Middlebury, Vt.

A FEEDER ADAPTED ESPECIALLY FOR USE IN THE DANZENBAKER BOTTOM-BOARDS.

BY GEO. W. BABCOCK.

I think I have hit upon an idea in connection with the Danzenbaker bottom-board as a feeder, that is unique.

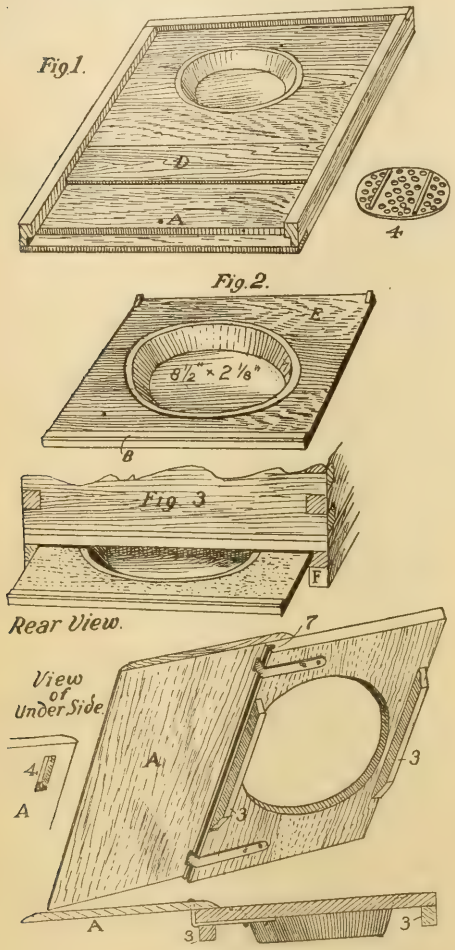
The Danz. bottom-boards, such as I have, are made in three parts, of uniform size and accurate fit. The only nailing of the bottom-boards by me is one nail as shown at A. The reason for this is so the shrinkage in the bottom can be taken up by sliding the boards together. Since only one board is nailed the other two can easily be removed, and in their place substitute the feeder in question from the back, as shown.

I used, in constructing this feeder, ¼-inch stuff from orange-crates, which is enough thinner than the regular Danz. floor-board to permit of the top rim of the three-pint basin passing under the end cleat, and an ⅛-inch-thick cleat tacked on at B closes the slot perfectly when the feeder is slid in place.

As shown in sketch, Fig. 1, I added a cleat, D, of the same ¼-inch material, under which the forward part of feeder-board E slides, thus leaving no opening in the bottom-board when the feeder is drawn forth at the rear to be filled, as shown in Fig. 3. I use a heavy enamel basin, costing 20 cts. here, 10 cts. in Rochester. I have eight of these feeders. I use a waxed float made of $\frac{1}{16}$-inch material (wood), Fig. 4.

On one hive, while using this feeder I had

placed a nucleus, which robbers got well started in; but they took no notice of the lower hive, nor did they crawl or fly about the feeder, which can not be said of the Boardman feeder nor the leaky division-board feeder; and, further, my feeder is all inside; and if the syrup is carefully poured in, there is nothing to attract the bees.



In order to have this feeder slide under the hive I had to add a 1¼-inch strip on both sides of the Danz. bottom-board side rails F, Fig. 3. This enables it to pass clear of the hive-stand, and gives me a winter side (which I am obliged to have) in wintering in my cellar, as the Danz. opening is not enough.

When we leave the capacity of a stimulative feeder, I can't see why we should not use the Miller size. You will see by my Danz. feeder that I can replace it by the regular bottom-boards at any time by simply sliding them in in its place.

Clarkson, N. Y.

[The feeder here shown would undoubtedly give good results. One would have to be a sort of carpenter, however, to rig up something of this nature. An ordinary person would not be able to make a close enough fit so that the slide-board containing the pan would work free without hitching or catching.—ED.]

THE NEW PURE-FOOD LAW.

The Difficulty of Properly Labeling Comb Honey..

BY R. D. CHAPPELL.

I have been reading with much interest your discussion of the pure-food law in regard to honey, and must say that I am on the "fence" when it comes to selling my comb honey for pure white clover, pure basswood, or pure any thing, for that matter. I will try to illustrate the point I wish to make. Just after the close of the white-clover flow the past season I bought some beautiful white comb honey cheap, for the reason that it was not separatored, and the sections were soiled, but the combs were very white. I bought it for our own family use, and sold my own, which was in plain sections, and, being built between fences, was nice and straight. Well, when we came to eating the honey I found it badly tinctured with honey from the brood-nest, which had been carried up to make more room for the queen. Now, before tasting the above-mentioned honey I should not have hesitated to sell it for pure white-clover honey; but had I done so I would have laid myself liable to prosecution under the new pure-food law.

How are producers of comb honey to know what kind of honey each section contains, without sampling it?

Vassar, Mich.

[Why, friend Chappell, the problem is not so difficult as you apparently think. You probably sell honey in your own locality, or at least within the confines of your own State. You will not forget that the national pure-food law applies only to territorial and interstate business—not to business conducted wholly within the State. The small honey-producer who sells his product will not be likely to be affected; but the shipper—that is, the corporation or individual that has been doing a general mixing business, will necessarily do some interstate business, and because of this he dare not put up any foods or drugs unless the label and contents conform entirely to the provisions of the new law.

But suppose you were to ship your honey out of the State. If you do not put any label on it, so long as it is pure, no matter how many the sources from which it was gathered, you would in no wise be affected by the law; and we doubt very much whether, if you labeled it "pure clover honey," and there should be a little basswood mixed with it, the officers would make any trouble; but if you label your product "Pure Comb Honey" you will be entirely safe.—ED.]

THE UNITED STATES DEPARTMENT OF AGRICULTURE, AGAIN.

What it is Doing for the Bee-keeping World.

BY E. R. ROOT.

Shortly following the Jenkintown field-day meeting, near Philadelphia, June 26th, I took a short run down to Washington for the express purpose of seeing with my own eyes what Uncle Sam was doing for bee culture. I have already told about the interest he has taken in disseminating information on the subject of bee diseases; of how he has sent representatives to our various bee conventions, thus bringing the general government in close touch with the bee-keepers themselves. That this has met with their general approbation everywhere is well known. The time was when our Uncle did not recognize bee culture in any way whatsoever; but now there is quite an appropriation, through the Bureau of Entomology, to defray the expense of several salaried employees, and at the same time maintain one or more government experimental apiaries for the propagation of the new races of bees, and for general experimental work;

It is well known that the Division of Apiculture is in the Bureau of Entomology; and

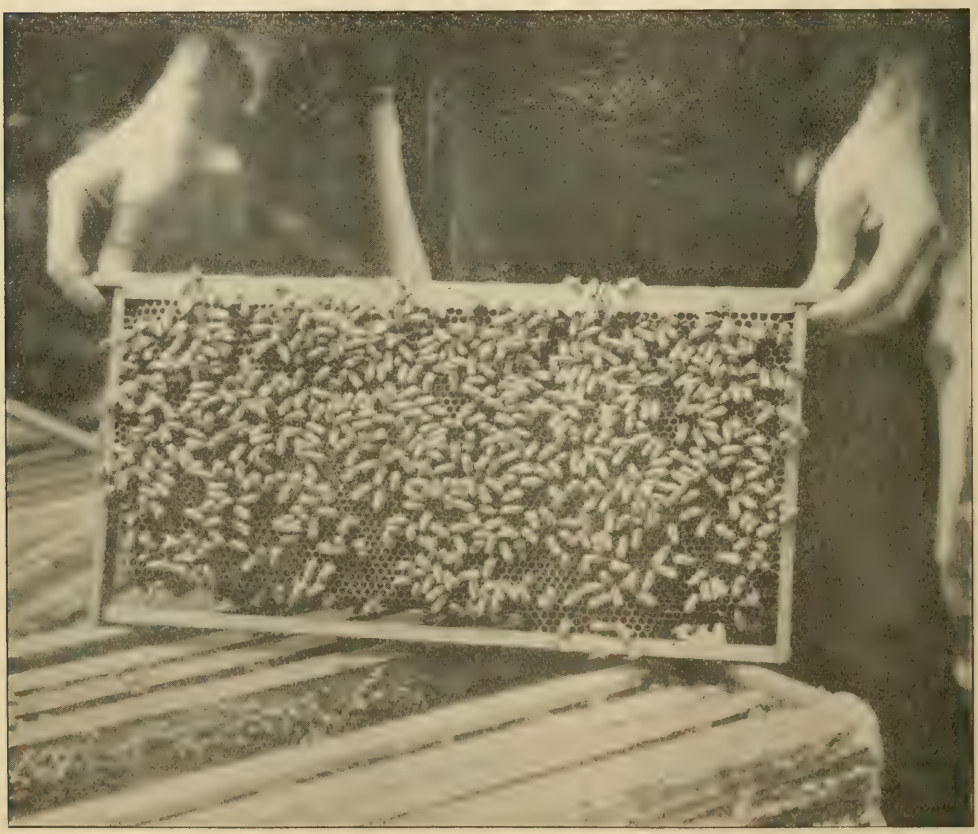
ENTRANCE TO THE DIVISION OF APICULTURE AT THE BUREAU OF ENTOMOLOGY, WASHINGTON, D. C.

therefore it is directly under the charge of Dr. L. O. Howard, a gentleman who has taken great interest in the general subject of apiculture.

But let us now go over to the Department and see what is being done. On arriving at B St. S. W., we pass along till we come to 904. Here we stop at the Annex of the Bureau of Entomology, and note right over the door in large letters of gold the word "*Apiculture.*" The casual passer-by might pay no attention to the word more than to read it; but a bee-editor realizes the great amount of effort and patience that must have been expended to cause the word to have enough

fact that the employees in this Division have a great amount of work on hand. Dr. Phillips, at least, seemed to have laid out enough work for himself to keep four men busy. Every thing was being worked out to a system. Among other things he showed me how he was keeping in touch with certain sections of the country by means of a card index; of how bee-keepers from all over the land were seeking information.

At the time of my visit, he and Dr. White, the Bacteriologist, had been making some investigations on the general subject of bee diseases. The results of these have all since been published—see Dec. 15th issue.



A FRAME OF CAUCASIAN BEES AT THE GOVERNMENT APIARY JUST AFTER THEIR HIVE HAD BEEN BUMPED AND KICKED.

importance attached to it so that it could thus be given a place of honor under the keystone of a government building. My camera caught a view of the entrance, which view is shown herewith.

We ascend two flights of steps or stairs, and are finally ushered into the offices of the Division of Apiculture. Here we met Dr. E. F. Phillips, who was temporarily in charge while Mr. Benton was at the time on his eastern trip through the Orient.

One can not fail to be impressed by the

Notwithstanding Dr. Phillips was very busy at the time, he gave me every facility for learning about the work that was then going on. We went over to the government queen-rearing yard, and there had the pleasure of meeting Mr. Leslie Martin, the apiarist in charge. Here we found several races of bees where the visitor could see them tested to his own satisfaction. Dr. Phillips and his assistant had made a careful study of the general subject of queen-rearing, and it was easy to see that the most up-to-date

LESLIE MARTIN, AT GOVERNMENT APIARY, HOLDING A FRAME OF CAUCASIANS.

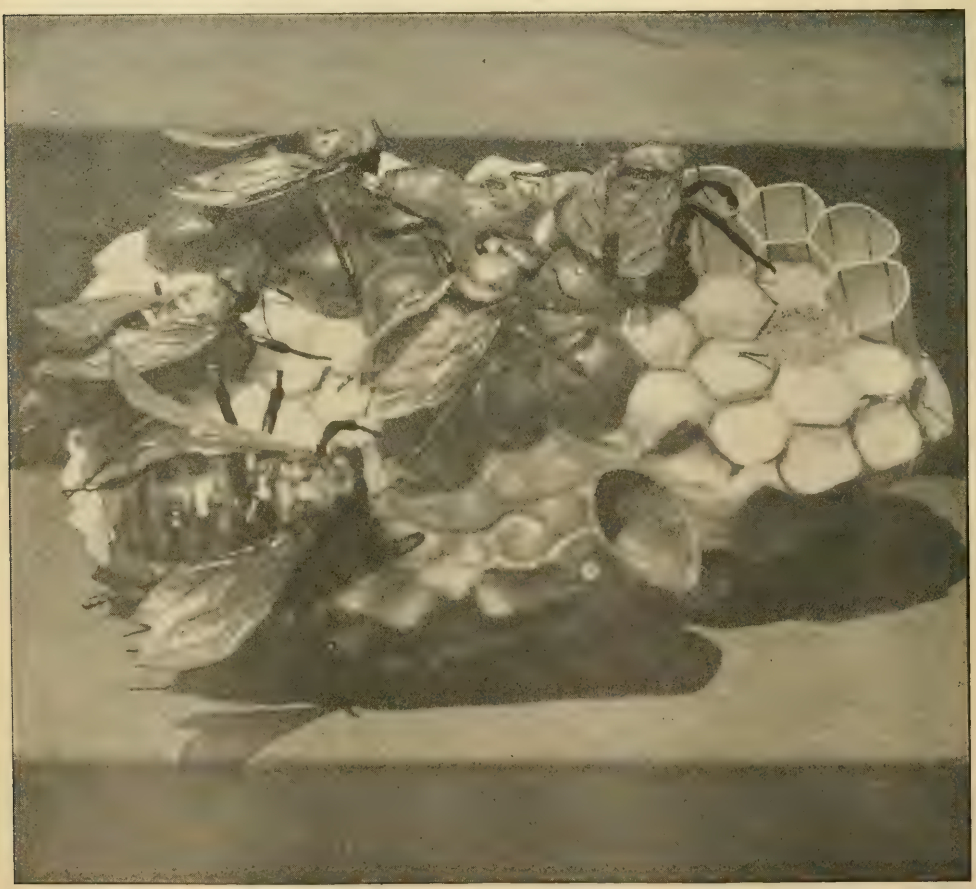
WAX MODELS (BY AUZOUX) OF HONEY-BEES, THE MODELS ENLARGED APPROXIMATELY TEN TIMES, EXHIBITED IN THE BUREAU OF ENTOMOLOGY, WASHINGTON, D. C.

methods known to the art were there being tested. The bulletin by Dr. Phillips, on queen-rearing, based on this work bears testimony to the same point.

I took a few snapshots showing Mr. Martin in the act of handling the hives; but I was particularly interested in looking at the Caucasians, as I believe most of the visitors are. After Mr. Martin opened the hive I casually remarked that I supposed he could do almost any thing with the bees except actually to kick and pound the hives. Quite to my surprise he gave several of the Caucasian colonies a good bumping with his feet, and he actually jarred two or three of the hives a little off their stands. He explained that he did not ordinarily do this; but inasmuch as I had tentatively given him the challenge he felt inclined to accept it. The two pictures of the frames of bees were taken shortly after this rough treatment, and yet there was no resentment, but, on the contrary, the bees were nicely disposed over the frames, apparently caring little for what had been done; for, during the time, no smoke or veils had been used.

There was, I believe, one colony of Banat bees and several of Carniolans. In this connection I ought to add that the government strain of these bees (Carniolans) were very gentle.

After inspecting the government queen-rearing operations, Dr. Phillips kindly piloted me over to one of their buildings (a museum, I think) where he introduced me to Mr. Rolla P. Curry, in charge. There was an exhibit there, in which Dr. Phillips thought I would be very much interested. It was nothing more nor less than some wax models of honey-bees and a honey-comb, enlarged to some five or six inches in length, with combs to correspond. These specimens were made by the celebrated model-maker Auzoux, who, it appears, has made many other models of various insects for the Bureau of Entomology. Notwithstanding that these models of bees were kept in a glass case not easy of access for the purpose of photographing, Mr. Curry very kindly consented to remove the glass, at no little work, and have the models removed and set outside of the building. They were placed on the steps of the



WAX MODELS OF HONEY-BEES AND HONEY-COMB, ENLARGED TEN TIMES (BY AUZOUX, THE CELEBRATED FRENCH MODEL-MAKER), ON EXHIBITION IN THE BUREAU OF ENTOMOLOGY, WASHINGTON, D. C.

entrance, where I secured a number of photos, two of which are here reproduced.

It will be observed that these models can be dissected, showing the entire anatomical

LESLIE MARTIN, GOVERNMENT APIARIST.

structure. To the student of anatomy they are very interesting, and give another evidence of the interest taken by our dear old Uncle Sam in bee culture. Such models, though perhaps not perfect structurally, were executed with such marvelous ingenuity and care that they must have cost a large sum of money, and yet here they are for the inspection of every visitor who desires to see them. If it were not so expensive it would be interesting, and profitable as well, to have specimens of these bee manikins, so to speak, at our conventions, where the complete anatomy of the bee could be very clearly shown.

I may say in this connection that there were many other enlarged specimens of insects, injurious as well as useful, where the student can study them to his heart's content. These collectively form a very useful exhibit for the Bureau of Entomology.

The bees and the piece of comb stood out on the stone steps for the purpose of photographing. The depth of the step will give some idea of their real size. In the other engraving, showing the bees dissected, the back of the bee has been removed, showing the conformation of the muscles. The model is ingeniously hooked together so that it can be easily dissected to show any particular portion of bee anatomy.

BEE-KEEPING IN CUBA.

The Island Not the Worst Place in the World: Why One Statement will Not Hold True for all Parts.

BY ROBERT M. M'MURDO.

A good deal is written but little is known about Cuba, in any shape or form; and although I have traveled a great deal here I would not dare to write anything about bee-keeping outside of this vicinity; but I should like to say a few words for *this* part of the country.

It is undoubtedly a great bee country, as the shipments of honey and wax every year from Manzanito will show; and nearly all *that* is made by the natives in log hives, which, as you all know, admit of no handling, other than hiving swarms and taking the honey and wax, which is done by driving the bees back from one end and cutting out the honey, often some brood with it, and all is squeezed out by hand. They say the wax brings more than the honey, and that they average a dollar or more per hive. I send you a picture of a Cuban and his apiary. He had about 300 hives when that was taken, and made over $300 out of them that year.

This country is flat, and not as pretty as it is further back toward the mountains; but it is perfectly healthy, and the mosquitoes and fleas bother us very little; and for seven or eight months we do not have to use a net over our bed at night. If you have a plank floor, and keep the dogs out, the fleas will not bother you much.

As for those bugs that get into your feet, I have heard of them but I never saw any. I always thought that, if one kept his feet clean, they would never bother him. But one has to keep a lookout for scorpions. Their sting is pretty bad, and the pain lasts for about three hours; but after that it seems to have little effect, and did not swell much on the two people I have seen stung. They like to stay in dark corners and catch cockroaches, but occasionally will come out and get into your shoe. They make a curious zipping noise when disturbed, and I do not believe they will sting unless you touch them. A curious thing about them is, they carry their young about on their back.

The lizards are perfectly harmless, and so are the snakes, for that matter, except that they will kill a chicken occasionally — especially the "majas." They will go up a tree (where the chickens roost) after them. They grow ten to twelve feet long, but are easy to kill, for they move slowly. Their skin is very pretty. It is one of the boasts of the natives that they have no venomous reptiles on the island.

There are certainly lots of ants here, of all kinds, and most of them sting or bite. They have never bothered my bees, though, and have entered the hive only when there were no bees there.

I have my hives up on good-sized stakes, eight or ten inches off the ground, and have plantain and orange trees for shade. I am

sure the shed is the right thing, only more expensive; but instead of having a metal or paper roof I would use "guano." It is what the natives all use for their houses—the "palmetto palm" leaf. It lasts very well, and is much cheaper and cooler than any thing else.

Here the bees pick up some honey nearly all the year round, but have two natural swarming seasons, the spring and fall. These are governed by the rains, which do not come by clockwork, and it does not rain every day when it does come, but, like the rest of Cuba, comes generally in showers, which is one of Cuba's greatest blessings, for, no matter how hard it rains the evening before, you have the beautiful sun next morning to dry things off and cheer you up. It is really seldom we have an all-day rain, so one can get in lots of work.

A NATIVE IN A CUBAN APIARY OF OLD LOG GUMS.

There is no trouble in keeping the bees strong through their natural breeding seasons and main honey-flows, and I do not think one ought to expect to keep them strong all the year; but I noticed that nuclei with young queens would build up right through the winter months, and make their own comb too. The importance of having young queens from the best stock, just as Mr. Alexander and others recommend, can not be overestimated, according to my experience; and I really believe one might requeen twice a year to advantage—certainly once.

Although I have never practiced feeding I am inclined to think it might be done here to advantage in September. This year I am sure of it, for it was dry, and very little honey came in, and only the strongest worked on foundation.

One ought to run for both comb and extracted honey here — comb in October, November, and December, and extracted honey and wax the rest of the year. There is quite a good flow in the spring, and some of it is very nice honey, but the honey in June and July is very poor.

If a person does not try to run too many hives and will adapt himself to the conditions of the country, I believe he could make a paying crop of honey in almost any part of this province, and at the same time he need not confine himself to bees entirely. He should certainly have a few cows and start a herd, or some good mares, or start an orange-grove or rubber plantation, or chickens, for that matter. I would not advise any one to grow much corn unless he wants to go to the expense of keeping it. There is no market for it except where no one has any to sell. Just now the storekeepers are paying only 80 cts. a quintal for it, whereas a few weeks ago you could hardly get it for $2.00, when the poor Cubans did not have any. It won't keep without going to a great deal of trouble, especially the summer corn.

But, though I want to sell out, I would not advise any one having a good home among friends and relations, with good schools to send children to, to come here or to any part of Cuba; but if one has to make a change for any reason at all I am sure no part of the States offers more natural advantages than Cuba does to-day.

The greatest disadvantage the country has is that there are no roads to speak of, and for two or three months every year they are almost impassable; and I doubt if one could use an automobile at any time. The hauling is all done in ox-carts, and the mud never seems to get too bad for them. They get through it somehow.

There are several things that this country is especially adapted to. One of these is the growing of oranges. The woods are just full of wild lemons, or limes, and the Cuban orange grows true to seed; and for sweetness or flavor they can not be surpassed. They grow very fast. There is one orange-tree in the apiary 14 feet high, planted there two years ago, when it was a year old.

THE SANITARY CONDITIONS IN CUBA.

I must say a few words about the health of the country, as I have found it agreeing with me better than Albemarle Co., Virginia, and I know there is no healthier place in the States than that. There I often had bad colds; but here I hardly ever have occasion to use a handkerchief, and have bought only half a dozen in the last four years, and they were to use in the States. I feel less listless here than I did there. If this country were not naturally very healthy, all the natives

FIG. 1.—RESIDENCE OF GEO. W. TABLER—A SUGGESTION FOR SELLING HONEY.

would have been dead long ago, as they sleep in crowded quarters, shut up just as tight as possible, drink water out of any stream or mud-hole, and all the slop water is pitched into the middle of the street; and in many of the small towns you will see not only stagnant water but dead cats and dogs in the street. It is only the beautiful sunshine and the fresh pure air blowing constantly over the island that saves the people.

In regard to what Mr. Reiman has to say about Cuba, page 1178, I should like to have a few words. It is certainly interesting reading; but lots of his statements, although they may be true for his part of the island, do not apply to Cuba as a whole, and will give people a wrong impression. I get my coal oil, the best, for 30 cts. per gallon. I do not think any one would try to palm off foulbroody bees on a buyer. I am sure there is no foul brood around me.

Cauto, Cuba.

BEE-KEEPING IN KANSAS.

A Carpenter Who Does Not Think it Pays to Make His Own Supplies.

BY GEO. W. TABLER.

I am a carpenter by trade, and do not have much time to work with my bees.

Fig. 1 is my cottage. The sign hanging

FIG. 2.—GEO. W. TABLER IN HIS APIARY.

on the porch is a suggestion how to sell honey, and the flower in the foreground is a Rocky Mountain bee-plant in full bloom.

Fig. 2 is a corner of my apiary. The hives are of my own make, ten-frame Dovetailed; but I do not recommend making them at home unless one is a mechanic, and even then there is nothing saved. The smoker I have in my hand I made myself, and the material cost 90 cts., labor $2.00, so I would not advise any one to make his own bee supplies.

Great Bend, Kansas.

DR. DZIERZON.

BY W. K. MORRISON.

Below we give the latest portrait of Dr. Dzierzon, showing how he appeared at the age of 95 years. For this we are indebted to *Bienen-Vater*, one of the foremost if not the chief bee journal of Europe, whose editor is

Dr Dzierzon

—*From the Bienen-Vater, Austria.*

Alois Alfonsus, of Vienna. The decorations on the breast of the venerable gentleman were conferred by various European royalties. The Emperor of Russia conferred on him the order of St. Anne; the Emperor of Austria-Hungary conferred the order of Francis Joseph; the King of Sweden and Norway, the order of Wasa; the Grand Duke of Hesse, the order of Ludwig; and another by the Archduke John. He, in a sense, earned these decorations by allowing students of bee-keeping from all parts of Europe to come and study at his apiary, many of whom were sent there by the governments of their own country and at their expense.

It is said he led a happy, peaceful, contented life, devoted to his bees, living amid his friends and relatives, by whom he was revered. For many years he had given up church work to live with his brother's family, and with whose youngest son he died, being constantly attended by his nephew's wife, who cared for him as a daughter does for her father, going with him to the bee-keepers' conventions that he might not suffer. To the day of his death he owned many colonies of bees scattered through twelve apiaries.

We gave a general life-history of this remarkable man in our Dec. 1st issue, p. 1508.

THE CHAMBERS NON-SWARMING DEVICE.

The Chute Unnecessary.

BY M. R. KUEHNE.

In reading in GLEANINGS, pages 582, 583, the description of the J. E. Chambers non-swarming device I find that I have been working for years back on the very same principle, but have come out in a much easier and simpler way than Mr. Chambers. That chute arrangement is entirely unnecessary, and I think even a detriment to the colony above the brood-nest, inasmuch as it depletes the brood of too many bees at a time when they are sorely needed to give the proper heat to hatch the bees successfully. I make my partition-board somewhat different as follows: On each side of the board I put a strip of common wire cloth, top and bottom, 3 inch, and in the center a ⅞-inch board; at the back of it is a 1½-inch hole covered by queen-excluding zinc. This allows the heat from the colony below to come up freely to hatch the brood, and at the same time allows an intercommunication through the 1½-inch zinc, through which they equalize as to numbers fairly well. The partition-board, of course, has a fly-hole at one end, which is turned in an opposite direction from the front fly-hole.

I manipulate the bees that way about three weeks before I expect hóney to be gathered freely; and after the young queen in the upper hive begins to lay I take her out, together with enough bees to stay with her, and then remove the partition-board. By this time the harvest is on and the bees will not swarm any way. Of course, one can remove the partition-board without removing the queen, and she will invariably dispatch the old queen below.

I communicated this idea to Mr. Stachel-

hausen some two or three years ago, but he had his doubts about the young queen invariably killing the old one below; but she does, practically. I have had but two cases where the old queen, still reigning supreme, killed the young one. Otherwise I work just as Mr. Chambers does, only I shake enough bees with the old queen to make them contented, just as he works for comb honey; but it works equally well for extracting.

Pomona, Cal.

THE HIVE QUESTION.

One Deep Body vs. Two or More Shallow Sectional Bodies; Sectional Hives Rightly Managed, the Same as Deep Hives; Mr. Dadant's Article Criticised.

BY J. E. HAND.

[The two articles here given on the same subject, one by J. E. Hand, of Ohio, and the other by another (J. E. Chambers, Texas), in widely separated localities, with very different climatic conditions, show a remarkable agreement all through. They will, therefore, be read by the advocates and opponents of the system with more than ordinary interest. They form about as strong a plea for the double-brood-chamber hive as any thing we have yet read.—ED.]

Mr. Editor:—In your footnotes at the close of Mr. Dadant's article on sectional hives, p. 1115, you say, "We shall be glad to hear from our subscribers, particularly those who use the split-up or double brood-chambers." We don't understand your meaning of the terms "split up." If you refer to those we split up for kindling-wood we will say that *they* were Jumbo hives and not sectional hives. However, if you mean the sectional hive we fail to see the appropriateness of the expression. But as we are subscribers, and also users of the sectional hive, and as Mr. Dadant's article is really a reply to a former article of ours, we will endeavor to meet some of the arguments that he has advanced in opposition to the sectional hive.

In the first place, we do not wish it understood that we are advocates of a shallow frame, except as used in connection with the sectional hive, which admits of manipulation by hives instead of by frames. Mr. Dadant has made the same mistake that every one has, who has ever criticised the sectional hive, in failing to separate these two systems. The change from frame manipulation to hive manipulation is as marked as was the change from the box hive to the movable frame. While we as American bee-keepers can justly point with pride to the Langstroth invention, we should remember that many years have intervened since that time, and much progress has been made along other lines. Are we as bee-keepers to be content to continue along in the same old ruts, or shall we adopt those methods that will lessen our labor, and, by so doing, reduce the cost of honey production?

I agree with Mr. Dadant, that time is money, perhaps never more so than now, and, therefore, labor cuts a greater figure in the cost of honey production than capital. There are thousands of dollars' worth of time wasted every year in the useless handling of frames. I say *useless*, because it *is* useless to handle frames singly, except in rare cases. The system of manipulation by hives will enable the apiarist to care for twice as many colonies of bees with the same amount of labor and time, thus doubling his income from the bees.

Mr. Dadant says, "I can see no chance of handling only hives when hunting for queens, looking for queen-cells, etc." Again, he says, "With the sectional hive we have twice or three times as many frames to handle, proving conclusively by these statements that he does not yet fully understand the workings of this system. Not only do we find queens without removing frames, but *all* queen-cells can quickly be found without even removing the cover.

This rapid manipulation by hives enables the apiarist to work with his bees at a time when it would be impossible to handle frames, on account of robbers. Mr. Dadant esteems it a great privilege to be permitted to build up the brood-chamber by adding one frame at a time, closing up each time with a dummy; and a little further on he says time is money to the honey-producer. It is hard to reconcile these statements.

It is claimed that the queen, in her rounds of egg-laying, when coming to the top and bottom of these shallow frames, will hesitate, lose time, and lay less regularly. These are only theories which fade into thin air in the actual use of these hives. In *no* hive can be found more perfect frames of solid brood than in these very shallow frames. There being no space at the ends of frames, the queen will lay eggs clear out to the ends of the combs. It is further claimed that, with these hives, the brood-chamber is cut up into small sections. While this is true to a certain extent, it must be evident to the thinking apiarist that this space through the center of the hive is a great advantage in many ways, aside from hive manipulation. It permits of the free passage of the queen to all parts of the hive from the center of the hive each and every way through the warmest part of the hive, enabling her to build up her colony during cold and unfavorable weather in early spring. It allows the cluster to contract through the center of the hive during a cold snap, without the loss of bees which are caught on the outside of deep frames, and perish. It permits of the passage of the bees through the center of the hive to reach stores at the other side during extreme cold, when it would be certain death to pass over deep combs. I have had scores of colonies die of starvation on deep combs, simply because they could not move over those deep combs to reach stores in zero weather. It causes the queen of a small colony to establish her brood-nest in the top section of the brood-chamber close to the top of the hive where the heat of the cluster is best conserved, while the cluster in the center of deep combs is further removed from the heat-center, and can not build up so fast in cold and unfavorable weather in early spring.

The queen will confine her egg-laying entirely to the top section of the hive (the lower section being entirely empty), until it is well stocked with brood and bees, when she will go down and quickly fill the lower one. Right here is where the hive manipulation begins. As soon as the weather and other conditions will permit, the apiarist will interchange these sections, placing the top one, that is full of brood and bees, *below*, and the empty one that was below is placed above, again placing the empty combs in the warmest part of the hive. The heat from the brood rising will warm up these empty combs, and the bees will *immediately* begin to move the honey to the top section, and prepare the cells to receive eggs. This placing the empty combs in the warmest part of the hive enables the queen to develop her fertility to a much higher degree than where she is compelled to extend her brood sidewise into a cold part of the hive far removed from the heat center, as is the case with the deep frame.

Mr. Dadant says, "We found in practice that the bees would often desert one of these shallow sections; sometimes it was the lower one. We do not think that he means by this statement that it was really any other than the lower one. We are glad that he mentioned this subject, for this is one of the strong points of the sectional hive—that, if too much room is given, the bees will occupy the top part of the hive, leaving the lower part, which they are unable to cover, and will work right along in the supers, regardless of the room below the brood; whereas, if such room were given at the side of the brood-chamber, as in the Jumbo hive, work in the supers would stop until this space was filled. Instinct tells the bees that it is safer to locate their brood at the top of the hive.

The manipulations of this hive are many. The so-called Alexander method of uniting weak colonies in the spring is as old as the sectional hive, and is one of the manipulations for which this hive is especially adapted. The full-depth hive is not so well suited to this manipulation, and will often result in failure.

It would be far safer to wait until settled warm weather before uniting colonies in full-depth hives. Since *one* queen is capable of laying more eggs in early spring than the bees can cover, nothing *can* be gained by adding *another* hive and queen with only a handful of bees. It is not *queens* that are needed at this time, nor is more room needed so early in the spring. Such a practice is equivalent to dividing your colony in early spring, as soon as it is carried out of the cellar, and is of very doubtful expediency.

Mr. Dadant is right when he says that, the nearer the bees can come to clustering in a solid ball, the better they will winter. The sectional hive not only admits of this the same as the Jumbo, but possesses the additional advantage of a full and free communication of all the bees in the cluster through its center, thus permiting bees in the cluster to circulate outward and inward, thus helping to keep up the heat. This is an advantage not to be lightly passed by.

In the Jumbo hive, although the bees will make an *effort* to cluster in a solid ball, they can not do it, for this ball will be cut up into thin slices, and each of these slices is separated from its neighbor by a solid wall of cold honey. Each slice being entirely shut away from the next one, there can be no circulation of the bees through the cluster, and they must crawl into the cells and burn honey to keep warm.

Which of these brood-chambers, I ask, is "split up" into small sections, Mr. Editor? Perhaps *you* can answer this question, since you are the one who first coined the expression. I object to this expression as applied to the sectional hive. It *isn't* chopped up; it is simply a deep frame with a bee-space through its center.

[By "splitting up" we meant separating the several sections of a divisible-brood-chamber hive. We did not, as you suppose, coin the phrase, but borrowed it from some one else. The expression is not bad, because it means a rapid separation of the several parts of the hive.—ED.]

MORE ABOUT SECTIONAL HIVES.

The Question Really One of Handling Sections Instead of Frames; Ten Sound Arguments in Favor of Sectional Hives.

BY J. E. CHAMBERS.

Mr. Editor:—I see that you have called in Mr. Dadant's testimony as to the relative value of the deep and shallow hives; and while I have a high appreciation of Mr. Dadant's ability and judgment, yet from his own admissions I question very much whether he is competent to do full justice to the shallow-hive part of the discussion; for, according to his own statement, he has had literally no training in the modern manipulations that go to make up the system necessary in the use of shallow hives, nor has he ever used these hives with frames as we have them. At any rate, I think he has failed to comprehend the fact that the same manipulation can not be successfully applied in the case of the two kinds of hives, for in his first objection to the shallow hive he seems to be laboring under the impression that it is necessary to handle frames in order to find queen-cells or make an examination of the brood-nest. Certainly such an idea could not find lodgment in the mind of an expert in the use of the shallow hive; and if Mr. Dadant was not an expert in the use of these hives, why was he called upon to tell us about their shortcomings? Presumably for the reason that he was better acquainted with the virtues of the deep hive than with the shortcomings of the shallow one. However that may be, I shall be compelled to take issue with some of his statements, for I do not believe they are altogether conformable to recognized facts.

First, he states that the use of the Jumbo hive enables the apiarist to enlarge the hive one comb at a time, from the very smallest space that a colony can possibly occupy and keep warm, up to the largest laying capacity of the best queens. He also says that it is useless for us to seek a more gradual increase of space than can be given with such a hive and dummy. Exactly so, Mr. Dadant; and that very fact is with me, and I think with others, a strong argument against your style of hives, for, to quote your own argument, time is money to me, and time is also honey to the bees; and it certainly takes a good deal of time to open a hive five times, each time removing your dummy and slipping a comb down by its side, replacing the dummy and all such coddling. I can accomplish much more with less work by using the shallow hive, for, in the first place, you well know that any sidewise development of a colony is effected very slowly in early spring, and at great loss of both heat and energy. Why this is true is evident enough if you but stop to reason a bit. Heat from a cluster of bees does not pass off sidewise to any appreciable extent, but, instead, ascends naturally, and the bees follow the natural upward tendency of that heat in their development. So true is this with me that I find year after year nearly every colony occupying the five or six combs, extending upward through two and even three of these shallow sections. These are nearly the center combs. Toward spring, when brood-rearing begins, and the sun begins to shine warm on the south end and west side, they gradually move to that side; but on the cold side, development goes forward so slowly that the colony has often reached a condition of full strength before the bees spread out laterally, and take possession of these combs. With your deep hive and system of coddling, when a comb is given no development is noticed until the bees have increased sufficiently to enable them to cover perfectly the cold outside slab that you have given them; for they can not, in your single-story deep hive, get any benefit from the natural heat that arises from the compact cluster; and in this very connection I wish to affirm, Mr. D. to the contrary notwithstanding, that it is not the smallness nor bigness of a hive that protects the bees from the damp and cold, but such protection is secured by the living compact wall of bees, and in a less degree by the position they occupy in the hive. To illustrate, a colony that occupies the two middle sections of a hive composed of four shallow bodies will have the wind greatly broken in force before it reaches them, for it will have to reach them through the combs and bars of the lower hive, and they will also be somewhat removed from the damp floor or bottom-board. Here in the South a colony will winter every time, strong or weak, if it has stores enough; but further north it is different. When a growing colony in the above-described position reaches the top section, all further need of bottom protection is at an end, and I shift the bottom hive to the top to afford room for greater development. Different from your colony in single-story deep hive, they are compelled to remain exposed to the cold incoming currents of air. True, they may contract a little closer, but that only lessens the amount of breathing-space. There they remain, and wait until enough bees have hatched to cover the cold outside comb before they can enlarge the brood-nest in the least. Now, these are facts, and I think few will question them.

Mr. Dadant's claim, that the deep hive afforded the queen a chance to develop her full fertility, is an old but entirely unproven assertion, for the fact is just this: During early spring, when no eggs are or can be laid outside the cluster, the queen does, after a fashion, make the so-called circle, and why? Simply because the bees cluster in somewhat of a globular form; and as eggs are laid within this cluster only during the cool weather of spring, that circle is a matter of course. However, I deny that this style of egg disposition is maintained throughout the season; on the contrary, as soon as settled warm weather has come, the queen roams through the entire hive, whether composed of three, four, or five sections, and lays at will wherever she finds cells well polished. Many a time I have found cells thus polished, but no eggs; and on examining again in a day or two I have found the queen busy at work, and again in a few days more she would be found in another section of the hive.

Mr. D. affirms that queens in shallow hives hunt a long time for cells to lay in, and likewise declares the queen drops and loses her eggs. Like him, I have seen queens drop eggs, but this was not confined to shallow hives, but is, I assert, very common in all kinds of hives. For the past fifteen years I have kept a few deep hives solely to help me answer people who have read some such arguments as Mr. Dadant puts forth. These hives are $16\frac{1}{4}\times16\frac{1}{4}$, and 12 inches deep; but during all these years not one of these colonies has ever shown the least advantage, either in strength or in yield of honey over those in the shallow hives, and they are much more trouble to handle than the shallow ones. Furthermore, I have kept bees in many kinds of deep hives, but have never found such hives to be in any way superior to the shallow ones, while in many ways they are immeasurably inferior to them.

In conclusion I will mention some of the ways and reasons why deep hives are inferior to the shallow ones. First, because they are much heavier to handle, needing a derrick like those illustrated in the last few issues of GLEANINGS to enable the operator to make an examination of the brood-nest. The shallow hive needs none.

Second, the deep hive has to be manipulated by combs singly, while with a properly constructed shallow hive every necessary manipulation can be done by sections. This enables an apiarist to handle more bees, and thus be able to secure greater crops of honey, and with less heavy lifting and pottering.

Third, when hauling bees, as in migratory

bee-keeping, the shallow hives are superior, and combs never break down as do the deep ones.

Fourth, with deep hives the combs are never built out and attached to the wood all around, as is generally true with the shallow hives and frames; and I think it must be clear to any logical mind that a hive that does not accomplish the perfect building and attaching of combs to the wood is deficient in some essentials.

Fifth, without wiring, good combs are an impossibility with deep hives; but with shallow ones, wire is never necessary.

Sixth, foundation hangs nearer the center of the frame, and there is also less danger of breaking down when a large mass of bees get on to it when drawing it out.

Seventh, shallow combs stand the strain of heavy work, when extracting, much better than do deep ones even when wired.

Eighth, shallow combs are much easier to uncap. If a man will take a look at the way Coggshall is holding a L. frame to uncap it, at the field trials at Jenkintown, Pa., then witness the ease and rapidity with which even your humble servant uncaps the shallow combs, without even moving or changing the position of the comb, he will not be at a loss to understand why some of us, at least, appreciate the shallow hive and frame. In the illustration spoken of, Mr. Coggshall holds the frame nearly under his arm. With shallow combs I stand the comb on the end-bar, with the bottom-bar slanting slightly toward me, and slice down the right side, then, using the reverse edge of the knife, I cut down the left side smoothly, rapidly, and without once changing the position of knife or comb. But can you do it with deep combs? I think not.

Ninth, it is almost impossible to free deep combs of bees without shaking and brushing them. Shallow combs and supers are easily freed entire

Tenth, shallow hives can always be converted into either a small hive for comb honey or a big one for extracted honey, and at a moment's notice too.

Lest some one be fool enough to argue, as did a party once before, that I had mixed demerits of combs and hives, I will state that I do not know of a demerit of one that is not inseparable from the other; for combs of a certain depth have to be used in hives of a like depth. Now, Mr. Editor, is it not a fact that every great manufacturer has fought against shallow hives, and that every one has been literally compelled to adopt a shallow hive, the Root Co. last? and why was this unless, as I suspect, that the so-called standard hive did not meet all the exacting requirements of modern bee-keeping?

Vigo, Tex.

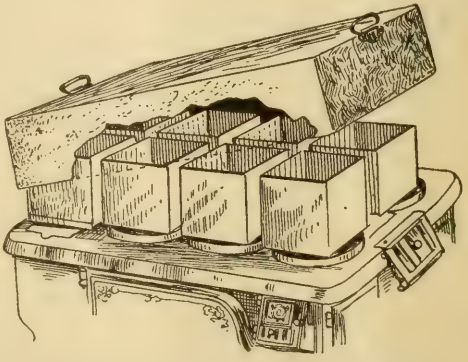
SOME one advertises honey-cakes made in Denmark, in the *British Bee Journal*. Moreover, he says they will keep any length of time. There is nothing rotten in Denmark.

LIQUEFYING HONEY ON A COOK-STOVE.

Home-made Melting-tanks at a Cost of Only a Few Cents.

BY C. W. DAYTON.

Mr. Root:—You gave so many interesting pictures in the last two issues that I came near forgetting to read the articles. Although there have appeared descriptions and pictures of several honey-heating devices, there was none which seemed to hit my case so well as the plan I am already using; and as I belong to the list of small producers—that is, producers of from two to ten tons, I will send you a rough draft of my outfit for melting honey after it has once become granulated solid. If we have a trade in the middle of winter, or the following spring when



consumers are slacking off from their pork-and-beef diet, and before strawberries, currants, or other fruits arrive, it is advantageous to have a quantity of honey left over to supply such demand; and it also keeps them in remembrance of the good taste; so that they will look forward to satisfy further their taste from the new crop.

In the illustration six square five-gallon coal-oil or honey cans are shown, with their tops cut off so that a part about 10 inches in depth remains. They will hold about 35 pounds of honey apiece conveniently. I usually pay 5 cents each for coal-oil cans; and when the top is removed so that we can get at the inside they are easily cleaned. The large pan to cover all the cans is what I call the hood. This comes down and rests on the stove all around to confine the heat, as will be easily understood. Under the cans will be seen coils of stout hoop or band iron, ¾ or 1 inch wide for the cans to rest upon so as not to come in direct contact with the stove. Over the reservoir of the stove none of these are needed.

Now as to results: The eight receptacles will melt about 200 pounds in three hours—about enough to fill 60 quart jars, and that is about all I care to deliver in a single day—that is, to private houses. If they went to dealers, by the dozen, I should need more; but I do not put much on dealers' shelves in winter or spring, as they sell so slowly and

are so liable to granulate again. But even for such a trade, two or three meltings would suffice. The honey being put into several receptacles, leaving spaces for the hot air to circulate around or between, greatly hastens the operation above what can be accomplished in a single large tank. About every ten minutes the honey should be stirred so as to mix the melted and unmelted, and this doubles the rapidity of the job; and it can be melted this way without heating it above 100 degrees. The less honey is heated, the better.

Often I melt a batch and put it into cans during the evening. Rainy or cold days can be nicely utilized this way; and the women folks are usually glad to have their fire kept in good order — that is, where wood is used. The housewife can bake without interference with my honey-dishes; and if I leave one dish out she can put on a kettle of meat or vegetables to boil; and ironing clothes can be carried on by using one or two spaces and raising the hood when putting in or taking out the irons; and during it all I get considerable time to read a bee journal besides digging out the candied honey, attending to it while on the stove, and pouring it into jars. I put it into jars while warm. It is made somewhat thicker by this heating, and when it becomes cold it is very thick. The air-bubbles rise then more readily, leaving the jars very bright and sparkling. So you see there is quite a round of economy connected with this outfit. The outfit shown is such a one as I have. If the stove were smaller I would use fewer dishes of honey on it, and make the hood to correspond. I have used a single can for melting beeswax, making a hood for that.

Chatsworth, Cal.

[The scheme here shown of utilizing second-hand square cans that almost every bee-keeper has around home is most excellent. In fact, there is a great variety of useful articles that can be made out of such cans. For instance, by attaching a wire bail to the opposite sides of one of these cans from which the top has been cut off we get a first-class pail. By cutting a can horizontally or vertically through the middle we get two pans. One set will be oblong and the other square. One of the former, when placed on an oil-stove, would make an excellent heating-pan for honey-knives during extracting. Such pans also would come handy for wash-basins at out-yards, and if they should be stolen there would be no great loss. They could be used for cooking and baking at out-yards, up in the mountains, or out on the plains, by bee-keepers who are "baching it," and there are many such.

The melting-tank idea here shown is only one of the many uses to which these honey-containers can be put. Very often bee-keepers pay a good price for special apparatus (and any thing special always costs), when the common article around home, by a little ingenuity, can be used almost as well, and at very little cost. A dollar saved is a dollar earned —Ed.]

A PLEA FOR CHUNK HONEY.

Sell More Honey by Giving Your Customers What they Want.

BY W. T. DAVISON.

There are three ways of getting honey from bees: First, by using shallow extracting-frames and running for chunk honey; second, by running for section honey; third, by running for extracted honey.

My aim is to use all three of these methods of producing honey, for by doing so I shall be able to sell more honey than ever before. I have customers who don't want chunk honey, because it granulates, and is hard to melt. They want section honey because it doesn't granulate as a rule, and looks much nicer to them. Others want the chunk honey because they generally get more honey for the same money, and they get a good friction-top brick that can be used by any family, and can be carried or hauled any way; and if it turns over, the honey is not hurt. Then a good many people don't want comb honey of any kind. They want extracted. I am setting the example of using extracted honey instead of molasses, and some of my customers seem inclined to follow the same example. My extracted-honey trade is as good as or better than the chunk or section trade.

There are all kinds of people who want all kinds of honey.

Any man can get more chunk honey than he can section honey, and it sells here at exactly the same price; but to please all I must have section honey along. I can get more honey in sections by using those extracting-frames to coax the bees into the supers. I sometimes have a few colonies that are a little weak, and they will not work in the supers at all, but will fill the brood-chamber full of honey and crowd the queen almost clear out by having an extractor to use on these colonies. I get some honey anyhow; and when I empty the combs the bees will go to work. Sometimes some of my shallowest frames have dark or damaged combs. I just extract those combs and put nothing in the chunk honey but first-class honey with nice combs; then when you put your chunk honey in friction-top buckets in nice shape, pour in extracted until the combs are covered.

Velpen, Ind.

[It is probably true that many of our honey-producers, especially those who dispose of their product in their own locality, do not cater enough to a certain trade that would take very kindly to chunk honey or "bulk honey," as it is called in Texas. Where a bee-keeper is well known he would have no difficulty in disposing of his product in that form. It is more suggestive of the honey of the old days on the farm; and if the mind of the consumer can be disabused of the notion that such honey is a mixture of glucose, with pieces of dry combs swimming in it, he will probably take it in preference to honey in any other form. One difficulty with comb

honey is that every section, in order to get a good price, must be nearly perfect; but in the production of chunk honey the problem is comparatively simple—even simpler than the production of extracted honey. No matter how uneven the comb or the cappings it would all pass as first grade. No special comb-honey appliances will be required. The only requisite is good new combs of a flaky whiteness and a good grade of honey. Our correspondent makes some good points, and we hope our readers will give them careful consideration.—ED.]

NEW YORK STATE BEE-KEEPERS' CONVENTION.

Reported by D. Everett Lyon, Correspondent for Gleanings.

The New York State bee-keepers' convention met at Geneva, N. Y., Dec. 18 and 19. The forenoon of the first day was devoted to the annual business meeting of the Ontario County Bee-keepers' Society. The weather was ideal, which should have brought out a much larger representation than was present. Owing to the unexpected absence of one or two of the speakers, the regular program was not fully carried out.

Nevertheless a very interesting session was held, and a profitable discusssion of important phases of bee-keeping was carried on.

According to the reports of the foul-brood inspectors, there was considerable of the disease present in certain parts of the State; but so thorough has been the inspection that what disease exists is under absolute control. Let it be said to the credit of New York State that a more intelligent and thorough corps of inspectors does not exist.

Mr. Charles Stewart read a very interesting syllabus of reports from the inspectors from other States, embodying ideas for a foul-brood law that shall be the same in all States.

Mr. West gave a very instructive talk on the uses of a cell-protector.

The question of wintering, and selling honey, came in for a good part of the discussions.

The roll-call of the delegates to the New York State bee-keepers' convention that followed showed that 36 delegates were present.

Mr. W. F. Marks, of Clifton Springs, on ballot received 34 votes and was elected to the office of president.

ANNUAL MEETING OF THE WORCESTER COUNTY, MASS., BEE-KEEPERS' ASSOCIATION.

BY A. H. ESTABROOK.

The seventh annual meeting of the Worcester County Bee-keepers' Association was called to order Saturday, Jan. 12, 1907, in Horticultural Hall, Worcester, at 2:30 P. M., by Pres. Burton Gates. After brief reports the following officers were elected:

President, Burton Gates, of Worcester; Vice-president, F. H. Drake, East Brookfield; Second Vice-president, Charles Goodell, Worcester; Secretary and Treasurer, Arthur H. Estabrook, Leicester.

Considering the weather, which was the worst for more than a week, there was a very large attendance, there being present nearly forty bee-keepers.

Particular attention was paid the status of bee disease in this State. A copy of the proposed bill for the State of Connecticut, for protective legislation against bee-disease, was at hand and discussed. Not a little favor of inspection in Massachusetts was manifest. The secretary was directed to correspond with the Massachusetts Bee-keepers' Society and see what steps should be taken. Further details of the status of disease, and the feeling toward inspection, are desired.

The hope was expressed that inspection would not only reduce the diseases of the State, but that it would do much to elevate the bee-keeping methods and do away with the primitive box hives now not a little used in this State.

It was voted to hold on the 9th or 16th of February, according to the convenience of the speakers, an all-day convention and institute with the State Board of Agriculture. The full program and exact date can be learned from the secretary. There will also be a banquet at noon. Every one is invited to attend the meeting and the banquet (the price of which will be 50 cents) All sorts of implements, of inventions, and the products of bees are solicited. Table space will be furnished. The gathering, as last year, will bring together several hundred of the representative bee-keepers of New England. You can not afford to miss it.

Clark University, Worcester, Mass.

GOVERNMENT PUBLICATIONS ON APICULTURE, ETC.

A mistaken idea seems to have gained currency among those making application for government publications; namely, that the authors of publications should be addressed personally, whereas all requests for such publications as are distributed free by the Department of Agriculture should be addressed to the Honorable Secretary of Agriculture, or, in case of special publications, to the chief of the bureau under whose direction the publication was prepared. Those apicultural bulletins which may be distributed free can be obtained by addressing letters: *Bureau of Entomology*, adding the words *Apiculture*, and also *United States Department of Agriculture*. Publications to which a price has been

attached should be obtained directly from the Superintendent of Documents, Government Printing Office, Washington, D. C.

FRANK BENTON.

Washington, D. C., Jan. 3.

FEEDING BEES; WHAT QUALITY AND QUANTITY OF SUGAR SYRUP IS NECESSARY FOR WINTER?

I have seen in GLEANINGS many times that it was better and cheaper to extract the honey and feed sugar; but I do not think I have ever seen any answer to the following questions:

1. If 20 lbs. of sugar be dissolved in water, and then evaporated to the thickness of honey (11 lbs. to the gallon), how much will the whole weigh?

2. How many pounds of sugar will be needed if fed as rapidly as possible to give a swarm 20 lbs. of sealed stores?

3. What proportion of water should be used for this purpose?

4. Should any honey or any thing else be added? if so, how much?

BENNET C. WHITNEY.

Plainfield, N. J.

[1. 25 lbs.

2. Depends on circumstances, but 25 lbs. would be safe.

3. If fed early, feed may be thin; that is, as much water as sugar and often more. Later it has to be thicker, as the bees may not get a chance to evaporate it.

4. No. Some recommend tartaric acid to help "invert" it. You can save a cent a pound if you buy West Indian sugar in yellow crystals. It may be purchased in New York.—ED.]

WHY QUEEN-CELLS WERE CONTINUALLY RAISED; THREE REPLIES TO THE QUESTION ASKED BY HARRY BASSET, PAGE 1377.

I notice in GLEANINGS, Nov. 1, an article from Henry Bassett, asking for an explanation "why the bees started queen-cells when he gave them a frame of brood before the young queens began laying." It has been my experience for 25 years that, if you give to a colony having a virgin queen a frame of brood containing eggs they will kill the virgin and start cells. Give all the brood and eggs you like *before* the virgin hatches, but *no* more until she is *mated.*

Montgomery, Ala. D. R. KEYES.

REPLY NO. 2.

It is likely that Mr. Bassett gave eggs and larvæ to the colony with the young virgin queen, so they killed her and started cells every time. I had the same experience several times when I was new in the business. Generally speaking, it is safest for the *average* bee-keeper not to open a hive which has in it a young virgin queen. Wait until she is ten or fifteen days old. She is then probably laying; if so, you can safely give eggs, larvæ, and sealed brood, but better is hatching brood only If you feel that you *must* build up a nucleus or colony which has a young virgin, give them only sealed and hatching brood.

I write this because I have known so many good young virgin queens to be killed because of giving the colony eggs and larvæ.

Reading, Pa. W. D. ACHORD.

REPLY NO. 3.

Mr. Bassett's case of loss of queens, page 1377, is nothing strange if he gave them brood before his young queens began to lay, as I take it he did from what he says. I supposed everybody knew that bees with a virgin queen will always start new cells if given eggs or brood, and the virgin will turn up missing. I had the same thing happen dozens of times before I learned the trick. Don't give the brood until the young queen lays, then you can give as much as you like. Of course, this means unsealed brood of suitable age for rearing queens. Combs of *all* sealed brood can be given without harm at any time. Why this is the case with queenless bees and not with bees that have just cast a swarm has been a question that has puzzled me more or less; but I have reason to think I have learned the *why* of the case.

Marion, N. Y. J. A. CRANE.

WIRE-CLOTH SEPARATORS; MORE PROPOLIS IN THE SECTIONS.

I have given the wire-cloth supers a thorough test, both by having half of the super Danzenbaker and half wire cloth, and also the wire-cloth super alone. All of my Danzenbaker sections are salable, with the exception of possibly three or four per cent, so far as having bee-bread stored in them, while 75 per cent or more of the wire cloth are peppered with bee-bread. The worst sections had from 10 to 20 cells filled.

Nearly all the sections were filled too full for shipping; that is, about ⅛ inch more than flush. Now, the above is not written to condemn them but simply to have you know facts. I am satisfied that the Danzenbaker separator can be used in place of the wire cloth, and I don't know why that should not produce Danzenbaker quality. I am so using them, but don't know results.

I certainly feel reluctant to go wholly back to the Danzenbaker in its entirety, as I positively believe there is a compromise that I can not afford to miss. And as for "what I would use if I were to start again," I wish to say that I think he who is not willing to give up the *modus operandi* of yesterday for that of to-day, be it his pet accomplishment or that of others, will, in the near future, lose in the race for honey and the ready cash therefrom. GEO. W. BABCOCK.

Clarkson, N. Y.

FARMERS' INSTITUTES; WHY DISCUSSIONS ON BEES AND HONEY ARE VALUABLE.

I have noticed at different times in GLEANINGS where you advise bee-men to take advantage of farmers' institutes to spread knowledge of bees and honey. I prepared a paper for beginners in apiculture for an

institute last year, and I may have another paper at the next meeting, on "Honey—its Food and Medicinal Value." I find the institute people willing to listen to discussions on apicultural affairs. FRED A. PARKER.

Lompoc, Cal.

[It is only too true that the general public is painfully ignorant on the subject of bees and honey, and much good can be done by presenting the truth at such meetings of intelligent, up-to-date farmers. Honey will become more of a necessity and less of a luxury when more is known about it, and when fewer people believe that comb honey is manufactured; that our extracted honey of to-day is the same as the strained honey of 1850; that all liquid honey is adulterated because it "turns back to sugar again," etc. Yes, intelligent people believe these things, and more too.

Then such a paper read at a farmers' institute will nearly always be published, and more good will be done. The one mentioned by our correspondent was published, and a copy of the paper sent us. It was along the right lines, for, though full of suggestions to beginners, it could not help being interesting to any one. And, what is more important, such papers always stimulate the demand for honey.—ED.]

BEE-KEEPING IN ALASKA.

April 14 I started from near Beaverton, Oregon, with nine hives of bees. I went on the cars to Seattle, Wash. The combs in one hive broke down, and the bees died on the way to Seattle. The remaining eight hives I took on a steamboat to Seward, Alaska. In one of these the bees starved before I took them out of the warehouse. I opened the remaining seven hives and let the bees have a fly. May 11 I took the bees on a steamboat for Kenai, where we arrived May 13. On May 14 I got a place to set the bees, and opened the hives and let them fly out and work. The seven stands are all in fair condition, and the bees are working nicely on willows, which are in full blossom.

MORRELL E. WARREN.

Kenai, Alaska, May 15.

A BEE VEIL AND SHIRT COMBINED.

I am a bee-keeper in a small way. I have always dreaded going to work among my bees, and the consequence has been that I have many times put off from day to day work that I knew ought to be done. I have, till now, been unable to protect my neck from being occasionally stung, and also my thumbs and first fingers where I have cut off the gloves to facilitate handling combs. But I have now perfectly protected my neck, and reduced the stings on my hands to a minimum. I make an overshirt of denim or overall cloth; but instead of fastening it around my neck I continue it up so as to cover my hat-brim like the ordinary veil. The shirt is made to reach the knees, being put on over the head and tied around below the waist. For seeing, I use a piece of black veiling with meshes as large as can be had without giving passage to bees. This veiling is about 3×5 inches, and immediately below this I have a piece of wire cloth about 4×4, such as is used in screen-doors. This is for ventilation. The gloves have a small piece cut out over the balls of the thumbs and fore fingers so that the exposure is as small as possible. The above may not be new, but I have never known a dress so made. E. M.

Auburn, N. Y.

THE ALEXANDER PLAN OF BUILDING UP WEAK COLONIES; USING WIRE CLOTH FOR THE FIRST 48 HOURS.

I tried the Alexander plan of building up weak colonies last spring, on one weak colony—i. e., one very weak and one very strong. Instead of using the queen-excluder between the two colonies the first 48 hours, I used wire cloth; and then when I did put the excluder on, every thing was fine—no fighting, no bees returning to the old stand, nothing but peace and harmony.

I tried the plan on one colony last spring to see how it would work, and was so well pleased with it that I will try it on a larger scale next spring—i. e., if I have any weak colonies. But I will use the screen first.

LET EVERY MAN USE THE FRAME HE LIKES BEST.

There has been a whole lot in GLEANINGS about which is the best frame to use, which is the best way to shake bees off frames, etc. What I should like to see is, after you have harvested a fine crop of comb honey, a way to keep the moths out of it. I don't see any need of so much argument as to which frame is the best. If any one wants to use the loose hanging frames, and space them by guess, let him do so; but let him quit writing long articles in their favor. As for me, I know what kind of frame I want to use better than he can tell me. I have never used any thing but the self-spacing Hoffman, and I intend to stay with it. JOHN O. HIGHTOWER.

Excelsior Springs, Mo.

AN UNFAVORABLE REPORT OF CAUCASIANS, FROM JAMAICA.

I have made a thorough test of the Caucasian bees in several localities, and have found them unsuitable for this climate. Being very gentle, the red ants and other pests destroy them; moreover, they are very poor honey-gatherers. At one of my apiaries I had 50 colonies of them, and during the rains I lost nearly all, while the Italians in the same yard all survived. F. A. HOOPER.

Hope, Jamaica, Aug. 16.

FASTENING SUPER FOUNDATION.

I fasten my extra thin foundation with a Daisy foundation-fastener. This year I dipped the edge of each piece in wax to give a better hold. ROBT. T. MONTAGUE.

Christiansburg, Va.

Be still, and know that I am God.—PSALM 46:10.

When Wooley gave us that wonderful address in the Methodist church, at St. Louis, Mo., a young girl sang a voluntary that has followed me in memory occasionally ever since. As nearly as I can judge it was that old hymn, "My Heavenly Home is Bright and Fair," with variations, in sheet-music form. If any one who was present, or anybody else, can send me the music I should consider it a *very* great favor. I have found it in the books, but neither music nor words are exactly as she sang it. When that great audience was spellbound by her wonderful rendering, she closed with the words, spoken slowly and with great emphasis, "Reconciled to God." The effect was such that these words have followed me sleeping and waking; and whenever they come wafted by heavenly breezes a wonderful peace and joy comes with them that so fills my heart I often burst out aloud, "Thank God that *I* am finally 'reconciled to God.'"

It was the thought of this, together with the enjoyment and happiness I am now finding with my plants and chickens, that suggested the text, "Be still, and know that I am God." To get my story of to-day well before you, let me go back a little.

About Dec. 1st I wrote brother Shumard to get me about half a dozen hens of some good breed, and one or more sitting hens if possible. Later I reflected that, if he didn't succeed in getting a sitting hen, my plans would all be blocked, and so I purchased a cheap light incubator and packed it in my trunk, and wrote again to Mr. S. to have 50 eggs ready for the incubator when I arrived. The directions said, "Start a sitting hen, if possible, when you start the incubator, and run it after her pattern as nearly as you can."

When I reached the island, Dec. 17, I found they had one Brown Leghorn sitting hen, but only 41 eggs, and they had kept some of these two or three weeks because the hens didn't lay on account of hot weather. I gave the hen 15 of the eggs and put 26 in the incubator. The hens on the island celebrated the day of my coming by laying *13 more* eggs, making 39 in all by the evening of the first day. Then my "studies" commenced. Biddy was inclined to show fight at first; but I patted her on the back and called her "nice old biddy" several times every day, and we finally became *excellent* friends. We both have our own opinions of things, of course, and she has some very *decided* opinions; but we get along very well. When I found her she was out in the woods in a box nailed on a limb of a cedar-tree. I have told you about putting the box close to the head of my bed, etc. Well, next day I placed her, box and all, under the work-bench near my shop. She made no objection to the change of location, and was there several days, going off for food, etc., all right until I decided to take her out of the box and put her on the dry warm ground. She made a lot of fuss, but finally settled down over the eggs all right, but along in the afternoon she came off repeatedly. As the box was a rickety old thing I had taken it to pieces and put it inside the shop. Finally she came off the nest and began searching around for something. She found the pieces of her old box in the shop, and then came and stood before me and said in actions that spoke *louder* than words, "I want my box back again!"

"Why, you old fussy, you don't either. It will be a great deal better for you and the chickens to be right down on the ground. Go back and sit on your eggs. You belong to me, and you have got to do as I say."

"In one sense I belong to you, but I belong to God first; and what he tells me is beyond all the wise men the world has ever furnished or will furnish. I want the privacy and retirement of my box, *and I will have it!*"

Before I could open my mouth to read to her "the riot act" she hopped up on the work-bench and then went over my four-foot poultry-netting, yelling defiance and rebellion. After scratching my head a little I concluded to follow, and found her in a second nest-box that had been nailed in the same cedar-tree.

"Old lady, you must go back and take care of those eggs."

"Can I have my box?"

"Yes, you can have your old box if nothing else will do."

She went back quietly (or, rather, I carried her back); and when I fixed the pieces of the old box over and around her she seemed tolerably well satisfied; but I soon found there was something lacking. She was more conspicuous than she had been with the box before I demolished it. I fastened a wide board up in front of her, and then she gave her contented "c-r-r-r," that means every thing is all right. Just before hatching-time I thought the long hay in the nest would be a bother to the chicks, and undertook to remove it. This she objected to; and when she grabbed it out of my hands and threw it over her back, and even got off the nest to poke it back in place with her bill, I let her have her own way. On the morning of the 21st day I uttered a shout when I saw eggshells outside the nest. As soon as she saw me she gave me for a greeting that well-known "c-r-r-r" of contentment, and made no objection at all when I attempted to remove them. When, a little later, I saw several pairs of bright peering eyes with little downy heads I gave a bigger shout, and decided then and there that, though God *might* have given the children of men something prettier and handsomer than little chickens.

doubtless God never *did*. Just one more incident before dropping the sitting hen. One evening, when it began to get a little chilly, I gave her nine more chicks from the incubator (she had 18 already). As the poor motherless bits of animated life began to troop toward her she seemed a little inclined to refuse so much responsibility, and, looking down at the little downy heads *already* peeping out from under her wings, she tipped her head on one side and began a low-toned murmur. I, however, lifted up a wing and began pushing them under. At this she began reaching for bits of hay, which she threw over her back as on that other occasion. I caught on and said, "Oh, yes! you mean you want more bed-quilts, do you?" To be *strictly truthful*, she did not *say* "yes;" but when I gave her quite a bunch of soft grass she proceeded to fix the new babies in very good shape; and when we together got them well bundled up she gave her customary "c-r-r-r" of approval.*

Do you know, dear reader, that success would give us little or no happiness were there no disappointment and unforeseen obstacles mixed with it? The directions with the incubator said, "Test out the unfertile eggs on the 7th day." As this came on Sunday I came pretty near deciding my eggs were all bad, or that I had spoiled all by my bungling. I have told you how the children helped me out. Well, when the 21st day with the incubator had come and *gone*, and no sign of life, I was a good deal cast down. I went over all my books and found one of them said when the temperature was run low, or a good deal of "cooling" was done, it might take another day. Just before sunset I took another look at the eggs I had turned and cooled for 21 days past. Was it possible that these inanimate objects were soon to spring to life? Was there really some hidden power within that was to burst those shells and let life and beauty come forth? I remembered our recent Sunday-school lessons. Some great writer suggests our Lord came forth from the tomb even *before* the stone was rolled away. He of his own will power "burst the bands of death." While I was watching I heard a little tapping. Disappointment gave place to joy. The joy was all the greater *because* I had been cast down. I soon found the egg that was being chipped, but the chipping stopped. After an hour or two, and no more evidence, I told Mr. Shumard's people I guessed my eggs were all spoiled after all, for the chicks that had started to come out had evidently "died in the shell" through weakness. None of them could give me much hope except Flossie. She declared they always "stopped to rest," and that they sometimes "rested" a long while. Before bedtime my hopes came up again, and I was rewarded by seeing, for the first time in my life, a chicken come out of the shell. Dear me! It was nothing like what I expected. Instead of being handsome he was about the homeliest object I ever looked on. As soon as it was fairly loose he began in a sort of infirm way to try to clamber over the eggs. After exhausting himself, apparently, in the vain attempt, he would lie down flat, close his eyes, and "rest." I at first supposed he lay down to die; but, "no, sir, 'e." After a brief panting for breath he was up and at it again. No matter how many times he toppled over or found himself head down between the eggs and heels up in the air, after a rest he took up the battle again. I thought first I would sit up and watch until his plumage was dried off; but it took too long. Before daylight I was up again, and with a strong lamp was at my post before the glass of the incubator. I thanked God again when I saw there was a troop of them clambering over the eggs, tumbling full length on the thermometer, so that for about half the time I could not read the temperature. Then, again, they tumbled the thermometer down between the eggs almost as fast as I could put it back.* I suppose, of course, some better arrangement is made with higher-priced machines. As soon as the chicks are dried off we can remove them from the eggs; but what I should like to know is whether chicks hatched under a hen go through the climbing and resting. Stoddard, in his book the "Egg Farm," puts great emphasis on exercise, and almost claims *sufficient* exercise will banish all ills poultry is heir to. These in my incubator get enough at a very early age, sure. Dear friends, I have watched for the first visible indications of life by holding the egg in a sunbeam that comes through a crack in my shop, and have watched the growth daily until the eighth day, when I could see it no longer. I have watched again, as I have told you, when the chick leaves the shell. I have seen these same chicks, before they were two days old, spring clear up on the mother-hen's back. I have seen them at the same age scratch and wallow in the dirt as their mother does. As I look on in wonder at this marvelous development of muscular strength, and also mental activity, something impels me to stand with uncovered head and listen in mute reverence to the words, "Be still, and know that I am God."

This winter here is very unusual. We have had no rain to speak of for almost 100 days—sunshine always, every day. Some of the chicks, when taken from the incubator, or, rather, from the brooder under it, seemed rather feeble; but this Florida sunshine soon cured them. They will lie down flat in the sun, and close their eyes, and sleep, and then get up and exercise. Their medicine is exactly along the line of Terry's teachings. Exercise, sleep, sunshine, and its accompaniment, outdoor air and proper food (*raw wheat* mostly), and why shouldn't they grow?

* When the eggs were about half way along I one day dropped a screwdriver in the incubator. Two eggs were broken so some of the white ran out. I mended them with courtplaster, and one of them hatched a nice chicken.

* Next morning there were bright eyes and downy heads sticking out from between her feathers, almost all over her, and it was not only interesting but comical in the extreme.

Those first hatched are now five days old, and beautiful penciled wing-feathers as handsome as flowers are now visible. And this reminds me that, right before the window where I write, is a little cloth-covered Florida greenhouse where I have potted plants and cuttings. I am going to take some of the plants in pots over to our Sunday-school tomorrow, and show the children the wonderful root-growth that is taking place, the marvelous activity that is going on under ground out of sight* (as well as inside the eggs), and then I want to point out that all this is God, who is the very center of all life and activity and power. Shall we not do well to pause occasionally and look up in reverence while we repeat the words of the psalmist, "Be still, and know that I am God"?

THE BLACK HILLS MINING INDUSTRY OF SOUTH DAKOTA.

From Belle Fourche I went to Deadwood. Now, there are mountain streams gushing out of the hills, and coming down the canyons all through the Black Hills, especially in this mountain region. I have told you before how it animates and inspires me to see pure crystal running water, as I listen to the music of "babbling brooks." But, oh dear me! there is not much to attract the eye by the babbling brooks below Deadwood and the city of Lead. You have the "babble" all right, but the water looks more like tar than any thing else, and a poor kind of tar at that. It is more of a dirty red color. Nobody told me, but I presume this is caused by the water being impregnated with the minerals and pulverized rock (from the stamping-mills) that come down from the mountain regions above. Deadwood and Lead are about a mile apart. But, oh what a mile that is! It was dark when I left Deadwood; but as the train was climbing the mountain laboriously, and twisting continually to the right and then to the left, I kept looking out at the rugged rocks. Pretty soon I began to get puzzled and rattled. I had expected to see only two good-sized cities; but every time we curved into the mountain and came out of a cut a little beyond, I could see a good-sized town flashing its electric lights, etc. Pretty soon I said to a passenger, "My friend, will you please tell me if these towns that come into view are different ones, or are we looking at the same city all the time?"

"Why, my dear sir, it is one and the same city of Deadwood that you see as we twist in and out among the hills. If you will notice, it is a little lower down every time we get a glimpse of it."

And so it was all the way as we approached the city of Lead. Afterward in going over the same scenery by daylight I saw there was a steam railway and an electric railway, and ever so many tram railways for carrying ores from the mines. The combination of railways there is really bewildering. In the outskirts of the city of Lead three railways cross each other on the same spot at different elevations. Away up in the air, suspended on steel derricks, is the loaded train of the great Homestead mine; exactly under it is the elevated train of the Black Hills and Wyoming Railroad; and exactly under *that* is the Deadwood Central train. These ore-trains cross the valleys on tall iron piers, and dump their contents into the very top of or a little above the roof of the great building used as a refinery. Then the ores and refuse minerals go down by gravity until they get to the bottom.

The sound of the stamping-mills that keep up their work day and night, week days and Sunday, is sometimes almost deafening. The ore is pulverized and stirred up with sufficient water to reduce it to a liquid form; then it is carried in pipes to the troughs of mercury where the gold is absorbed or taken up, and the waste black water I have spoken of, or mud, is washed out of the way.

The city of Lead has about 10,000 inhabitants. It is located on the side of a mountain. There are several streets running parallel, pretty nearly level. There are no cross-streets only what you might call a pair of stairs that connect the other streets. For instance, when you are walking on the sidewalk on one particular street you can look down the chimneys in the street below. By driving clear out to the extreme end of the street you can swing around so as to get into the street above.

I wanted to write up something about gold-mining; but the great Homestead, said to be the largest in the world, does not at the present time admit visitors. An army of something like 2000 men are employed here. I could go around in the stamping mills and see them crush the ores, but nobody is permitted to go into the cyanide-plant. Let me explain a little. When I was a jeweler, and did silver plating, we used to dissolve these metals in a solution of cyanide of potassium.

*One day when I was busy with my plants Mrs. McAuley asked me to come over to the Gulf if I wanted to see a real "school of fishes." I knew expert fishermen could tell at a glance where to plant their nets, but I never understood it. In a little time I saw a dark spot in the water, with fish darting up so there were more or less in the air all the time; and as we got nearer, the water was really black with them, and they were packed so densely that their fins were sticking above the surface all the time. They were slowly moving toward the Pass, or passage through the Keys, into the shallow waters of the Bay. They circled about, yet kept massed together, very much like a swarm of bees, and moved forward at a pace less than a slow walk. Mr. McAuley said there were, without doubt, 10,000 lbs. in that school. How should this great multitude know there was a "Pass," and *where* it was, so they could come *miles*, almost in a straight line for it?

Gold is supposed to be proof against acids; but this cyanide is a solvent where the acids can not touch it On another page I have told you about going out of the city to find a lodgingplace. Well, when I stepped off the trolley-car I asked a stranger the way to a hotel. He said it was perhaps a quarter of a mile away, and that I might not find it alone; but he said if I was not in a hurry he would show me the place. I noticed that he was partly crippled; and as he had several packages to carry I offered to assist him. We chatted pleasantly on the way, but it was so dark we could not see each other's face. I bade him good night when we separated, and thought no more about it. I had planned to take, the next morning, a trip up to the summit of Bald Mountain, on an ore-train. When I arrived at the little depot of Blacktail Gulch I found I had something like an hour to spare. By the way, did you ever before hear of such an outlandish name for a town as "Blacktail Gulch"? It seems as if the name alone ought to kill it, even if the saloons, so plentiful there, did not. Well, I suppose the name came from the black dirty water that goes rushing and tumbling down the hills. It is the "tailing" of the great cyanide-plant. Well, while waiting for the train I thought I would go up and get an external view of that cyanide-plant, even if I could not go inside. Before all the doors was the legend, "Positively No Admittance!" Across the broad open doors of the engine-room was a heavy bar of wood, with "No Admittance" on it. I went up and leaned against that bar, and was admiring the beautifully kept engine and other machinery. As the engineer came around I said, "My friend, I will not ask to be admitted, but I suppose the company will not object to my looking over your beautifully kept massive engine as far as I can see it from where I stand." He smiled pleasantly, put out his hand, and said, "Why, stranger, somehow your voice sounds familiar to me. Where have I seen you recently?" And, strangely enough, it seemed to me as if *his* voice sounded familiar. Finally we both burst out laughing. Said he, "Why, you are the chap who helped me carry my bundles up from the depot last night. It is funny if I can not invite you in on my own premises."

I said something about not wishing to break the rules.

"Break the rules?" he said. "Why, if anybody makes any objection I will just tell them you are a friend of mine. I am sure, Mr. Root, *you* will not steal any of our secrets."

Then he took me all over that great plant —one of the largest in the world, and explained as well as he could, so as to get into my comprehension, how they managed to get the gold out of that dirty water. By the way, some of the big round tanks filled with muddy water were big enough not only to hold a good-sized dwelling, but a pretty fair-sized meeting-house, steeple and all. These were the settling-tanks. Machinery stirred up the ground ore and water, and then the gold, being so much heavier, settled to the bottom. This settling does not get it all, for there are many complicated processes to go through with in order to get the last particle before the dirty water is allowed to get away and run down among the hills from *Blacktail* Gulch.

Twisting and turning up the mountain by daylight was inspiring. In ordinary railway travel the road follows along the canyons so we do not get any such view as is seen by the tourist who climbs to the mountain-top; but *this* ore-train goes almost to the very summit of Bald Mountain. The view from the top, of the city of Terry, S. D., is particularly grand. Terry is handsomer, even if it is smaller, than either Deadwood or Lead. Beautiful native evergreens cover a great part of the mountains near this region, which adds very much to the scenic beauty of those grand Black Hills.

The weather was quite warm and sultry when I took the train for Rapid City, my next stop. Just about dusk I managed to get a seat near an open window, and was greatly enjoying the delicious breezes perfumed by the resinous pine-trees along the railway. While sitting there the conductor touched my shoulder and asked if I would not take a seat with the gentleman across the aisle and let a woman with some children have my place. Now, I shall have to own up that I felt a little cross over being deprived of the fresh air, and of being asked to sit beside a very commonplace-looking man. I was tired and hungry, and I suppose that is one reason why I did not rebuke that selfish spirit; but pretty soon I was ashamed of myself Let me digress a little. Ever since that incident I told you about ("Blankety Branch"), the man who went about announcing who he was, etc., I have been a little more careful about telling folks who I am unless they particularly inquire. Besides, I did not feel very much in a talking mood as I sat down by that commonplace-looking individual. Pretty soon he said meekly, "Stranger, didn't I hear you say you came from Ohio?"

I asserted.

"What part of Ohio, if I may inquire?"

I told him I lived about thirty miles south of Cleveland

"Why, then you must be not very far from the Root people at Medina."

At this I began to smile and took a better look at the man. He seemed to be quite an honest-looking old farmer, after all. When I told him that I was one of the Roots—in fact, that I was A. I. Root himself, he slapped his hand on his knee and then extended it to me for a shake. He explained why he was interested in this wise:

"A year ago a swarm of bees lit in one of my apple-trees. I hived them in a box, and then began to inquire of a neighbor something about how to manage them. He said he had some books that would tell me, and he gave me one of your journals to read. I read it all through, Home talks as well as the bee talk, and I liked it so well I asked him for

some more. He gave me perhaps a dozen copies of GLEANINGS. The more I read, the more I was taken up with them; and, to make a long story short, when he told me there were back numbers for several years up in his garret that I might have if I would go after them, I went and got the whole pile. I read those journals off and on all winter, and I said to my wife that I would enjoy meeting that man, and having a talk with him."

There, friends, you have the story of my rebuke. God, in his infinite goodness and mercy, was planning to give me a chance to help a hungering soul, and I was *cross* about it. While I am on this subject let me relate another incident. I was crossing, on a pretty little steamer called the "Sailorboy," from Sturgeon Bay, Wis., to Menominee, Mich. I thought I would keep quiet for once in my life, and not let anybody know who I was unless particularly asked. Of course, I went around and chatted with the people I got acquainted with, for my conscience would trouble me if I did not try to bring sunshine wherever I went, so far as I could consistently. Just as we got in sight of our landingplace a man whom I had been chatting with for some little time said, "Did you say you lived in the northern part of Ohio?"

I nodded.

"May I ask your name?"

When I told him, he put out his hand and said, "Why, bless your heart, Mr. Root, why did you not tell us who you were before?"

I asked him if he was a bee-keeper. "No," he said, "I am not a bee-keeper, and I do not take your journal; but I read the *Practical Farmer*, and I saw what T. B. Terry said about your coming to his house and making a good square meal on six cents' worth of rolled wheat, dried peaches, and nuts; and, my friend, I think that man Terry is one of the benefactors of the human race. He has not only enabled me to save doctors' bills, but through his teachings I am enjoying better health than I ever did before in my life. I am eating and enjoying the grains, nuts, and fruits, and taking a cold bath every morning of my life, and a good bit of exercise in the open air. I am doing more work, and am of more use to myself and everybody else than I had been for many a long year before I followed his teachings."

Then he went around among the passengers on the boat, saying, "Here is Root, the bee-man, and he never told us who he was until just now."

Now, friends, I am well aware there is such a thing as being in too much of a hurry to tell people who you are and where you live, etc; but there is also another extreme to be avoided. Jesus said—in fact, he laid the commission right squarely on our shoulders: "Go into all the world and preach the gospel;" and how can we preach the gospel of Jesus Christ, or even the gospel of good health or pure air or any thing else, unless we talk to people and get acquainted? Over and over again in traveling I have said to myself, "Now, old fellow, see what you would have missed had you yielded to the temptation to keep still and not tried to interest yourself in other people and their affairs."

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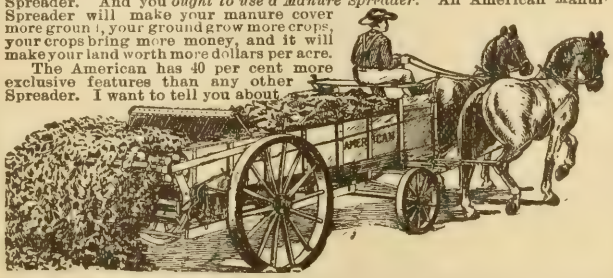

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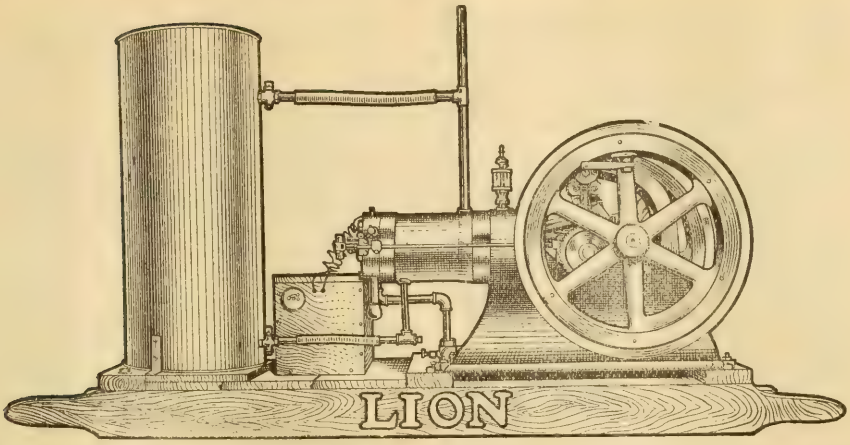

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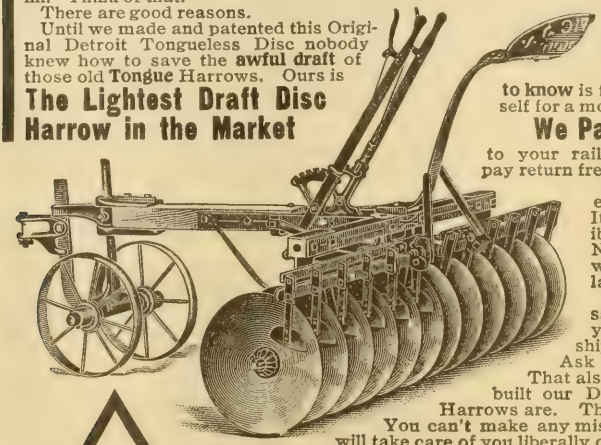

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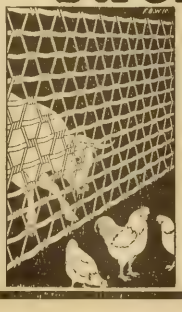

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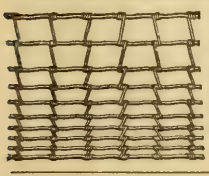

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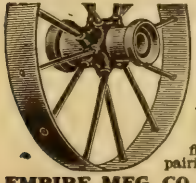

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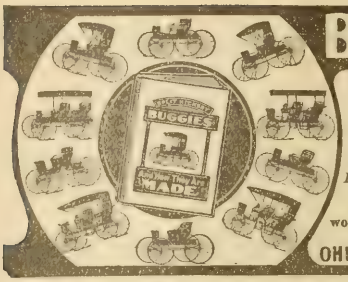

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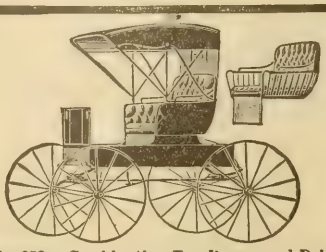

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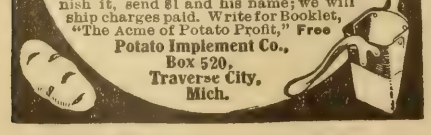

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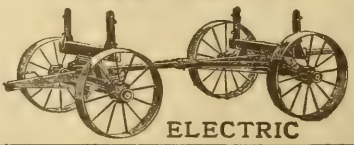

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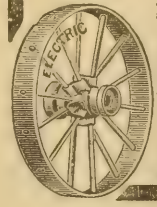

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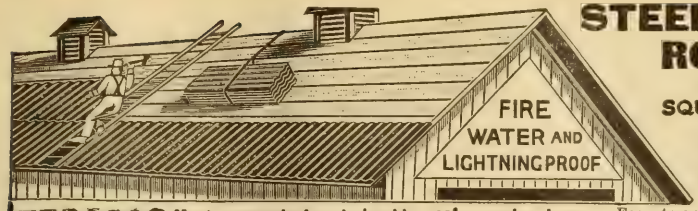

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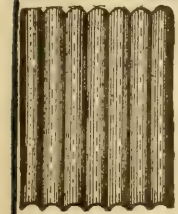

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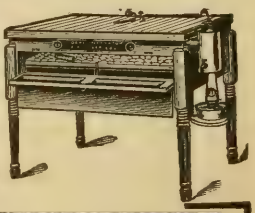

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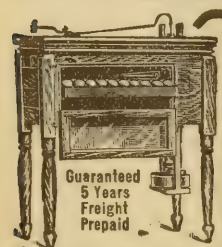

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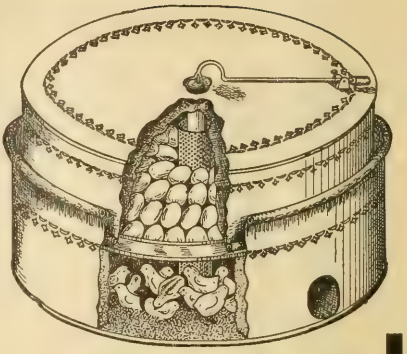

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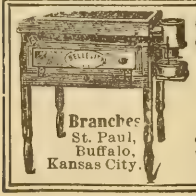

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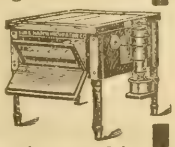

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The Sure Hatch Book is a safe guide because it is based on the successful experience of the men who in ten years built up the business of the

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from nothing to the largest in the world.

Get a Sure Hatch and make money. Over 110,000 others are doing so—why not you? Pays for itself with one hatch. Runs itself. Does all we claim or we take it back at our expense. Guaranteed for Five Years. The risk is all on our side.

Don't buy an incubator until you get the Sure Hatch Book and read up.

Send postal today.

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Box 107, Fremont, Neb., or Dpt. 107, Indianapolis, Ind.

"Perfect" Incubator

60 Egg Incubators . . . $4.00
120 " " 6.45
240 " " 9.25

The safe way to buy an incubator is on trial. That's the way the "Perfect" is sold. Brooders at equally low prices. Write for 200-page free book.

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Tells all about pure-bred poultry, and describes and illustrates 60 varieties. Ten beautiful natural-color plates. Gives reasonable prices for stock and eggs; how to cure diseases, kill lice, make money. This valuable book only 10 cents.

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R. I. Reds

White and Barred Rocks, Wyandottes, Lt. Brahmas

Hardy, prolific, farm-bred, pure stock. For birds, moderate prices. EGGS TO HATCH at 10 cts. each.

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40 BREEDS Fine pure-bred chickens, ducks, geese, and turkeys. Northern raised; hardy and very beautiful. Largest poultry-farm in the Northwest. Fowls, eggs, and incubators at lowest prices. Send 4 c. for fine 76-page 13th annual catalog.
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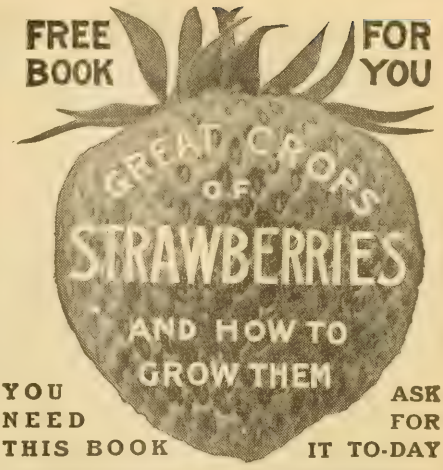

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big, red and luscious are grown from **ALLEN'S** choice vigorous strawberry plants. None better. Good Luck, Chesapeake, Virginia and Cardinal, **new** Glen Mary, Haverland, Dunlap, Marshall, Klondyke, Gandy, Bubach, Climax, and all best standard sorts, 90 varieties. Prices right. **DEWBERRIES,** Austins, Lucretia, and Premo. I have big stock and they are fine. Also Raspberry, Currant and Gooseberry plants, and Grape vines. In **SEEDS** I have the leading varieties for field and garden. My 1907 supply of Peas, Beans, Watermelon, Cantaloupe, and Cucumber seeds **is very choice.** Millions of vegetable plants in season. My 60 page Catalogue for 1907 tells about lots of good things for the farm and garden and where to get them. **IT'S FREE.** Send name and address on postal to-day to

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The Best Strawberries
grow from Farmer's plants. Introducer of "Oswego" strawberry and "Plum Farmer" raspberry. Fruit plants, all kinds. Catalog free. **L. J. Farmer, Box 708, Pulaski, N. Y.**

Hardy Healthy Trees GROVER'S TREES GROW
The only kind we ship. Free from scale and all diseases. Buy direct from grower. A complete line. Wholesale prices. Illustrated Catalog of Fruit and Ornamental Nursery Stock free.
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We grow our **Hardy "Blizzard Belt" Evergreens** in ten million lots. To prove they are healthy, well rooted and vigorous we offer to send **Four Fine Sample Trees,** 3 years old **Free** to a limited number of property owners. Mailing expense 5 cts which send or not as you please. A postal will bring them. Our **Catalogue** containing 64 colored plates of our **Hardy "Blizzard Belt"** Fruits, Evergreens, Ornamentals, etc., with a mine of valuable information for fruit growers, free for the asking. Write to-day.

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A BIG FLOWER GARDEN FOR 10¢

15 Packets. Enough Seeds for your entire flower garden: Aster, Coxcomb, Feverfew, Forget-me-not, Mignonette, Nasturtium, Pansy, Petunia, Pink, Poppy, Phlox, Salpiglossis, Stock, Sweet Peas and Saponaria, all for 10c. Also **Guide**—700 new engravings, culture, etc. Tell your friends. Write me today.

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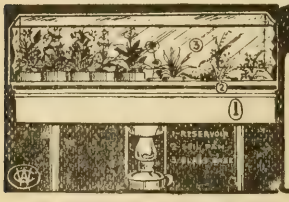

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A New Idea. Great for Farmers and Market Gardeners to test seeds. Starts seeds, plants, roots, bulbs, slips, etc., for early planting. Has propagating tray over patent circulating warm water reservoir, heated with lamp. A perfect little hot-bed or propagating house. **Simple, durable, cheap,** easy to operate. **Costs a cent a day.** Every farmer and housewife needs it. Send for Booklet with pictures. Tells prices and all about it. **The Templin-Crockett Co., 765 Caxton Bldg., Cleveland, Ohio.**

SEEDS

of the **Burpee-Quality** cost but little more than the usual kind, but are worth much more! To convince you that this is true, let us have a talk together. We have spent months of labor and thousands of dollars on

The BEST SEED CATALOG we have ever issued.

It is a **Book of 200 pages** with new half-tone illustrations from photographs. Shall we mail you a copy? It will cost you nothing, if you will kindly give a fair hearing to our claims for your patronage. **Write TO-DAY!**

W. ATLEE BURPEE & CO., Seed Growers, PHILADELPHIA, PA.

Northern Grown Seeds.

THE D AND B LINE TRADE MARK

are full of Northern life and vitality and mature earlier, better and bigger crops. **"D & B's Earliest of all Wax,"** the earliest, best, most prolific wax bean that grows. Good Seller. Money Maker. Send 12c stamps for a big packet, our new 150-page catalog of **quick growing Northern Seeds** and our **big cash club offer.** Calalog alone, free.

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1200 acre nursery and seed farm, founded at Lake City in 1868 by Dr. P. A. Jewell. Send postal card for **Free** 132 page catalog of Seeds, Plants, Trees, Roses, Evergreens, etc. We grow only **Hardy** varieties suited to the North.

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The Maule Seed Book

FOR 1907

contains 63 Specialties in Vegetables, 69 in Flowers, besides everything else good, old or new, worth growing.

You need it.

It is free to all sending me their address on a postal.

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BEST EVER GROWN

A wonderful big catalog **FREE**

Full of engravings of every variety, with prices lower than other dealers'. Oldest reliable seed grower in America. No old seed. All fresh. They will grow or will refund money.

Big Lot Extra Packages Free with Every Order.

Send yours and your neighbor's address.

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Peach Trees

fine, stocky, hardy, grown on the bank of Lake Erie; two miles from any peach orchard, free of borers and all diseases. Large stock of **Apple, Peach, Pear, Plum, Cherry, Etc. Headquarters for ORNAMENTAL TREES, Shrubs, Roses, Plants, Vines, Bulbs, Seeds. Over 50 acres of Hardy Roses, none better grown.** 44 greenhouses of **Everblooming Roses, Palms, Ferns, Ficus, Geraniums, Etc.** Mail size postpaid, **safe arrival and satisfaction guaranteed,** larger by express or freight. **Direct deal will insure you the best and save you money. Try it.** Valuable 168-page Catalogue **FREE.** Correspondence solicited. 58 years, 1200 acres.

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Buy Trees Grown on **Muskingum River**

Full Line Fruit and Ornamental. Catalog free. Freight paid. AGENTS WANTED.

Mitchell's Nursery, : Beverly, Ohio

SEEDCORN

146 bushels per acre. None like it. Thoroughbred and fire dried. Write for our big illustrated Catalog, free for the asking. A postal brings it.

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Largest seed corn growers in world

CAN YOU SELL TESTED GARDEN SEEDS AT THREE CENTS A PACKET?

If you can, we will pay you liberally for your work—CASH or PREMIUMS. Send for 50-packet trial order—say whether you want garden or flower seeds, or assortment. Name friend for reference. SEND NO CASH—we trust you. Unsold packets may be returned. The high quality of our seeds makes them easy to sell, and we treat our representatives in a way which makes your work pleasant and profitable. Send for our beautiful seed catalog, and our big premium book. We will tell you about our plan. Write to-day.

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FREE $1 PREMIUM ONLY TO BUYERS OF STERLING SEED

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Write today for most interesting and **reliable** Flower, Vegetable and Field Seed Catalog published. Explains how, on page 2, **buyers** get 11 varieties of Flower and Vegetable Seeds, worth $1—FREE

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A beautiful colored plate of our

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and our strawberry catalog of valuable information about varieties with instructions for beginners. Free to all.

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Leslie, Michigan.

SCARFF'S SMALL FRUITS **Free**

I will send free 3 splendid Blackberry plants post-paid to introduce and prove my stock the finest grown. Many of my customers realize

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My handsome, new catalog of small fruits, fruit and ornamental trees, farm and garden seeds and general nursery stock sent free. Get it—write to-day.

W. N. Scarff, New Carlisle, O.

Strawberries, Blackberries, Currants, Choice Gladiolus Bulbs.

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We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at LOWEST PRICES, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. SPECIAL DISCOUNTS now. Write to-day. Address

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North Texas . .

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will find Dallas the best point from which to purchase supplies. We have a carload of ROOT'S GOODS IN STOCK, and sell them at the Factory Prices. Don't forget that we can furnish any thing in the way of Field or Garden Seeds, Plants, and Poultry Supplies. Our large illustrated catalog for 1907 free on application. Mention GLEANINGS when you write. . . . . .

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Cary Simplicity Hives and Supers, Root and Danz. Hives and Supers; Root's Sections, Weed Process Foundation, and Bingham Smokers.

Bees and Queens in their Season. 32-page Catalog Free.

W. W. Cary & Son,
Lyonsville, Mass.

Root's Bee-supplies at Root's Prices

But f. o. b. Baltimore instead or Medina. Write for catalog L.

Rawlings Implement Co.
9 and 11 West Pratt St., Baltimore, Md.

1884 **1907**

New 64-page catalog for the New Year now ready

FOR YOU

Twenty-two successful years manufacturing bee-supplies and raising Italian bees and queens. . . . . Root's Goods in Stock.

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Something New in Honey-jars...

Cook's Square Jar combines a new feature that improves the package and reduces the cost, and is the best and cheapest one-pound glass package made. Send for circular and full catalog of hives, bees, and useful implements. . .

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail.

MARSHFIELD GOODS

MEANS

Quick Shipment, Honest Goods, Low Freight

Our sections are manufactured from young basswood timber.
Hives are almost clear lumber—they are beauties.
Shipping-cases made strong and substantial, nice, smooth, and perfect.
Send for our free catalog of supplies.

Marshfield Manufacturing Company, Marshfield, Wisconsin, U. S. A.

Fire Sale Bee and Poultry Supplies!

Come or send, and save 25 to 50 per cent on slightly damaged goods. NEW LEWIS GOODS at factory prices by return freight. Honey and beeswax wanted. State lowest price and particulars. Honey in five-gallon cans for sale. Send for new 1907 catalog.

Two per cent Discount for February Orders

H. M. Arnd, Prop'r York Honey & Bee Supply Co. (Not Inc.)
Long Distance Telephone, North 1559. 191 and 193 Superior St., Chicago, Ills.

W. H. Laws, the Queen-breeder, will as usual be on hand with his superior bees and queens for the coming season. Laws' Leather or Red-clover stock and Golden Italians, also Holy Lands and Carniolans bred separately and in their purity. Several of my customers write me that the queens received from me were the only ones that gave any surplus the past poor season. I also breed the Carni-Italian cross, the bees for white comb honey and lots of it. I have some wonderful reports from this cross. Single queen, any race, before April, $1.25; five for $5.00. I have also some extra-fine breeding-queens at $10.00 each. Safe arrival and satisfaction guaranteed. I also offer another car of bees for the coming season. Circulars on hives and queens on application.

W. H. LAWS, Box 217, Beeville, Texas.

BEE - SUPPLIES

Best of every thing needed.
Big Discount from now to April 1st. . Catalog free.

C. M. Scott & Co., Indianapolis, Ind.
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A. H. REEVES & CO.
DISTRIBUTORS OF
"ROOT'S QUALITY" BEE-SUPPLIES

Cash paid for beeswax. Send for catalog and price list. . . . . .

17 Morrison Street, Watertown, New York
Phone 1296

The Early-order Discount!

This is the dull season in the supply line, and we are offering a VERY LIBERAL discount for orders now. We furnish every thing a bee-keeper uses. . . . . Catalog free.

I. J. Stringham, 105 Park Pl., N. Y. City
APIARIES, GLEN COVE, L. I.

Queens from 50 Cents Up!
Bred from Root's Imported Italians. Write for prices, stating wants. . .
C. M. Church, Arnold, Pa.

ROOT'S GOODS FOR
Ohio and West Virginia
BEE-KEEPERS
E. W. Peirce, Zanesville, Ohio

Same Old Place

is where you get the best of queens; untested, $1.00; $4.25 per 6; $8.00 per dozen. Tested, $1.50; best breeders, $5. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy-Lands, Italians.

The JENNIE ATCHLEY CO.,
Box 18, Beeville, Bee Co., Tex

Bees and Queens for 1907

I am fully alive to the importance and value of good queens for profitable keeping of bees. I think I can raise just as good queens as anybody. I will book orders for 1907 at the following prices: Each, 55c; $6.00 per dozen; $45.00 per 100. Also eggs to hatch, Buff Wyandotte, R. I. Red, S. C. Buff Orpington, Barred Rock. Circular free.

A. H. Kanagy, Milroy, Pa.

Italian Queens

Golden, Three-banded, or Leather-colored. Write for circular to-day. . Prices right. . Queens all right.
Robt. B. McCain, Rt. 1, Oswego, Ill.

ITALIAN QUEENS and BEES

I can supply select untested Queens at 75 cts. each; $7.50 per dozen. Orders for early delivery will receive careful attention.

David S. Hurst, Box 102, Letohatchee, Ala.

Classified Advertisements.

Notices will be inserted in these classified columns at 20 cents per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Help Wanted.

WANTED.—Hustling helper in the bee and honey business. A steady job for the right man
B. WALKER, Clyde, Illinois.

WANTED.—An apiarist accustomed to large apiaries. State age, experience, and wages.
DR. GEO. D. MITCHELL & Co., Ogden, Utah.

WANTED.—A steady, bright, industrious young man who knows how to handle bees. To a man of the right stamp a good opening is offered by an extensive bee-keeper of New York State. Address
W. J. LUCH, care of A. I. Root Co., Medina, O.

WANTED.—Three practical bee-men, experienced in producing comb and extracted honey. Single American men, not over 35 years, preferred. Liberal wages per month and keep. Must come before March 15, so write me at once. C. I. GRAHAM, Kingsburg, Cal.

WANTED.—Boy of 18, or older, to work in garden and apiary; one who has had some experience handling bees. None need apply who use liquor, tobacco, or profanity. S. MAZELLA GALLUP,
Mt. Lebanon, Columbia Co , N. Y.

WANTED.—One student who wishes to learn bee-keeping (he getting his board, and, if it is a good season, and he faithful, some wages) can have a place with me. A man single, clean in mind and body, willing, industrious, and trustworthy, apply to
R. F. HOLTERMANN, Brantford, Can.

WANTED.—Young man, preferably one with at least a little experience with bees, as assistant apiarist for five to seven months. We run several yards, over 600 colonies, latest methods, fine climate. State age, experience, and wages desired, all in first letter. Give references. No tobacco, etc.
E. F. ATWATER, Box 37, Meridian, Idaho.

WANTED.—Local representative to handle the sale of our new Unrivaled Series of Charts and Surveys, showing every State and foreign country, reliable, historical, and descriptive matter, beautifully illustrated. We anticipate sale large enough to net our representatives from $300 to $800 in every county.
Address Rand, McNally & Co., Chicago, Ills.

WANTED.—Experienced bee-keeper to handle bees on the east cost of Florida; high healthy location; pure water, one mile from ocean; 4-room cottage, shop, barn, etc. Bees under sheds, lock and key. State experience and wages. Married man with family preferred. Address "Bees," Lock Box 197, Augusta, Ga.

NAVY offers excellent opportunities to young men of good character to receive instruction fitting them for promotion; good pay at start, advancement as soon as qualified. Apply to Navy Recruiting Station, Commercial Bank Building, Cleveland, O., or Postoffice Building, Cincinnati, O.

Situation Wanted.

WANTED.—Situation by man of 20 years' work with bees. Understands the business in all its branches; 39 years old, good habits, single; wages expected, $40 per month and board. Southwest or northwest preferred. W. T. LEWIS, Box 722, Lamar, Col.

For Sale.

FOR SALE.—Fine job-printing outfit.
C. A. STEBBINS, Broad Creek, Va.

FOR SALE.—4000 ferrets; some trained. Prices and book mailed free. N. A. KNAPP, Rochester, Ohio.

FOR SALE.—Dahlias, 20 kinds, $1. Catalog. St. Louis Grand Prize. H. F. BURT, Taunton, Mass.

FOR SALE.—200-egg (Excelsior) incubator, good as new, $10.00. HARRY C. DRIVER, Rt. 1, Beech Ck., Pa.

FOR SALE.—Melilotus (sweet clover) seed, $2.50 per bushel (35 lbs.). W. P. SMITH, Penn, Miss.

FOR SALE.—Smith Premier, Hammond, and Oliver typewriters. Prices from $25 up. Will exchange for wax or honey. THE A. I. ROOT CO., Medina, O.

FOR SALE.—Forty acres, Lafayette Co., Mo., near Hodge, on Mo. Pac., $27.50 per acre.
R. L. WEBB, Warrensburg, Mo.

FOR SALE—at a bargain, 10-inch Rider compression hot-air pumping engine, in good condition.
JAMES E. FOWLER, Newfields, Rock. Co., N. H.

FOR SALE.—Ten 10-frame supers, complete, $4.00; one 25 rifle, $5.50. See Jan. 1st ad.
R. D. WILLON, Oakland, Mo.

FOR SALE.—Paragon Chestnut. I can furnish Paragon Chestnut grafts for spring grafting, 25 fine grafts for $1.00. J. H. BUPP, Loganville, Pa.

FOR SALE.—We pay the freight. Send me a bill of your 1907 supplies needed, and I will figure. New factory. G. ROUTZAHN, Biglerville, Pa.

FOR SALE.—Comb foundation, both brood and surplus. Beeswax worked into foundation at a very low price. Send for price list and free samples to
THE DELTA APIARIES, Delta, Colo.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1907 send your name and address to FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE.—Till Jan. 1, best Wisconsin sections per 1000, $4.00; No. 2, $3.40; plain, 25c less. Big discount on Danz. hives and other Root's goods; also berry-boxes. H. S. DUBY, St. Anne, Ill.

FOR SALE.—Ninety second-hand chaff hives (forty 10-frame Quinbys, and fifty 13-frame Gallup); three 4-frame Cowan extractors, used but two years; 900 lbs. buckwheat comb honey.
E. D. TOWNSEND, Remus, Mich.

FOR SALE.—100 supers (or less) for 4¼ sections, and 8-frame hives complete with holders and fences, no sections; been used one year; painted, and good for 50 years; 25 cts. each.
A. W. SMITH, Birmingham, Mich.

FOR SALE.—With or without stock; a bee and poultry farm, 4½ acres, nice nine-room house; barn, shop, water-power feed-mill; buzz-saw, lathe, 61 colonies bees in Simplicity hives; 67 head of poultry in henhouse.
G. L. VOORHEES, Prattsville, Greene Co., N. Y.

FOR SALE.—The highest type of Angora and Persian cats, from imported ancestors. Don't confound these cats with the coon cats or mongrels kept in bird-stores and sold at $3.00, when so many people will pay $25 to $75 for a fine-bred specimen. Any ambitious woman can make money raising them. Kittens, pure white, some with blue eyes and other colors; very reasonable. Kindly do not write out of mere curiosity; but every business letter will be promptly answered.
MRS. J. F. SKEES, Marion, Ohio.

Bees and Queens.

FOR SALE.—100 colonies of bees in Higginsville ten-frame hives. R. L. WEBB, Waverly, Mo.

FOR SALE.—400 colonies pure Italian bees in lots to suit. Write for prices. F. A. GRAY,
Redwood Falls, Minn.

FOR SALE.—Italian queens, red-clover and golden-bred for business; order now for June delivery. Satisfaction guaranteed and safe arrival warranted. Untested $1.00; tested $1.25; select tested, $1.50.
CHAS. W. ZWILEY, Fremont, O.

Poultry Offers.

FOR SALE.—White Wyandotts Exclusively (Duston Strain), eggs, $1.50 per 15.
HARRY C. DRIVER, Rt. 1, Beech Creek, Pa.

FOR SALE.—B. P. Rock pullets and cockerels from extra-laying strain, $1.00 each. Eggs in season, $1.00 per 15. MRS. W. L. BENNETT, Rt. 1, Crooksville, O.

FOR SALE.—Choice poultry. Ten leading varieties for the farmer or the fancier. Circulars free.
A. H. DUFF, Larned, Kan.

FOR SALE.—M. B. turkeys. Hens, $3.00 each; Toms, $5.00 each; eggs in season, $3.00 per dozen.
A. P. YOUNG, Cave City, Ky.

FOR SALE.—White Wyandotte cockerels. Good stock at a low price. J. F. MOORE, Tiffin, O.

FOR SALE.—25 White Plymouth Rock cockerels, also pairs and trios. Eggs, $3.00 per 15, $5.00 for 30. *Fishel strain.* Write your wants.
DR. C. L. VAN ORDOL, Dillsboro, Ind.

Wants and Exchange.

WANTED.—Early American and foreign books on bee-keeping. A. L. BOYDEN, Medina, Ohio.

WANTED.—To exchange, steam-engine about ¼ h.-p. for honey-extractor. J. A. EVANS, Ellwood City, Pa.

WANTED.—A hand-lever printing-press for feed-mill, 2-horse-walk cultivator, and corn-sheller.
G. A. LUNDE, Wausau, Wis.

WANTED.—We should like to exchange step and common ladders for bee supplies.
GEGAX LADDER WORKS, Archbold, O.

WANTED.—Mr. Bee-keeper, your order *now*. Let us quote you prices on goods before busy season. Root's Goods for Western bee-keepers.
SUPERIOR HONEY CO., Ogden, Utah.

WANTED.—To let, apiary of over 300 colonies on five years' time. Produced $6.00 per colony this year. Great opportunity in Colorado.
MILLER PRODUCE CO., Timnath, Colo.

WANTED.—I should like to correspond with party that would let his bees on shares in Colorado, Wisconsin, or Nevada. C. S. HURLBUT, Ft. Collins, Col.

WANTED.—Ten-inch foundation-mill for deep-cell heavy brood. OLIVER FOSTER, Boulder, Colo.

WANTED.—To exchange, three colonies bees for 200-egg sure-hatch incubator, used one season.
JOHN W. OLSON, Rt. 1, Stratford, Ia.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange one 200-egg Sure-hatch incubator used one season, good as new, for three colonies of bees or breeding-queen offers. Write before shipping. JOHN W. OLSON, Rt. 1, B. 50, Stratford, Ia.

WANTED.—Your name and address if you buy garden seeds. Will send you our beautiful 1907 catalog.
E. C. GREEN & SON, Box G, Medina, Ohio.

WANTED.—To exchange 200-egg Reliable incubator for Edison phonograph, 32-40 Savage rifle, or offers.
LORENZO CLARK, Winona, Minn.

Honey and Wax Wanted.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.
R. A. BURNETT, 199 S. Water St., Chicago, Ill.

WANTED.—Beeswax. We will pay 30 cts. per pound for fancy pure yellow beeswax delivered in New York until further notice. CHAS. ISRAEL & BROS.,
486 Canal St., New York City.

WANTED.—20,000 pounds pure clover honey. Send average sample and state best price.
J. E. CRANE & SON, Middlebury, Vt.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here. GRIGGS BROS., Toledo, O.

WANTED.—Well-ripened basswood or clover honey. Prompt payment on receipt; 8¼ cts. per pound, f. o. b. West Bend. H. C. AHLERS, West Bend, Wis.

WANTED.—In large or small lots, No. 1 white and amber extracted honey in 60-pound cans or barrels. Send sample and quote lowest cash price delivered in Preston. M. V. FACEY,
Preston, Fillmore Co., Minn.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

Honey and Wax For Sale.

FOR SALE.—Clover honey in 60-lb. cans at 8 cts.
MRS. C. L. PARKER, Sta. A., Syracuse, N. Y.

FOR SALE.—Fall honey in 60-lb. cans at 7 cts. per lb. C. E. CROWTHER & SON, N. Kingsville, O.

FOR SALE.—50 cases of comb honey in no-drip cases.
LOUIS WERNER, Edwardsville, Ill.

FOR SALE.—Buckwheat honey in 60-lb. cans, at 6c per lb. C. J. BALDRIDGE,
Homestead Farm, Kendaia, Seneca Co., N. Y.

FOR SALE.—1000 lbs. extracted buckwheat honey at 6 cts. Purity and quality guaranteed.
IRA WILSON, Ovid, N. Y.

FOR SALE.—50,000 pounds California water-white extracted honey by the case or car.
H. J. MERCER, 731 E. Third St., Los Angeles, Cal.

FOR SALE.—75 cases comb honey, 24 sections to case, amber and buckwheat, at $2.30 per case; white comb at $2.75. QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

FOR SALE.—Fancy basswood and clover honey in barrels or 60-lb. cans; sample 10 cts., which may be deducted when ordering. ROBT. A. HOLEKAMP & SON,
4263 Virginia Ave., St. Louis, Mo.

FOR SALE.—2000 lbs. of Colorado alfalfa extracted honey. It is ripe, rich, and thick; 60-pound tin cans, two in a case, at $10.00 a case.
A. A. LYONS, Fort Collins, Colo.

FOR SALE.—Choice extracted clover and basswood honey in 60-pound cans. It was extracted at end of season, and is very thick and well ripened. Sample free. J. F. MOORE, Tiffin, Ohio.

Bee-keepers' Directory

This department is for the exclusive use of all-year-round advertisers. If you have any thing the bee-keeper needs, your card in this department keeps your name always before your prospective customers at half our flat rates. We reserve the right to reject or modify any ad. not eligible to these special rates.

2 lines, 24 issues and GLEANINGS one year $ 5.00
3 " " " " " " 7.50
4 " " " " " " 10.00

Cash in advance. Ad's can be changed only in the first issue of January, April, July, and October.

I club a high-grade Italian queen with GLEANINGS, new or renewal. W. S. CRAWFORD, Hineston, La.

WANTED.—500 colonies of bees in Texas, Arizona, or California. N. E. MILLER, Box 373, Logan, Utah.

FINEST Golden and red-clover queens, Caucasian and Carniolan. DANIEL WURTH & GRANT, Pitkin, Ark.

ITALIAN AND CAUCASIAN bees and queens of best quality; price list free. A. E. TITOFF, Ioamosa, Cal.

MAPLEWOOD APIARY.—Choice comb honey, Italian bees and queens. GEO. H. REA, Reynoldsville, Pa. R. 2.

ROOT'S SUPPLIES at factory prices; wholesale and retail. ANTON G. ANDERSON, Holden, Mo.

ITALIAN BEES, queens, and bee supplies.
H. H. JEPSON, 182 Friend St., Boston, Mass.

ITALIAN BEES, queens, beeswax, honey, and bee-keepers' supplies. M. E. TRIBBLE, Marshall, Mo.

ITALIANS, CARNIOLANS. No disease. Two-comb nucleus with queen, $3.00. A. L. AMOS, Comstock, Neb.

FOR SALE.—Bee-keepers' Supplies. Write for catalog. Lengst & Koenig, 127 S. 13th St., Saginaw, Mich.

ITALIAN BEES and queens—red clover and golden strains. E. E. MOTT, Glenwood, Cass Co., Mich.

ITALIAN BEES, queens, honey, and bee-keepers' supplies. A. T. DOCKHAM, Box 95, Rt. 1, Eagle Bend, Minn.

SWARTHMORE APIARIES—Golden, Caucasian, Banat, Carniolan, Cyprian queens. E. L. Pratt, Swarthmore, Pa.

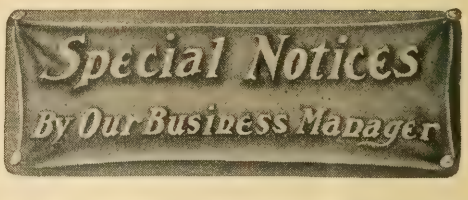
QUEENS. Free list giving safe method of introducing, ready Feb. 15. E. E. LAWRENCE, Doniphan, Mo.

ITALIAN BEES, queens, honey, and ROOT'S bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

GOLDEN-ALL-OVER Caucasian Banat bees and queens. We book orders for early queens from our best imported breeding stock for honey, with 600 twin mating-boxes. THE SNYDER APIARIES, Lebanon, Pa.

QUEENS.—Improved Red-clover Italians bred for business; June 1 to Nov. 15, untested queens, 60c; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

FOR SALE.—Honey, bees, and queens; cartons at half price, and some other supplies. Bees on Danz. and L. frames. Free circular.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.



BEESWAX.

The supply of beeswax in the market seems to be shorter than usual, and the price continues firm. As spring approaches, the supply usually becomes more plentiful. Prices abroad are much easier, and, as a consequence, much wax is being imported from foreign countries. We are paying 30 cts. cash, or 32 in trade, for average wax delivered here or at branches.

CATALOG FOR 1907.

Our catalog for this year is complete, and is being mailed to the readers of GLEANINGS first. We have also supplied some to our various agencies to furnish on request. Our larger list of names will be reached in due time. Those who have not received a catalog within a few days after receiving this issue of GLEANINGS, and can not wait longer, may have one sent promptly on request by postal. If you receive more than one, hand the extra one to a neighbor interested in bees, and thereby do him and us a favor.

SIMPLEX JARS.

Those who have started to use this style of jar, and desire to continue, we can furnish the next larger size than those we have been furnishing, at the same price—$1.10 per case of 2 dozen; 6 cases at $1.05; 30 cases at $1.00, shipped direct from factory, while present supply lasts. We still have some of the regular size in Philadelphia and at Mechanic Falls. The larger size mentioned above will hold about 17 to 18 oz. of honey nicely filled. We can still supply the half-pound tumblers, 4 dozen to the case, with corrugated packers and parchment disk for sealing under the covers, at $1.00 per case; ten-case lots at 95 cents; packed in barrels of 32 dozen each at $5.00.

ADVANCING PRICES.

A comparison of prices on metals in the New York market at the close of the year for the past six years shows an advance of 62 per cent on No. 2 foundry iron; 84½ per cent on copper; 80 per cent on tin; 50 per cent on lead; 55 per cent on spelter (zinc); 139 per cent on antimony. Many other commodities have advanced in like proportion. The increased production of gold, which is the standard of value, has been 54 per cent. This goes to show that, as gold becomes more plentiful by increased production, it grows cheaper when exchanged for other articles of which it is the measure of value. In other words, the same weight of lead which, in 1900, could be had for $4.00 in gold, at the end of 1906 requires $6.00 in gold to buy it. Careful statistics show that the general average increase in price of all commodities since 1893 has been 42 per cent.

In the face of this general increase in values, which has been especially marked during the past year, there has been almost no increase in the price of bee-keepers' supplies for about four years. This is largely due to decreased general demand because of poor honey crops the past two years. If the present pace of increase in cost of materials continues, and we have any thing like a fair honey crop this season, manufacturers will be compelled to advance prices to maintain a living profit before another season, and even before this season has reached its close. Those who lay in a stock of supplies can rest assured that they are not likely ever again to buy them any cheaper.

Convention Notices.

The annual meeting of the Wisconsin State Beekeepers' Association will be held in the court-house, city of Madison, Wednesday and Thursday, February 6th and 7th. Reduced rates on all railroads; but if you can not obtain them, ask your agent for full-fare receipt. The question-box will be the main feature, and we want every bee-keeper who has one or more questions of interest to mail them to the secretary, prior to the convention, that they may be properly arranged. Bring choice samples of honey or any thing of interest for a good honey display.

GUS. DITTMER, Secretary, Augusta, Wis.

CYPRIAN

GOLDEN . . QUEENS

DIRECT . . . FROM

CYPRUS

Please write to Messrs. Gregory Dervishian & Bros., Nicosia, Cyprus, for excellent PROLIFIC MOTHER QUEEN BEES of gentle strain. Price of each queen, mailed to U. S. America and Canada, $2.25, safe arrival not guaranteed; $2.50, safe arrival guaranteed. To Australia, Ceylon, India, etc., etc., $3.00, safe arrival guaranteed. Send International Money Order.

QUEENS! By uniting the swarms from 1000 colonies the NUCLEI! coming season I will sell queens and nuclei after March 1 at following prices: Queens, 25c; $3.00 dozen. Nuclei with queen: 1-frame, $1.25; 2-fr., $1.50; 3-fr., $1.75.
R. M. Spencer, Nordhoff, Cal.

Moore's Long Tongue and Golden

Queens

Fine select untested queens, $1; 6, $5; 12, $9. Tested, $1.50; 6, $8. Breeders, $3.50. Safe arrival gar'd.
W. H. RAILS, - ORANGE, CAL.

PATENTS.

Twenty-five Years' Practice.

PRINDLE & WILLIAMSON,

Second Nat'l Bank Bldg., Washington, D. C.

Patent practice in Patent Office and Courts.
Patent Counsel of The A. I. Root Co.

PATENTS No attorney's fee until patent is allowed. Write for "Inventor's Guide."
FRANKLIN H. HOUGH,
Loan and Trust Building, Washington, D. C.

850,000 GRAPE VINES
69 Varieties. Also Small Fruits, Trees, &c. Best rooted stock. Genuine, cheap. 2 sample vines mailed for 10c. Descriptive price-list free. Lewis Roesch, Fredonia, N.Y.

Beautiful Kioto Silk

35 cts. per yard; regularly 50 cts.

Kioto silk is a summery fabric made from lustrous Japanese silk combined with finest sea-island cotton.

It is one of the prettiest silk mixtures that we know of.

It is certain to have hosts of friends next summer.

It is especially suitable for smart frocks for girls and misses.

We show Kioto silk in all the prettiest shades for the season, including dainty plain shades, rich black, and small neat designs.

Please note we have only a limited supply of the material at the special 35-cent price. After the same is exhausted, we shall be compelled to charge 50 cts. a yard. Send for samples.

McCALL'S PATTERNS for February now ready. They are the easiest of all patterns to put together—10 and 15 cts. each. None higher. McCall's Magazine, a monthly that is simply overflowing with news interesting to women; 50 cents a year; 5 cts a. copy. McCall's Fashion Bazar, free.

JOSEPH HORNE CO.,
PITTSBURG, PA.

EGGS FROM BONE

Green cut bone doubles egg yield. More fertile eggs, vigorous chicks, early broilers, heavy fowls.
MANN'S LATEST MODEL BONE CUTTER
10 days free trial. No money in advance. Send it back at our expense if you don't like it. Cat'lg free.
F. W. MANN CO., Box 37, Milford, Mass.

Your Name Will Get $2 Eggs
For 50 Cents Per Sitting

The White and Brown Leghorns are the greatest layers in the world. I keep 2000 of the celebrated Chamberlain laying strain on my Experimental Farm, and to increase the sale of my Perfect Chick Feed, I will send to any one who will send me their name so I can send them my Perfect Chick Feed Catalogue, 2 sittings of Single Comb Brown or White Leghorn Eggs for $1 for the 2 sittings. Only 2 sittings sold to one person. White or Barred Plymouth Rock, or White or Silver Laced Wyandotte Eggs $1 per sitting. This is a rare chance to get a start of extra fine stock. Send money and have your orders booked at once.
W. F. CHAMBERLAIN, (*The Perfect Chick Feed Man*
KIRKWOOD, MO.

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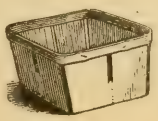
Poultry Journal. Our Beautiful Xmas Number containing 3 color pictures from Burgess' masterpieces in oil, costing $1,000, and book plans for Poultry Houses, all for 10 cents. We will tell you How to Make Poultry Pay. Address
INLAND POULTRY JOURNAL,
15 Cord Bld'g, Indianapolis, Ind.

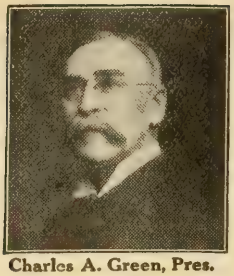


Plants, Berry-crates, and Quart Baskets

Special prices for December and January orders. Catalog free.

H. H. Aultfather
Bx 62, Minerva, Ohio

STRAWBERRY PLANTS at $1 per 1000
and up. Catalog free.
R. E. ALLEN, - PAW PAW, MICHIGAN



Charles A. Green, Pres.

30 Years' Experience In Fruit Growing

Shall I tell you about it, and how to make a fruit garden? See free book as offered below.

50 Apple, Peach or Plum Trees for $2.50

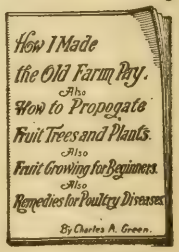
This Book Free For 3 Names

Larger trees of apple, pear, peach and quince at live and let live prices. Bargains in all sizes of apple, peach and plum trees. Grapevines, berry bushes, asparagus roots and ornamental shrubs and trees our specialty.

Charles A. Green

Has a national reputation for honest labeling, grading and packing. Send for Green's Free Fruit Guide and Catalog, also for sample of Green's Big Fruit Magazine. When you send for these add the name and address of three fruit growers and we will present you with C. A. Green's book telling of 30 years growing fruit. See cut of cover.

GREEN'S NURSERY CO., Rochester, N. Y



Make More Money on Fruit Crops

Everyone who grows fruit, whether a large commercial grower, or one who has only a few fruit trees, a berry patch or a garden, should be interested in knowing how to get the most profit from his crops.

THE FRUIT-GROWER

ST. JOSEPH, MISSOURI

is the only magazine in America which is devoted exclusively to the interest of those who grow fruit. It is handsomely illustrated, and contains from 36 to 76 pages each month. It tells all about fruit of all kinds—and nothing but fruit—how to market, how to pack, cultivate, spray, prune, how to MAKE MORE MONEY from your crops. Sample copy sent free. Regular price is a dollar a year, and each subscriber is entitled to a choice of any one of our series of ten Brother Jonathan Fruit Books—the best in existence.

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We are so confident The Fruit-Grower will please you that we will send it to you three months absolutely free If, after three months, you like the paper, we will make you a special offer for twelve months more. If you don't like it, notify us and we will take your name off the list. The three months will cost you nothing. We offer cash prizes for new subscribers—write for particulars. Write your name and address in blanks below; mail to

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I accept your FREE three month's trial offer. At end of three months I will either pay for a year's subscription or notify you to stop paper. In either event there is to be NO charge for the three months' trial.

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SAMPLE OF OUR SOAP FREE

Take this sample which we offer you, use it and learn the high quality of Crofts & Reed Products. Just send your name on a postal and a full size cake of fine toilet soap will be mailed you free. You will also get a big book, showing over 1000 Premiums which we give with orders of our Soaps, Tea, Coffee, Baking Powder, Flavorings, Breakfast Food, Perfumes, etc. We ship direct from our factory and thus save all middlemen's profits. This saving you get in premiums. Take advantage of it. Send postal for sample now.

Crofts & Reed, Austin Ave., Dept. C88, Chicago.

LIKE MOTHER HEN

Only Adjustable Suspension Poultry Brooder made. Thousands in use. Heated by warm water. Temperature always uniform. Warm water tank above chicks with loose flannel covering under which chicks hover. Warmth equally spread and chicks do not crowd. No underheat to burn their feet. No steps or bridge to climb. No lamp fumes or burnt air to breathe. Should lamp go out the warm water would keep the chicks alive all night. Lamp above chicks, has safety burner, adjusted in height as chicks grow. Shipped on 15 days trial. SEND FOR CATALOG No. 12

Automatic Hatching Co., Detroit, Mich.

A New Factory

and also a new firm name, but in the same place with the same management. We have just put in a complete

Weed Process Comb Foundation Factory

of the very latest type, and we are now ready to work up wax for western bee-keepers at low prices. . . We want several thousand pounds of beeswax at once, and will pay top market price for same. Let us hear from any one having wax to offer. .· .· .·

Buck & Wilson, Augusta, Kan.

Butler County

One step won't take us very far;
We have got to keep on walking.
One word won't tell folks what we are;
We have got to keep on talking.
One inch won't make us very tall;
We have got to keep on growing.
Promptness once won't do it all,
We have got to keep on moving.

Single orders are good enough in their place,
But more are necessary to keep up our pace.

No doubt you are planning for next season's supplies. Write us for catalog and other information. Give us a trial. We can please you. By handling the Root Co.'s goods, with excellent shipping facilities, promptness, etc., we can serve you in a satisfactory manner.

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.

Mr. Texas Bee-keeper:

I should like to talk to you *personally.*

First, I want you to know about my supplies. I handle Root's Goods, of course; for I believe in giving my customers complete satisfaction—for that's better in the long run than low prices. My place of business is on the S. A. & A. P. Ry., just opposite the passenger depot, where I have built a warehouse 40×250 feet, and I have filled it full to the brim, for I handle Root's goods by the carload. This means I can furnish you with supplies with the utmost promptness.

Then, too, I have installed a complete Weed-process Foundation factory. I can turn out 500 lbs. a day. I can work your wax into foundation. In fact, my facilities in this line are not surpassed in Texas.

My can business is increasing by leaps and bounds. That is because of the quality of the goods. It will save you dollars to get my prices. Better write for them to-day.

Nothing pleases me better than for bee-keepers to make their headquarters at my office when in San Antonio. You are always welcome. I have fitted up my office with plenty of desks and chairs, with writing-material, a reading-table, and all the bee journals on hand. Consider yourself invited.

If you haven't my catalog just drop a postal.

I can supply Red-clover and Golden Italian queens promptly.

I am now paying 23c cash and 26c in trade for average clean beeswax delivered here. Save your slumgum. I will buy it. Let me know how much you have, in what condition the slumgum is, and in what kind of an extractor it was rendered, and I will make you price I am paying.

Call or Address

Udo Toepperwein, - San Antonio, Texas

1322 South Flores Street

We are Not in a Trust!

Bee-hives, Sections, Brood-frames, Extractors

Every thing that bee-keepers use at LOWEST PRICES.
Quality the Highest. We've been making them 25 years.

American Bee-keeper

A profusely illustrated practical bee-journal which we have published for 17 years. 50c year. Sample copy and our 1907 illustrated catalog and price list free. Address

The W. T. Falconer Mfg. Co., Dept. C, Jamestown, N. Y.

New Goods - Big Stock

New Warehouse : Root's Goods : Prompt Shipment : Low Freight

Everything for the Bee-keeper at Savannah, Georgia

We are prepared to furnish promptly a full line of supplies; choice new stock just from the factory. BEES and QUEENS. We have large apiaries of fine stock. Book your orders at once, as there will be a heavy demand this season. Catalog sent free. Correspondence solicited.

Howkins & Rush, 124 West Liberty St., Savannah, Ga.

Dadant's

Foundation

It Excels

Every Inch Equal to Sample

Beauty! Purity! Firmness!
No sagging; no loss.
Twenty-eighth Year.
We Guarantee Satisfaction.
Wax Worked into Foundation.

Bee-supplies of All Kinds

Beeswax wanted at all times.
Send for Our 1906 Catalog.

Dadant & Sons, Hamilton, Ill.

Post Cards

at half usual prices

DEAR READERS OF GLEANINGS:—I wish every one of you to see my elegant **New Post Cards.** All original artistic designs—both front and back—extremely pretty. They possess character, and impart moral lessons in pictured beauty that will benefit the world. They are in marked contrast to much of the trash offered. I designed them to cheer the heart, dispel gloom, and to encourage all, especially the young, to strive for a truer, better, and happier life.

Special Offer!

I will send you 20 of these cards for only **ONE DIME**, or 12c in stamps; 40 cards for 20c; 100 cards for 40c prepaid. My "money-saving" seed catalog and a nice present added if you order 40 or more cards, naming Gleanings.

There is nothing like these unique Post Cards. They charm every one. Please order them at once, and be good enough to tell your friends also. I make this liberal offer to get good names for my seed catalog. My premium offers will astonish. Even boys and girls can make money fast. ☞ I give a beautiful reliable watch free for a $3.00 order; a splendid graphophone free for a $4.50 order, etc. Do not miss these bargains. Address

A. T. Cook, Seedsman, Hyde Park, N. Y.

GLEANINGS IN Bee Culture

VOL. XXXV. FEB. 15, 1907. NO. 4.

Moving Bees in New Zealand

THE A. I. ROOT CO.
MEDINA, OHIO.

The Swarming Season

will soon be here. Are you prepared? Why not order your supplies now, and take advantage of

The Large Discounts

which we offer this month on Bee-supplies? Only remember the

Low Freight Rates

from TOLEDO places our goods in your door cheaper than you can get them elsewhere. We afford you every advantage in both Poultry and Bee Supplies. We sell The A. I. Root Co.'s bee-supplies, Model Incubators and Brooders, Prairie State Incubators and Brooders, Poultry Supplies of all kinds.

Our Large Illustrated Catalog

illustrates and describes our complete line; tells how to raise bees and chickens successfully. . Free upon request.

The Griggs Bros. & Nichols Co.

523 Monroe St., Toledo, Ohio.

APICULTORES

De Espana, Portugal y Colonies.

Pidan catalogos de las colmenas, extractores, prenzas para cera, ahumadores, zinc perforado, escape de abejas, velos, cuchillos, maquinas para hacer base de panales, y todos otros articulos utiles en apicultura manufacturado por la celeberrima casa de

A. I. Root Company,

la fabrica la mas importante del mundo. Precios muy modicos a los subagentes por mercancias puestas en nuestros talleres.

EMILE BONDONNEAU

Agente Générale

POR TODA EUROPA Y COLONIAS

142 Faubourg SAINT DENIS, PARIS.

Root's . . . . . Goods

Stand for

Reliability

Uniform excellence . . . . . always maintained

Popularity

Everywhere in high favor

Quality

Material and workmanship unexcelled.

In Other Words-----It's Root Quality

We Sell the Root Quality Goods in

MICHIGAN

Write for prices and discount on your list of goods for the coming season.

"Where Quality Counts, We Win."

M. H. HUNT & SON

Bell Branch, Wayne Co., Michigan

C. H. W. WEBER

HEADQUARTERS FOR

BEE-SUPPLIES

Distributor of Root's Goods Exclusively at Root's Factory Prices.

Give me your orders for the BEST GOODS MADE. You will be pleased on receipt of them. You will SAVE MONEY by ordering from me. My stock is complete; in fact, I keep EVERY THING the BEE-KEEPER needs CINCINNATI is one of the best SHIPPING-POINTS in the Union, PARTICULARLY IN THE SOUTH, as all freight now GOES THROUGH CINCINNATI. Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly FREE OF CHARGE.

A Special Discount on Early Orders

I will buy your HONEY AND BEESWAX. I pay CASH ON DELIVERY; or, if you are in NEED OF HONEY, write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of EXTRACTED or COMB HONEY. I guarantee its purity.

Queens and Nuclei

Let me book your orders for queens. I breed the finest GOLDEN ITALIANS, RED-CLOVERS, CARNIOLANS, and CAUCASIANS. Can furnish NUCLEI beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White and Yellow Sweet-scented Clover, Alfalfa, Alsike, Crimson Clover, Buckwheat, Phacelia, Rocky Mountain Bee-plant, and Catnip.

C. H. W. WEBER

Office and Salesroom, 2146-48 Central Ave.
Warehouse, Freeman and Central Avenues.

Cincinnati, - - Ohio, U. S. A.

Honey Markets.

GRADING RULES.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

CINCINNATI.—The market on comb honey is rather easy. Prices rule in jobbing ways from 14 to 14½c. single cases, 16c for No. 1 white. Off grades not wanted at any price. Extracted is very firm. Light amber, barrels, 6 to 6½; white clover, in barrels, 7½; in cans, 8½. We are paying for beeswax, 30c per lb. delivered at Cincinnati. C. H. W. WEBER,
Jan. 25. 2146 Central Avenue, Cincinnati, O.

NEW YORK.—The stock of white comb honey is pretty well exhausted, and we do not expect any more arrivals of large lots from now on. Prices are firm, and we quote from 15 to 16 for fancy white, 13 to 14 for No. 1; 12 for light amber. There is some dark and buckwheat on the market, but no overstock, and we think that all of it will be disposed of before long at present prices, which we quote from 10 to 12, according to quality. Extracted honey is very firm, with sufficient supply to meet demand. California white sage is bringing from 8 to 8½; light amber, 7½; amber, 6½ to 7; buckwheat extracted is in fairly good demand at 6 to 6½. Beeswax firm and steady at 31.
HILDRETH & SEGELKEN,
Jan. 18. 265-267 Greenwich St., New York.

ST. LOUIS.—There is no change in the situation in the honey market, except that the demand is very tame. Prices are unchanged, and we quote as follows: Fancy white comb honey, 16; No. 1, 15; light amber, 14 to 15; broken and inferior, less. Extracted light amber, California, 7½; Spanish needle, 7½.
R. HARTMANN PRODUCE CO.,
Jan. 18. St. Louis, Mo.

KANSAS CITY.—The receipts of comb honey have been more liberal during the last week or two, and the demand light, market weaker. Market is practically bare of extracted, and there is quite a little inquiry. We quote, No. 1 white comb, 24-section cases, $3.10; No. 2, $2.75; amber, $2.50. Extracted, white, per lb., 7½ to 8c; amber, 6½ to 7c. Beeswax, 27.
Jan. 25, C. C. CLEMONS & Co., Kansas City, Mo.

ZANESVILLE.—The demand for honey, both wholesale and retail, has been very light, though there has been some revival within a week. No change in prices since last quotation, fancy white bringing $3.85 to $4, and No. 1 $3.75 to $3.85 per case. Little honey of off grades is being offered. I quote light extracted at 8 to 12½, according to quantity; pound jars, $2.20 per dozen, wholesale. Beeswax, 29 to 30.
Jan. 19. E. W. PEIRCE, Zanesville, O.

CHICAGO.—As stocks are moderate, especially of the best grades of honey, we find the market a steady one, but the volume of sales is small. No. 1 to fancy comb brings 15 to 16; the off grades, 1 to 3 cts. less; extracted, white, 7½ to 8; amber, 7 to 7½; dark, 6 to 6½. Beeswax, 30. R. A. BURNETT & Co.,
Jan. 18. 199 So. Water St., Chicago, Ill.

INDIANAPOLIS.—Market on comb honey is very quiet, regardless of the short crop. Fancy white comb brings 16 to 17; No. 1 white, 14; amber, 12 to 13. Best grades of extracted honey bring 8 to 9; amber, 6 to 7. Good average beeswax sells here at $33 per 100 pounds.
WALTER S. POUDER,
Jan. 18. 513 Mass. Ave., Indianapolis, Ind.

SCHENECTADY.—The demand for both comb and extracted honey has improved considerably since the last issue of GLEANINGS. Dealers are getting out of stock and have commenced to order again, but in a limited way, not desiring to carry any over the season. No change in prices. CHAS. MACCULLOCH,
Feb. 9. Schenectady, N. Y.

BUFFALO—The demand for white comb honey has improved a good deal of late. Dark continues very dull, and prices about the same as last quoted. Fancy white comb, 16 to 17; A No. 1, 16 to 17; No. 1, 15 to 16; No. 2, 12 to 13; No. 3, 11 to 12; No. 1, dark, 10 to 11; No. 2, 9 to 10; mixed, 10 to 11; white-clover extracted, 8 to 8½; amber, 7 to 7½; buckwheat, 6 to 6½; jelly-tumblers, 85 to 90 per doz.; beeswax, 30 to 32.
W. C. TOWNSEND.
Feb. 9, Buffalo, N. Y.

CINCINNATI.—The demand for extracted amber honey has brightened in the past three weeks. Selling amber honey in barrels at 6½ to 7½, according to quality and quantity purchased. Fancy white extracted honey from 8 to 9 in cans. Comb honey is a drag on the market; fancy selling at 14 to 16. At this date we are paying 32 cts. cash, 34 cts. in trade, delivered here, for a choice grade of yellow beeswax.
THE FRED W. MUTH CO.,
Feb. 9. 51 Walnut St., Cincinnati, O.

BOSTON.—Our market on honey continues to be about the same figures. Fancy cartons, 16 to 17; No. 1 white, 15 to 16; No. 2, 14 to 15; extracted, 7 to 8½.
Jan. 19. BLAKE, SCOTT, & LEE CO.

Honey and Wax Wanted and for Sale. See Classified Ads. on pages 282–283.

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See Feb. 1st GLEANINGS, page 141, for prices of complete outfits.

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J. T. CALVERT, Business Manager

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The Review for February

is printed from new type—Paragon—and you ought to see a copy of it in this "new dress," even if you have seen others copies.

By a sort of coincidence this issue is something of a symposium on hives — the editor, Mr. Townsend, and Mr. M. V. Facey, of Minnesota, all writing on this momentous question; and it is refreshing to see how almost perfectly they agree on the essential features.

The opening paragraph of Mr. Atwater's article may be of interest. Here it is:

"The system of swarm-control, or non-swarming, that gave the best results, with a mimimum of labor, with or without increase, no absconding, very little excitement of disturbance, no shaking, and no delay will now be described."

This is the kind of matter that you will find in the Review—real, helpful, and practical. Something new and to the point.

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Exchanges.

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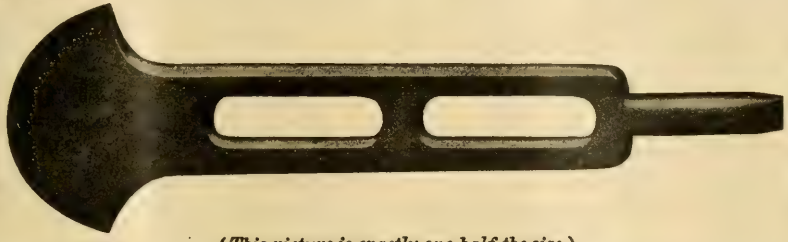

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MORE HONEY
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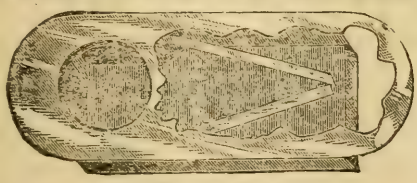

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When taking off surplus this is the greatest saving device. It does away with the shaking of the heavy supers, the cruelty of excessive smoking which causes the bees to uncap their honey and start robbing. You can as well afford to be without a smoker as without the Porter Bee-escape.

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How to Keep Bees

By Anna Botsford Comstock

228 pages. 32 pages of illustrations.

A charmingly written manual describing clearly and in detail the outfit, first steps, and methods. The author's well-known literary ability has combined with her enthusiasm for a subject to produce a very unusual volume. It is a handbook for those who keep bees for happiness and honey, and incidentally for money. It serves as well as an introduction to the more extended manuals already in the field. "Finally with all due deference to the authors of the excellent books on bee culture which we have already, my opinion is that this new book, 'How to Keep Bees,' is the best one for a beginner, or one who does not wish or expect to keep more than a dozen colonies, that has yet come before the world."—*A. I. Root, in Gleanings, July 1, 1906.*

Chap. 1. "Why Keep Bees," urges honey, perhaps money, recreation, love of nature study, and the need of bees in "a perfect garden," as good reasons for keeping bees. The second chapter tells "how to begin" in a small way, and we may get all the necessary detailed information for management from later chapters, arranged in order of demand for information.

Price $1.00. Postage 10 cents extra.

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Distributor of Root's Goods from the Best Shipping-point in this State. Wholesale and Retail.

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Full new stock to select from, and the best shipping facilities in the State guarantees you prompt and cheap service.

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The yellow-all-over kind.

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I rear queens from select mothers only.

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My stock originally came from the best known queen-breeders in the country.

I will begin April 1st and fill orders in rotation.

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One-frame Nucleus, without queen	2.00
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By Meredith Nicholson

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Action, Action, Action marks the Port of Missing Men. It is a glorious story of royal intrigue at work in America, full of old-world romance and new-world hope. Fresh through its chapters blows the bracing air of the Virginia Hills. Its mystery entices, its adventure spurs the interest to break-neck speed, and the shining eyes of the heroine lure from page to page. The same imagination that lighted the House of a Thousand Candles gleams at the brightest in "The Port of Missing Men. Illustrated by Charles F. Underwood.

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All of the above books have been issued since May 1, 1906.

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PRACTICAL WORKS ON BEES

THE books mentioned on this and the succeeding page are all devoted to practical bee culture, although a few of them, as will be noticed by their descriptions, have more or less scientific value. A somewhat careful reading of the descriptions below will undoubtedly show any one just what book will suit him best.

LANGSTROTH ON THE HONEY-BEE. Revised by C. P. Dadant. The original work by Langstroth will always remain a classic book on bee-keeping along with that of Huber, Reaumur, and Swammerdam. This is the old book brought down to date by one of America's foremost bee-keepers, C. P. Dadant, who is also very well known in Europe as the great exponent of movable frames—so much so that frame hives are sometimes known by his name in certain European countries. The new edition is termed the "Twentieth-Century Edition of Langstroth," and contains nearly every thing one wishes to know about bees, and forms a thick cloth-bound book of 575 pages, beautifully illustrated. It is a standard work, both here and in Europe, where it has been translated into French and Russian. The bee-keeper who does not like this book is hard to suit. Price by mail, $1.25; by freight or express, 15 cts. less.

FORTY YEARS AMONG THE BEES. Some 17 years ago Dr. C. C. Miller, of Marengo, Ill., wrote an unpretentious little book entitled, "A Year Among the Bees." This was charmingly written, and in a style so simple and easy that it read more like a story than a treatise on bees. The new book, in one sense a revision of the old, because it uses some of the old matter, is, to all intents and purposes, a brand-new work with a title that certainly covers a large expanse of time for one life, and that of a man who is one of the best-posted bee-men in the United States—a practical bee-keeper, one who produces large crops of honey. He has for years read most thoroughly all the literature on bees, both in Europe and America. With all his practical knowledge relating to the business he is a college graduate, a graduate of a medical school, and one who has had a large experience as a journalist. His training is just such as would enable him to write a book on bees; and his last book from his best and ripest experience is a masterpiece. It is just as much a good story as the old one, and just as interesting. It contains over 300 pages and 100 beautiful half-tone pictures from photos taken by the good doctor himself while he was at his every-day work among the bees. Price $1.00, postpaid. By freight or express, 10 cts. less.

COOK'S MANUAL OF THE APIARY is a very complete treatise on bees and bee-keeping, nothing of any consequence being omitted by its author, Prof. A. J. Cook, formerly of the University of Michigan. Even the anatomy and physiology of the bee has been very completely covered in this work, also bee botany, and yet the practical management of the apiary has not been slighted in the least. The edition was completely revised and partly rewritten in 1902, hence it is up with the times in every respect. Price $1.15, postpaid; 15 cts. less by freight or express.

BRITISH BEE-KEEPERS' GUIDE BOOK. By T. W. Cowan. This is the leading English work on practical bee-keeping in England, and as such has had an immense sale, and has been republished in French, German, Danish, Swedish, Russian, Spanish, and Dutch. The work is condensed into 179 pages, handsomely bound and well illustrated. Price $1.00 by mail; by freight or express, 5 cts. less.

DOOLITTLE'S QUEEN-REARING. This is practically the only comprehensive book on queen-rearing now in print. It is looked upon by many as the foundation of modern methods of raising queens wholesale. Mr. Doolittle has an entertaining way of writing on bee subjects which enables his readers to follow him with pleasure, even if they never intend to raise queens at all. Cloth bound, 124 pages, $1.00 postpaid; by freight or express, 5 cts. less.

THE HONEY-BEE. By T. W. Cowan. This is the standard work on the anatomy and physiology of the bee in the English language. It is packed with information on the subjects indicated, and expresses in a condensed, accurate manner, every thing that has been discovered by the scientists of all countries who have studied the life history of the honey-bee. The book is beautifully bound, printed and illustrated in the highest style of the art of book-making, and is invaluable to a bee-keeper. Last edition 1904, 220 pages. Price $1.00 postpaid. By freight or express, 5 cts. less.

QUINBY'S NEW BEE-KEEPING. This, a modern edition of Quinby's Mysteries of Bee-keeping, is one of the most useful books on apiculture ever written. Mr. Quinby was an intensely practical bee-keeper and greatly assisted Mr. Langstroth in laying the foundations of American apiculture. His son-in-law, Mr. L. C. Root, revised the old book, giving it a new title and bringing it in line with the times. It is a simple, easily understood guide to bee-keeping. Cloth bound, 271 pages, 1905; price $1.00 postpaid; by freight or express, 10 cts. less.

ADVANCED BEE CULTURE. By W. Z. Hutchinson. This, as its name implies, is a book giving the latest methods of keeping bees, and it certainly does what it claims to do. The author is himself a very practical bee-keeper, but in addition he edits and publishes a bee magazine, where he, of course, gets a first-hand knowledge of all that is taking place in the bee-keepers' world. The book is embellished with a number of beautiful illustrations which greatly enhance the value of it to many. The author is an accomplished photographer, and the pictures are therefore mostly original. This is a very useful work to any one who is seriously thinking of becoming a specialist in apiculture, depending very largely upon the bees to furnish bread and butter and food and raiment for the bee-keeper and his family. There are no theories in it. If one can afford to get only two or three books, this certainly should be one of them. Price $1.10 postpaid; by freight or express, 10 cts. less.

HOW TO KEEP BEES. By Anna Botsford Comstock. This is a charmingly written manual for amateurs and beginners, describing in the clearest language all necessary details which are so confusing to a novice. The authoress combines enthusiasm, literary ability, and a knowledge of bee-keeping into a goodly volume. Having herself made a start in the bee-business more than once, she fully appreciates the perplexities of the situation and makes provision accordingly. The book is well suited to the wants of the suburban dweller who wishes a hobby which will give something by way of return for labor and capital expended, or those who wish to keep only a small apiary either for pleasure or profit. If there is any better book than this for the purpose indicated, we do not know of it. Cloth bound, 228 pages, $1.10 postpaid; by freight or express, 10 cts. less.

A MODERN BEE-FARM, by Simmins, is one of those books which will cause you to sit up and take notice if you are a real live bee-keeper with lots of formic acid in your blood. The author is an English bee-keeper of note, who not only knows and understands bee culture in his own home land, but is as well an earnest student of American apicultural methods. He was the first man in the field with a non-swarming system of bee-management, and is otherwise a very original thinker on all that pertains to bees. He is not very orthodox in his views, but his book is all the better for that, seeing he wants to take us out of the ruts. You can read the book right straight through, in the long winter evenings, as it runs along like a narrative or a novel. Cloth bound, 430 pages, 1904; price $2.00 postpaid; by freight or express, 15 cts. less.

THE IRISH BEE-GUIDE, by Digges, is, as its name implies, a guide to the bee-keeping industry of Ireland. This is a closely printed, well-bound book of 220 pages with excellent illustrations on fine paper. It would be useful to any one who wishes to become acquainted with the status of bee-keeping in the old land. Price $1.00 postpaid; by freight or express, 5 cts. less.

AMERIKANISCHE BIENENZUCHT, by Hans Buschauer, is a bee-keeper's hand-book of 138 pages, which is just what our German friends will want. It is fully illustrated, and neatly bound in cloth. Price $1.00; by freight or express, 5 cts. less.

The Production of Fancy Comb Honey.

HONEY, A STAPLE OR LUXURY. There have always been different opinions on this subject, and the question is not likely to be settled at once. A good many believe, however, that honey is a luxury, and that, as such, it should be put up in the most attractive form. A visitor at Medina recently told us that his entire crop (not a large one, to be sure, but several thousand pounds, we believe) was all easily sold at 18 cts. per pound in one of the large city markets. At the same time, there were hundreds of bee-keepers offering their crops at from 11 to 14 cts. a pound.

What price do you prefer—the fancy price or the rate the dealer pleases to offer? Has any one ever seen *extra* fancy honey of good quality begging for a buyer? It is the experience of those bee-keepers who have used the Danzenbaker hive that the results obtained from its use are the following:

More Honey, Better Honey, and Better Prices.

The following letter speaks for itself:

WESTHOLME, B. C., Aug. 20, 1906.

I purchased ten Danzenbaker hives from your agents, E. Grainger & Co., Toronto, this season, finding it to my advantage to send there. Your goods are so well known that it is unnecessary for me to remark, but I must compliment you on the material and workmanship. It is a pleasure to put together such hives.

It is my first experience with the Danzenkaker hive, and I like it very well. Where much manipulation of frames has to be done, perhaps it is a disadvantage; still, where the frames can be moved in blocks it is not much loss. I had only five hives in use, and have about 240 pounds of fancy white sections, which is very good for this locality, and considering I had to build the colonies up after driving them out of old boxes in May.

Yours truly, FRANCIS H. JONES.

WESTHOLME, B. C., Jan. 28, 1907.

I have kept bees off and on for a number of years; but it was the nicest lot of honey I have ever seen, which was owing, in a measure, to the tall 4×5 sections and the hive arrangement. I took four first prizes at the principal shows in the Province, two being for section honey and one for the best apiarian display of an educational nature in which a Danzenbaker hive and super fitted up was the principal item.

FRANCIS H. JONES.

You will note from the above a very good yield of honey considering the circumstances under which it was stored and the extra grade which he secured, which confirms in his case two of the claims for this hive—namely, more honey and better honey.

CLEVELAND, O., Jan. 26, 1907.

Please send me by next electric-package car ——— pounds of *extra* fancy comb honey. This *must* be in Danzenbaker sections, as I *can not* use any other kind. This must look nice, as I am building up a trade for a fine grade of honey. I should like the sections filled out to the edge with seldom or never an empty cell. In the fancy honey you sent me in $4\frac{1}{4}\times4\frac{1}{4}$ sections, about half had some empty cells and hollow places around the edge.

Yours very truly, THEODORE F. ENSIGN.

The last letter above shows the feeling of dealers with reference to an *extra fancy* honey. It is all well enough to say that if honey is of good quality, and well capped over, nothing more is desired. There is, nevertheless, a difference of one to two cents per pound between an ordinary fancy and an extra fancy honey such as is usually secured with the Danzenbaker hive.

Remember the prizes offered for results obtained from the use of the Danzenbaker hive this season. For particulars see page 80, issue for Jan. 15. Send in your name, stating that you wish to try for the Danzenbaker prizes, mentioning in which classes you expect to compete. You can change at any time, up to the time the report is made, the classes in which you will compete.

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests
Illustrated : Semi-monthly : One Dollar per Year
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At San Antonio some held that wax-worms could not be started without pollen. When I had more black blood than now, I saw many cases of worms started in sections, on the edge of the new comb, where, of course, there was no chance for pollen.

Stings are said to be worse when buckwheat is yielding, and it is explained by saying that analysis shows twice as much formic acid in buckwheat honey as in clover. But please remember, dear friends, that late investigations have shown that the poison of the sting is something separate from formic acid.

Swiss bee-keepers, with their 36 experiment stations, are getting ahead of us. They have been experimenting at mailing eggs. Of 76 sendings, 22 were failures. From the other 54 sendings, 305 queens resulted, 80 per cent of which mated and laid. Virgins are sent to the stations to be fertilized, and then returned.

Geo. Shiber wants me to explain why I did not have success caging queens to prevent swarming, as mentioned in "Forty Years among the Bees," p. 179. He probably has in mind that on p. 162 I report uniform success with the Doolittle plan of caging a queen ten days and cutting out cells. But the Doolittle plan did not *prevent* swarming—it was only the treatment of a colony after it had swarmed. It allowed the colony to swarm and then kept the whole force together without swarming again. But caging the queen ten days or more when they had not swarmed did not prevent swarming, whether they had started cells or not.

The report of the National shows 9 men having 1000 or more colonies each; a total of 12,100, averaging 1344 They are: In California, J. H. Flory, 1600; J. F. McIntyre, 1000; M. H. Mendelson, 1700; L. E. Mercer, 1500; R. M. Spencer, 1200; in Colorado, M. A. Gill, 1000; Bert Hopper, 1500; in New York, C. B. Howard, 1000; in Texas, Willie Atchley, 1600. A little remarkable that not one has an odd number, all having even hundreds. [There are some names in this list that are not generally known to the outside bee-keeping world. They are probably of the kind who "keep still and saw wood," but not of the kind who would not be willing to impart all they know. For example, E. W. Alexander was for many years unknown to bee-journal readers; yet subsequent events have shown that no man was ever more willing to draw from his extended and varied experience and place the facts before the reading public.—Ed.]

Editor Hutchinson thinks bottom starters superfluous. The bottom starter being my baby, I may be supposed to be partial to it, but I think I wouldn't be to the extra trouble of using it if I could without it produce crop after crop of sections such that no man could tell "which was the top and which was the bottom of the sections," as he says thousands of bee-keepers have done. I've been advising all to use bottom starters, but I'd really like to know if Bro. Hutchinson is right in saying that "with most bee-keepers it would be a wholly superfluous operation." [Bro. Hutchinson is usually right; but in this we can not help feeling that he is mistaken. If he will consult the commission men and honey-merchants, and all others who receive consignments of comb honey, we think he will find their universal verdict, where they know any thing about how the

honey is put up, is in favor of a bottom starter. The expert bee-keeper can doubtless get along without them; but we are of the opinion that the majority of them will find it an advantage, nevertheless, to use them.—ED.]

WHY IS IT that it's so much easier to unite bees in spring than in fall? Hundreds of times in spring I have put a frame of brood with adhering bees in a strange colony, and I remember no case of fighting. But I have seen more than one case of fighting when uniting in fall. May it not be that the explanation lies in the fact that the quantity of bees given was small in proportion to the size of the colony helped? Possibly if two colonies of equal size were united in the spring there would be fighting; and possibly if a combful or two of bees were added at a time at intervals of a day or two there would be no fighting in the fall. [What you say is probably true. May it not also be true that bees in the spring, just out of their winter quarters, are more ready to adapt themselves to unusual conditions because of the fact that they are ready to start anew, and the watchword is any thing and every thing to get ready for the harvest? Bees just removed from the cellar can be united and placed almost anywhere; but after they have been out for a time, and have marked their locations, the individuality of the colony becomes manifest, and then it is that the collective mass of the bees will refuse to accept new conditions.—ED.]

EXCLUDERS are counted by some a necessity in keeping the queen out of section-supers, while perhaps the majority find them unnecessary. The secret of success in the case is to have the sections entirely filled with worker foundation. When only partially filled, the bees are sure to build no little drone comb, and the queen is just about as sure to go up and lay in it if she can, especially if drone comb is scarce in the brood-chamber. I wonder if there may not be some secret that may do away with the necessity for excluders in working for extracted honey.

Only lately it has come out that the Dadants never use excluders under extracting-supers, and now comes E. D. Townsend as an anti-excluder extractor. He adds upper stories *on top*, uses no excluders, and does not extract until the close of the harvest. In his San Antonio paper he says, "By placing the upper stories always on top, without extracting, we have been able to keep down swarming, and have an extracting apartment practically free from brood at extracting time. We have used queen-excluders extensively for several years, and find that about every third year we have excessive swarming when excluders are used; and as we get practically the same results without them, with the above management we are discontinuing their use."

It is well known that the Dadants are remarkably free from swarming. Aside from their big hives, may not one secret of it be the absence of excluders? [This is an interesting question, and we should be glad to hear from our readers.—ED.]

CALIFORNIA HONEY PROSPECTS FOR NEXT SEASON.

WE have received advice from California that 20 inches of rain has fallen in the southern part of the State. It is reported that the ground is thoroughly soaked, and that there is prospect for more rain. Unless our bee-keepers in Southern California have another cold season this summer this large amount of rain means a honey crop. There were heavy rains a year ago, but they were followed by a cold backward-producing season, and the crop fell far short of the expected amount.

THE NAME "HONEY" CAN BE USED ONLY ON PACKAGES OF HONEY.

THE United States Department of Agriculture has recently handed down a decision that any substance, alleged to be coffee, according to the *Amercan Grocer*,, even if such only in name, must be real coffee and nothing else. This decision is eminently proper and correct from any standpoint. The same principle precisely applies in the case of honey. There should not be allowed any more on the labels the words "honey-drip syrup" for a glucose mixture. In fact, the word *honey* should not be hitched on to any concoction *unless* it be honey and *nothing else*.

IT is said the authorities of the national pure-food law have put a ban on gelatin as now manufactured, and therefore the manufacturers of candies, etc., will have to resort to something else. Paraffine has been peremptorily barred already as inimical to health. Beeswax is probably the best subtance which can be used in this connection; and as the candies frequently bring 50 cents to a dollar a pound, there does not seem to be any reason why it should not be used for candy-making to a great extent.

IT gives us very great pleasure to acknowledge the receipt of the first number of *The Danish Bee-keepers' Tidings*, published and edited by N. S. Kristensen, of Aldershville, Roskilde, Denmark. The first page has an excellent cut of A. I. Root, our senior editor; on second page a Dovetailed hive is shown, and on page 12 a cut of the A. I. Root Co.'s

apiaries at Jenkintown, near Philadelphia. G. M. Doolittle is represented by two articles. We highly appreciate the compliment intended, and hope our young contemporary will long live to champion scientific bee-keeping in Denmark. The Danes have the reputation of leading the world in dairy matters, and we do not doubt they will soon excel in honey-production.

DENATURED ALCOHOL FROM THE GLUCOSE FACTORIES.

It is announced on pretty good authority that something like 8000 barrels of denatured alcohol were shipped to New York from Peoria The cost price of the product is said to be 31 cents per gallon, f. o. b. factory or still. The price asked is 37 cents in New York The fact that the product comes from Peoria, where the big glucose-factories are located, would seem to indicate that the glucose people are converting their starch, not into glucose, but into alcohol. If this is true, this is a good piece of news.

While the general subject of alcohol and its production has no particular interest for the bee-keeper, yet we are immensely interested when the product that has been formerly a serious competitor to honey by reason of its cheapness is converted into something else really useful. Verily the day is coming when our swords will be turned into pruning-hooks and plowshares.

FOUL-BROOD LEGISLATION FOR CONNECTICUT.

Two bills may possibly be presented to the Connecticut legislature for enactment this winter, one of which, it appears to us, is very defective. Among other things it provides that "the inspector shall give two days' notice, and is required to get written permission before proceeding with inspection." We talked with a number of prominent bee-keepers in regard to the practical working of this section, among them Dr. E. F. Phillips, of the United States Department of Agriculture, and Mr. Chas. Stewart, of York State, one of the best bee-inspectors in the United States. They all stated it would be very difficult to carry out this provision, and that, moreover, it *might* defeat very largely the object of the law, for the reason that some bee-keepers, if given notice of this kind, might remove certain diseased colonies, leaving the inspector to see only those that were healthy, allowing such bee-keeper a clean bill of health when, of course, he had no right to have it. Again, if an inspector happened to arrive at a bee-yard ahead of time his hands would be tied until the time limit had expired.

Another section provides that no bees can be destroyed without the payment of one-half their value by the inspector. This will bring up the complication of what the bees are worth, and, furthermore, might entail a large cost on the State. This of itself might defeat the passage of the bill, as we happen to know how the average law-maker looks at anything that will pull very seriously on the State treasury.

Mr. Stephen J. Griffen, of Bridgeport, Ct., who, by the way, is very much interested in getting a good law, believes that such provisions would "so hamper the inspector" that he will be "unable to cure foul brood." He has offered another bill (without these provisions) that, in our opinion, is most excellent. It appears to be founded on the New York and Wisconsin laws, with some additional provisions that the York State people will probably incorporate in their own law later on.

Mr. Griffen is very anxious to hear from the bee-keepers of his State, especially those who would be willing to write to their legislators, or, better, go down to Hartford at the proper time and work for some good bill. It would be very unfortunate to have two bills presented, and the bee-keepers of Connecticut should agree on one or the other, and have only one offered. Copies of Mr. Griffen's proposed law can be obtained of him direct.

THE BEES OF WHITE AFRICA.

L'Apiculture Nouvelle for January 15 has a very interesting article relative to bee-keeping among the Kabyles, a race of white Africans conquered by the French in the course of their acquisition of the greater part of Northern Africa. These primitive people have two distinct species of bees which they cultivate in a domestic state—the common bee with which we are all familiar, and another species much smaller, and which they term the "wasp bee," from its color, and possibly, also, from its irascible temper, which causes all who have to do with it to be careful how they approach their hives. This, probably, is the *Apis Adansonii* of the entomologists. It is one of the most beautiful of all our honey-bees.

The principal source of good honey with the Kabyles is the African sulla clover (*Hedysarum flexuosum*), a very valuable perennial clover on the alfalfa order.

The bees are kept in long cylinders, or pipes, nearly five feet long, and the combs are cut out from time to time. There is a marked difference between the honey produced by the two species of bees.

The article was prepared from a book written by Mr. Hanoteaux, on the Kabyles and their customs. It is a pity we can not secure further information about these bees, from the pen of an expert bee-keeper.

PRICES AS A RESULT OF THE PURE-FOOD LAW.

Mr. Louis Scholl, in the *American Bee Journal*, gives it as his opinion that it is not the pure-food law which has produced what he terms *high prices*. He says it is the demand stimulated by a short crop. But what created the demand? We have had short crops before, but the price did not rise on that account. It does not seem to us the price of honey is high; on the contrary, it is far below the European standard. The peo-

ple who buy honey in our cities—most of them—can well afford to pay higher prices for fancy honey. They willingly pay 50 cents a pound for good butter and 50 cents a dozen the year round for eggs. Formerly the most fastidious buyers were actually afraid to purchase honey. As a matter of fact they were afraid of being poisoned. The new law gives them *confidence* in what they see offered for sale, and it is confidence which is the root of all business. We do not expect the price ever to go down again to the old level.

THE NEW PURE-FOOD LAW WILL NOT ADVANCE PRICES ON ALL COMMODITIES.

THERE may be an impression among some that the new pure-food law will raise prices on all articles of food. This is not the case, however, and the tendency will rather work the other way if any thing, on some staples; for example, coffee, sugar, and tea will probably be cheaper, as large profits were made by misrepresentation in these lines. Seven-cent Rio coffee, for example, was sold as the best Java at 30 cents, and so on through a long list. Consumers can not possibly lose any thing by having foods sold for exactly what they are.

THE EFFECT OF THE PURE-FOOD LAW ON THE SYRUP TRADE.

A STRAW sometimes shows which way the wind is blowing, quite as well as a sixteen-foot windmill. The Louisana *Planter* of Jan. 26 states :

> Fortunately for us, however, under the pure-food investigations, and from other causes, the consumers of syrups are becoming more critical, and unwilling longer to consume the vast quantities of flavorless chemically produced corn syrup, and are turning again to the sugar-cane for a supply. Georgia and Florida have been setting the pace for several years, and hundreds of thousands of gallons of desirable syrup are now being marketed throughout the country from these States. Here in Louisiana, several syrup-factories have been recently started, and inquiries are making into the possibility of manufacturing such goods even on a large scale.

There is no doubt the growers of sugar-cane in the South will very much benefit by the new law, as their product is no longer endangered by the artificial syrup which has hitherto been foisted on the public as "just as good," in fact, "better, for less money."

In line with this movement the United States Department of Agriculture has established an experimental syrup-farm at Waycross, Georgia, under the superintendency of Prof. H. W. Wiley. At this plant care is taken to produce syrup free from all chemicals. No chemicals at all are used in the course of its manufacture. No sulphur or sulphurous acid is used to bleach it, and even lime is not employed to clarify it. The only method employed is simply the application of heat to the juice, which is skimmed from time to time.

Thus we get back to first principles. Prof. Wiley truly observes, in the *Year Book of Agriculture*, that, if fastidious consumers do not care for the appearance of this syrup, they will have to do without it, because the other kind is deleterious to the public health. Let the good work go on. Honey is by far the best syrup.

THE EDITOR'S TRIP TO CANADA.

THE editor has just returned from a very enthusiastic meeting of the Brant Co. Bee-keepers' Association that was held at Brantford, Ont., Can., Jan. 29, 30, 31, which convention is reported by Mr. Holtermann elsewhere. We should have been very glad to attend the Ontario meeting, but it came at a time before we could get away. Usually the editor can not leave until after the first or middle of January.

On this trip we visited Mr. R. F. Holtermann, of Brantford, and saw his mammoth bee-cellar; called on Mr. J. B. Hall, of Woodstock, Ont., formerly the comb-honey king of Canada, and Mr. F. J. Miller, of London, Ontario, a strenuous advocate and user of the Heddon divisible-brood-chamber hive. On our return we stopped at Buffalo and witnessed Mr. Hershiser operate his wax-press, taking photos of each separate step, and inspected his bee-cellar. These various stop-offs will be made the subject of future articles.

BEE-KEEPING AS A BUSINESS.

QUITE interesting is the fact that *Conversations with Doolittle* in this issue and the article by E. W. Alexander, page 243, are both on the general subject of bee-keeping as an occupation. The first reading shows a striking similarity in the argument, even though there may be some differences of opinion. Both caution the man who starts blindly out to specialize in the business without being sure either of his ability to handle bees or of his love for the work. We believe they are right, for many are tempted to go in the business thinking that they can do as well as some neighbor, even though they may not be fitted in the least for it.

Mr. Alexander advises a young man to work for some large producer until he has proved to his own satisfaction that he can succeed, while Mr. Doolittle thinks it better for such a beginner to keep bees in connection with some other pursuit until he knows whether he is adapted to it or not. Both plans have advantages. Too many amateurs want to become professionals the first year, or to buy three hnndred colonies of bees before they can handle thirty.

Both writers are too broad-minded to think of success as an accumulation of dollars; they count it of much value to be their own employers, to live in the open air, and to have an opportunity of studying nature. There is much in this. Sometimes bee-keepers do not realize the privilege which is theirs of working in the pure air and sunshine, but this is why they are so vigorous and why they so seldom have to give up their work because of failing health.

Mr. Alexander would have the beginner,

after one or two seasons' experience with some extensive bee-keeper, disregard the advice to go slow, because, after that much study, he ought to be ready to forge ahead. This is all right for the man with assurance and great will-power; but is it not true that some beginners might go *too* fast, spurred on by the natural enthusiasm following previous success in a small way? It would seem safer, in the end, to make a steady healthy growth, rather than to jump ahead by leaps and bounds. Harry Lathrop has well said that many could succeed if they kept only such a number of colonies as they could handle themselves; that, after that number had been passed, the question became one of handling men rather than of handling bees.

Mr. Alexander points out the advantages of having but one occupation, and calls attention to the fact that, by so doing, the capital to be put into business is undivided, as are also the time, thought, and energy. But Mr. Doolittle names several different lines of business which do not conflict so far as the time and energy are concerned. By far the great majority of our readers combine bee-keeping with something else—farming, gardening, poultry-raising, fruit-growing, etc.; but it is certainly folly to keep on with some line which can not be attended to properly because of a lack either of capital, time, or energy, or, in other words, have no iron in the fire that can not be kept hot. The whole question depends upon the circumstances connected with each individual case.

ARE OUR HONEY QUOTATIONS RELIABLE? HOW ONE BEE-KEEPER WAS JUGGLED OUT OF A FAIR PRICE ON HIS HONEY.

A CORRESPONDENT intimates that the quotations made by some of our commission men and honey merchants are not reliable. Some cases are cited showing that the actual conditions of one market were falsified in order to bear down the market. We are afraid there is some truth in what he says.

Very recently we learned of a case where a Southern producer shipped a large consignment of honey to one of our large cities. At the time of making the shipment he notified one commission house that such consignment was on the way, and that he would negotiate for its disposal in person. As the shipment was a large one it now appears that this house immediately notified all the honey-buyers of that city, and that they conspired to depress the market temporarily. Well, when our Southern producer put in an appearance in the city he went to Mr. Commissionman and was immediately told that the "market was greatly depressed," and that he could offer him only so and so. He was *very sorry* (?), but it was the very best he could do. The Mr. Southern Honey-Producer then went to the other buyers in the city, and they, of course, told him the same story. Very reluctantly he went back to the first commission man and turned over his shipment, which was large. Did these fellows afterward divide up the shipment at the reduced price? We don't know.

Mr. Southern Honey-Producer did not suspect at the time that there was an agreement to hold him up; but he learned afterward that the market was a good deal higher than it had been quoted to him, and that this very same honey was disposed of at a great advance over the figure he obtained. But unfortunately during all this time he was innocent of what was going on.

He sent another shipment to the same city (still ignorant of what had been going on), went around to all the buyers, and was told the same story. He went back to commission man No. 1, and stated that he could not afford to sell at the prices offered, and added that he would go to another city, but he did not say to whom nor where. He did so, and disposed of his crop at a fair price. He then went back to the first city and was unwise enough to tell his commission man that Mr. So and So, of blank city, had paid him a great deal better price, but he added that he had some more honey that he was going to sell to Mr. So and So again. Here he made his mistake. Listen. When the next shipment was sent to city No. 2, commission man No. 2, the one who paid the better price, immediately told our honey-producer that he paid him too much on the former shipment, and that he could not afford to pay him any such price again. Well, he went around to the other buyers, only to hear the same old story. The poor man was up against it, and was finally compelled to unload.

Subsequent developments seemed to make it appear that the commission man in the first city used the long-distance phone and told the commission man in the second city that the Southern honey-producer who was coming to see him had a shipment of honey that he must unload, and not to offer more than a certain price which he had offered. Of course he obeyed instructions. If Mr. Honey-Producer had sold on sample before the buyers had him at their mercy *he would have saved nearly a thousand dollars.*

Perhaps we have not given the facts exactly as they occurred; but the general outline is correct. We have no disposition to censure anybody, for we believe the majority of commssion men are reliable; but if this sort of thing is to continue against the producer, we may be constrained some day to give the full facts, with names and all. Perhaps the readers may think we ought to do so in this case; but if the parties concerned see this, and the shoe fits, a word to the wise will be sufficient. The honey market is even now altogether too low, and GLEANINGS can not consistently allow such practices to go on without turning on the lime-light.

Moral. Don't send a shipment to a city without first getting quotations on it from a reliable house; otherwise you will be at the mercy of the city buyers, who may conspire against you. Again, don't tell any buyer or commission house to whom you are selling or have sold; and, least of all, to whom you propose selling.

PEACH-BLOOM IN JANUARY.

In the South, fruit-bloom is very early—much earlier than "up north;" but this year it has come even earlier. Some of our peach-trees are in "full blow," and bees are on the blossoms. Occasional pear and other fruit-trees have been in bloom since the first of the year. See page 254.

The weather has been warm, the thermometer registering 82° in the shade in the middle of January. There have been only a few cold days and frosty nights; but bad weather may yet be expected during this month, and even in March; so we are unable to tell what the outcome will be. A late spring with cold winds and frost is a great drawback to our bees. The early bloom stimulates them; and as brood-rearing advances, the brood-nest is spread out; a sudden cold wave overtakes the bees unawares, and brings disastrous results. It is during such seasons that extra hive protection would be essential and profitable. The stores of every colony should be looked after also, as the heavy breeding soon depletes the honey on hand, and a shortage may mean a loss of much young brood. This latter is more often the cause of brood losses than the cold weather. It is simply brood starved for want of food which the bees were not able to supply on account of the inclement weather. A little feeding and a little extra care may mean money in the owners' pockets.

A VALUABLE FEBRUARY BLOOMER.

Nothing stimulates early brood-rearing in my apiary here like the triple-fed barberry (*Berberis trifoliata* Moric). This shrub is more commonly known here as "agerites," its Mexican name. It belongs to the family *Berberideæ*, or barberry family; is an evergreen, and grows mostly on gravelly slopes and hills of Southwest Texas, often forming thickets and along field and pasture fences where the seeds have been scattered by birds, which are very fond of the ripe berries. The wood is hard and yellow. The leaves are palmately trifoliate, or in threes, and each leaflet is stout and stiff, lobed into three to five lobes, each with a sharp spine. The flowers are small, bright yellow, and borne in dense clusters along the entire stems. Their great number and fragrance fill the entire woods during their bloom. The ripe fruit, in May, is small, red, acid berries about the size of small peas, which are delicious to the taste. These are much used for jellies, pies, tarts, etc., and also for making barberry wine.

As a honey-plant it is one of much value to me. It blooms here very early in February, and the bloom continues for several weeks, some bushes blooming later than others. The pollen yield is abundant, bright yellow in color. It also furnishes honey, and the bees build up rapidly. When locating apiaries it is always observed that there is an abundance of "agerites" within reach of the bees if these are located in localities where the shrub prevails. It is the second bloomer of the year on my list of Texas honey-plants, coming after mistletoe, mentioned in Jan. 15th GLEANINGS, and just before our main fruit-bloom. See illustration, p. 254.

SHALLOW DIVISIBLE HIVES.

Another season of hive preparation is at hand, and the question of the kind of hive best suited for our purpose comes up in our minds. It is a hard matter to settle this question for everybody; but it can be settled by an individual for himself if he is careful, and conscientious in his opinions regarding the advantages and disadvantages of a hive. Bearing this in mind I have experimented with many kinds of hives. My conclusions were that the regular Langstroth-depth hive is better suited to the greater majority of the bee-keepers, for several reasons. One of these is that such a hive is of standard dimensions, or at least put out by the majority of manufacturers, and used already by most bee-keepers. It is best suited for the great majority who adhere to the methods and manipulations applying to the Langstroth hive, for a different hive needs a different system of management with it. The regular Langstroth hive is also best suited to those who do not handle their bees at all—the class who boast that it is standard, and "good enough for me." Arguments may be in favor of letting such persons use box hives; but might it not be possible that simply the fact that the bees are in regular frame hives enhances their value—for instance, if sold?

But the Langstroth hive does not "fill the bill" for *all* bee-keepers. For the *intensive bee-keeper*, though he may manage only one apiary or run many on an extensive scale, the divisible hive and *the system that goes with it*, mind you, will be found to possess many advantages over the deeper-frame hives. It is a noted fact that those who have tried such hives carefully, and adopted them, do not hesitate to extol their merits, and remain advocates of them.

Generally, those who decry the merits of such hives have either not tried them fairly and conscientiously or they have used the divisible hive with the system of management that belongs to the Langstroth. This is one thing to be remembered in discussing the merits or demerits of a hive. If the manipulations used with deep-frame hives are applied to the divisible, sight is lost of the real benefits to be derived from the use of shallow hives. Unless the right kind of management belonging to the divisible hive is used with it nothing will be known about the merits

of these hives. It takes an entirely different system to succeed with the shallow-frame hives from those with deep frames, as whole cases, instead of frames, are handled in the manipulations in the apiary as well as in the shop and the honey-house. Such manipulations alone lessen the work and expense, and increase the profits from the bees.

More bees can be kept, as the manipulations are fewer. More honey can be taken with shallow frames, as a whole case of ten combs can be taken off; whereas single combs are taken out of deep supers. This applies to the production of all three kinds of honey —section honey, bulk comb, and extracted. By smoking the bees down, taking off the super rapidly, and jouncing it up and down a few times, it is ready to take to the honey-house, where they are stacked up crosswise of each other to allow the remaining bees to escape and leave through the escapes at the windows. This is by far the best and quickest way to remove honey. Many bee-keepers are using these shallow supers, not only for comb honey but for extracted. It is easier to uncap shallow combs, one slice doing a whole side, and they are handled in pairs in the extractor, and when they are replaced in the returning supers.

For tiering up, the shallow supers are better, as the bees are not placed so far from the brood-nest, causing them to begin work in the supers earlier. Full sheets of thin foundation can be used, which is another incentive to start super work earlier, and a shallow super will be filled at times when they would not begin in a deep one.

As brood-chambers, such cases suit me admirably. Much more can be accomplished by handling whole cases in the hive manipulations in the apiary, in the early spring, during swarming time, the honey-flow, and for preparing the colonies for winter at the end of the season's work. The brood-nest can be examined by just tilting the upper case back, and queen-cells can be easily detected along the bottom edges of the combs. If the cluster is located toward one side or one end of the hive, the simple reversing, end for end, of the upper case will force them to remodel the brood-nest. This is an easy way to practice spreading and stimulating brood-rearing. When brood is to be given to weak colonies a section is exchanged with that from a populous one — an item of only a few minutes. During swarming time this is practiced to a great extent to "knock swarming in the head." I know of nothing better and easier than to tear the mass of brood asunder and fill the space between with empty combs for the queen. This is done in a jiffy with the shallow hives by simply slipping a case of shallow all-worker combs between the two brood-cases. Now we shall have three cases instead of two of the brood-chamber, in ideal condition for the honey-flow. The upper case will be filled with honey, the brood being crowded down. The new surplus-honey supers are given *between* this and the brood-nest, and are filled with a vim that does not exist when supers are simply set on top in the ordinary way. An extra super of extracted honey is thus obtained before the main honey-flow.

For a wintering hive I have found no objections to it. It is deeper than the L., hence better suited to the cluster. The only objections that have ever been mentioned are made against the spaces between the frames of the upper and lower sections of the brood-nest; but I do not think there is any good ground for this. Why, it affords the bees of the cluster a way through which to move within reach of stores without going clear around the combs. Messrs. Doolittle and Danzenbaker, I believe, are both advocates of an opening through deep combs for this very purpose.

Objections are also raised against this open space during the laying period, that it interferes with the queen. But why do we have colonies just as strong in bees as with deep combs?

As an all-around interchangeable hive, from the ground up, I prefer the divisible hive.

SHOULD BEE-KEEPING BE MADE A SPECIALTY?

"Say, Mr. Doolittle, to make a success of bee-keeping should the novice aim at the business as a specialty, or would you advise keeping bees in connection with some other pursuit or pursuits, so that he need not have all his eggs in one basket, as it is termed?"

"Bees can be kept in connection with other pursuits, and that with success, as I well know; but if success is obtained, special attention must be given the bee-keeping part of the pursuits, and special attention should be given to the others as well, if you are to succeed in all."

"Do you think it possible to give special attention to three or four different pursuits at the same time?"

"Why not? Suppose you are working the bees in connection with dairying and gardening. The cows need special attention, in the summer season, at morning and night, just at a time when the bees can be worked at the least advantageously, and thus you have left the warm hours of the day to attend to the bees. They should not require all of this time every day; and during the times when they do not, then you can pay special attention to the gardening. There should be no difficulty in working these three at one time, giving special attention to each, just at the time they may require it."

"But there are those who make a specialty of bee-keeping, and succeed, are there not?"

"Certainly. But you were asking about what a *novice* should do. Captain J. E. Hetherington once told in my hearing at a bee convention how, when he was a young man, he wrote to that father in bee-keeping, Moses Quinby, asking him if he would advise a young man to make a specialty of bee-keeping, and Mr. Quinby's reply was *no.* A year or two before father Quinby died, Mr. Hetherington referred him to this letter and asked him how he would *then* answer it; and he said that his answer would still be the same. When Captain H. pressed him for his reason for still thinking the same, Mr. Quinby's answer was, 'Just look over the list of those who kept bees twenty years ago, and have succeeded so well that they are still content to follow the business. How few they are!' And yet Captain Hethrington made a success at his specialty, bee-keeping, numbering his colonies by the thousands. You see he was an exception to the rule."

"Then, if I understand you and Mr. Quinby, you do not advise entering into bee-keeping as a specialty until a person has proven his ability at bee-keeping by giving *that* special attention, together with some other pursuit or pursuits, until he is satisfied that they want to make apiculture a special calling in life."

"That is it exactly. I consider it foolishness for a novice at bee-keeping to put $500 to $1000 of hard-earned money at some other calling in life into bees, and start out with bee-keeping alone as a specialty before he is at all familiar with the many intricate problems of the pursuit, expecting that he will make a success of such specialty; for, in 99 cases out of 100, the 20 years spoken of by Mr. Quinby will find him out of the business, a very much disgusted man, with his investment nearly if not quite a total loss."

"But you said Mr. Hetherington succeeded."

"Certainly. He was brought up under Mr. Quinby's influence, which was thorough and careful. The trouble is that 99 out of every 100 who enter into bee-keeping are not *positive* enough in their methods to succeed as specialists. The novice is apt to *think* that a colony has a good queen; that a colony has *enough* honey for winter; that its combs are *good* enough, etc. The trouble is they do not *know;* and that is why so many hives are piled up in fence-corners or old buildings all over the land, showing the many who have entered into bee-keeping, and why they have failed."

"But does not the location have much to do with it?"

"Yes, but a good location will not overcome a slipshod, go-as-you-please way of keeping bees. However, a good location, with a man fitted for a specialist, will roll up a success which the world will almost envy. Captain Hetherington had a good location, which was an advantage to him without doubt."

"Do you think it possible for a man to be equally interested in several pursuits at the same time?"

"Perhaps not."

"Then why not give a young man two or three different pursuits till he finds out which he likes best?"

"That is my idea exactly. In my opinion, it is not best for a young man to start out as a specialist. Many of the bee-keeping specialists of to-day have become such by getting a few bees, when they soon formed a liking for them, and soon afterward they found they were neglecting their regular business for the bees, their love increasing for the bees more and more as the years went on. Then they soon became *bee-keepers* and the other business was dropped."

"Did you start out with bee-keeping as your only business?"

"No. I was born of farmer parents. I grew up a farmer's boy. I loved the farm and its work, or at least I thought I did."

"Then how came you to be a bee-keeper?"

"One winter an old bee-book fell into my hands and I read it. It said that a few hives of bees belonged to every farm—just as much so as did the cows, horses, sheep, pigs, and chickens. My father was consulted in the matter. He had kept bees when I was a baby. He said I could get a hive or two, but that there was little profit in them. I purchased two colonies of bees in the spring of 1869."

"Did you expect to go into bee-keeping extensively?"

"No. I figured that I would keep ten colonies; that these colonies would give me twenty pounds to the colony, of surplus honey. Honey was then worth 25 cents a pound in any of the villages about us. The 200 pounds from the ten colonies would bring me $50.00 each year on an average, and I would have $50 to help along with the taxes and other expenses on the farm. But the bees increased, and with this increase my love for them increased faster than the increase of the bees; and it was then I found out that I did not love the old farm and the work that went with it as well as I supposed I did. This was against my father's wishes. He wanted me to be a *farmer.*"

"But bee-keeping was *farming,* was it not?"

"Not in the eyes of my father, for he saw that this love for the bees was the cause of my neglecting the other legitimate work of the farm. One day when I was revolving in my mind as to how much longer I would stick to the old farm, I was in the chamber over our living-room. My father and a neighbor came into the room below and entered into conversation. I was soon aroused from my reverie by what was being said, for I heard this in my father's voice: 'I have always wanted and expected that Gilbert would be a farmer. I have hoped and *prayed* that he would make a failure of bee-keeping; but it looks now as though he were going to succeed in spite of my hopes and my prayers.' This gave me an idea that the breaking-away from the old farm would not be as hard as I expected it would, and so I planned, and did leave the farm one year

later, launching out into bee-keeping as a specialty."

"Then why would you advise me not to make a specialty of apiculture?"

"Because you are at the stage I was when I bought the two colonies; only, if I read you aright, you would buy 50 to 100 colonies to start with, which, in 99 cases out of 100, will or would prove your ruin. Hold on to your business till you know you *love* bee-keeping well enough to let all else go; and especially that you can make a living success with the bees."

"What do you mean by a living success?"

"P. H. Elwood, one of the successful specialists at bee-keeping in this State, once said at a bee convention that a man who could successfully manage 100 colonies of bees possessed ability that would command an annual salary of $1000. But salaried positions are uncertain, and less than $1000 a year may be called a living success. To have a home, the fresh air of the country, and a comfortable living, is often a greater success than a $1000 salary, which is liable to slip away from you at every turn of the wheel of fortune with your employer; and especially where such salary ties one up to the impure air of the factory and away from God's blessed sunshine, which is generally the lot of those who are dependent on a salary for a living."

"Well, I thank you for the time you have given me, and for your many candid expressions regarding apiculture as a specialty."

Gleanings from Foreign Fields.

BY W. K. MORRISON.

There are, according to the government report for 1905, 1,050,127 colonies of bees in Austria, which return about 14,000,000 lbs. of honey and 600,000 lbs. of wax during the year.

The price of honey in Berlin, Germany, is as follows: Extracted, 25 cts. per lb.; comb, 37½ cts. per lb. The price in Bremen is, comb, 30 cts. per lb.; extracted (strained), 27½ cts. per lb.—*L'Apiculture Nouvelle.*

According to a census made in 1904, Hungary contains 582,184 colonies of bees, of which 365,930 are on movable frames. These produced, during the year indicated, 27,446 quintals of honey, valued at about $500,000. The wax produced amounted to 1706 quintals, valued at about $70,000. The honey is sold usually at 10 to 20 cents per pound, and the wax at 30 cts.

MALTED HONEY.

Mr. Thomas Bolton, of Hamilton, State of Victoria, Australia, has succeeded in placing on the market a new food which he terms malted honey. He does not state it is a medicine, but says it is an article to be placed on the breakfast-table. It is a combination of pure malt extract with honey. Judging by the way other malted foods are disposed of, this new aspirant ought to succeed very well. It looks to us at this distance as though this malted honey would be a good thing. How would honey and butter frozen together answer during the winter as a food for the gods? Try it on yourself first. It is good. It is just the thing for consumptives.

AN IMMENSE IRRIGATION SCHEME FOR VICTORIA, AUSTRALIA.

An immense irrigation scheme has been proposed by two engineers to the government of Victoria. They propose to irrigate about 750,000 acres of land, and supply electric power to Melbourne and other cities to the amount of 25,000 horse power. There is no doubt at all that irrigation helps bee-keeping, because on a given area the amount of vegetation grown is much larger, and the crop seasons more certain. Of course, alfalfa will be grown; but it may be that, in the mild Australian climate, sulla or sainfoin would be better. Perhaps it is that oranges, peaches, lemons, etc., will be extensively planted. In any event, it would seem as if this were a good thing for bees in Australia. It will be observed the Australians are proceeding along American lines. This is particularly the case in bee-keeping. Every American wishes them success.

"THE GOOD OLD ENGLISH BEES."

In England there is a decided tendency to stick to the black bee—sometimes termed "the good olde Englishe bee," as the equal, at least, of any foreign bee, if not a little better. This does not promise any great improvement in the honey-bee, as has been effected in the breeds of cattle, horses, sheep, swine, dogs, and poultry. England owes its finest horses to Arabian blood, cattle from the continent of Europe, sheep to Spain, swine to the north of Italy, dogs to Spain and Greece, and poultry to many countries. The beauty of the yellow races of bees ought to appeal to their bee-breeders, more particularly as Englishmen know beauty is very far from being skin deep. Our most beautiful horses are the swiftest, our prettiest cattle the best milkers, and the handsomest poultry the best layers. One thing is certain, *Apis Americana* will be very handsome indeed.

The necessity for greater care in the choice of foods is indicated by a careful study of the death rate of the United States and other countries. For example, it is estimated of the 6,000,000 babies that will be born only to die during the next ten years at least 3,000,000 of them could be saved. Such figures are appalling. That food has much to do with this list is well borne out by the fact that children of American parents die faster than those of foreign-born parentage. This is attributed by medical men to the fact that

the American mother uses "patent" foods for feeding infants.

No food can excel honey as a food for children, and it is not patented.

It is not generally known why honey improves by being kept for some time, either on the hive or off. It improves in two ways —first, by the evaporation of some of the water present in it, also by the addition of formic acid, which gives that rich "biting" flavor we all desire. But it also improves by the change of the sucrose (cane sugar) which slowly but surely "changes" of itself into dextrose. The national pure-food law allows 8 per cent of sucrose in honey; but even this amount may be eliminated by keeping the honey in a dry warm room for a period. Honey improves with age.

THE THICKNESS OF THE COMB OF APIS DORSATA.

The *American Bee Journal* has a paragraph calling in question the statement that *Apis dorsata* builds a comb with cells 2½ inches deep; but this is an actual fact, and the thickness of the comb is 5 inches and more where it is attached to the branch of a tree. This is for the storage of honey, and also supplies a great hold on the tree. Of course, the comb tapers lower down where the brood is reared. It is probably true the cells at the top of the comb are not six-sided, because the stretching caused by the great weight of so large a comb, together with the weight of one whole colony of bees, would serve to draw the cells out of shape. It should be borne in mind that *Apis dorsata* builds but one comb in the open air, attached to the branch of a lofty tree or overhanging rock. Occasionally they build more combs, but not often. The wax they make is also softer than ours from *Apis mellifica*.

BEES OF NORTHERN AFRICA.

L'Apiculture Nouvelle for December 15 contains an interesting article read before the French Association for the advancement of science on "The Bee in Libya." Libya, it may be noted, embraces Tunisia, Tripoli, Algeria, and Morocco, with the hinterland of the Sahara. It is the land par excellence of the date-palm, which is a liberal honey-producer; romarin (rosemary) and wild thyme are also abundant nectar-yielders in that famous land. The paper is by Prof. Lefebure, who gives the history of bee-keeping in North Africa from the time of Herodotus to the present day, giving us glimpses of the way apiaries are and were kept on the Nile itself, floating up and down with the seasons. Some very excellent authorities consider Libya the cradle-land of our race, and that we are not Caucasians but Punics. It seems very probable our black bees came from North Africa originally. No one has, however, arisen to explain why it is they have a yellow race of bees in Egypt on the eastern end of North Africa, and the same on the western end (Senegal), with 3000 miles of black bees separating them. Here is a conundrum worth studying.

THE PESTS OF CIVILIZED COUNTRIES.

Whenever it is proposed to introduce a new animal or insect we are at once confronted with statements about the English sparrow, the rabbit in Australia, and the mongoose in the West Indies. These are largely newspaper exaggerations similar to the comb-honey lie, and ought not to appear in the columns of a reliable paper. The United States owes an immense debt to other countries for many valuable introduced animals and plants. The greatest pests in this country are native animals such as the wolf, coyote, prairie-dog, and jack-rabbit. In South America it is the puma. In Australia it is the dingo dog. In New Zealand it is the kea bird. In the West Indies the mongoose (a kind of ferret) almost destroyed the rats —a very serious menace to tropical agriculture. If there are any valuable species of bees in other parts of the world, let us experiment with them, free from prejudice and fear. Our bees are not "natives," neither are we.

A DEPRESSED HONEY MARKET IN AUSTRALIA; HONEY IN BAKED GOODS.

The Australian bee-keepers are up against a hard problem to solve—a better market for honey. They have tried the English market, which will not purchase their honey at any price, as they dislike the peculiar flavor. Probably the home market can be developed. The baking trade (large factories) takes up a good deal of the ordinary grades of honey in this country. Probably the Australians buy their fancy cakes in England, where the biscuit trade uses sugar almost exclusively; if so, there is an excellent opportunity for an Australian baking-factory to step in and capture the trade, for honey is undoubtedly superior to sugar for this purpose. If our friends of the antipodes have never tried honey bread they ought to at once, for they will probably admit very quickly it is somewhat superior to any bread they ever tasted. For the children it has a wonderfully attractive power, quite equal to the best confections. Extracted honey of a good grade is selling in Melbourne and Sydney for 6 to 6½ cents per lb.

WHAT THE GOVERNMENT OF BELGIUM IS DOING FOR APICULTURE.

Prof. E. Van Hay contributes to the Dec. 15th number of *L'Apiculture Nouvelle* an excellent account of the present condition of bee-keeping in Belgium. In connection with the agricultural school at Gembloux a complete course of instruction in apiculture is furnished, divided into five parts, requiring about 200 lessons. First is the theory; next, practical management; next, utilization of the products of the bee, showing how honey is used as a food, in medicine, in fancy cookery, honey wines, and vinegar; also wax-refining and usage. Next comes apiculture in general, followed by a complete course in the practice of bee-keeping, which includes making foundation and hives. The students

are taken to see apiaries in various places. There are 258 bee societies, with 9890 members, who receive subsidies to the amount of 21,780 francs from the state. Many of these societies are federated into 9 sections. There is a central syndicate with headquarters at Brussels. They have a selection of 29 bee-books for study, 24 in the French language and 5 in Flemish. They have 5 bee journals, all in French. The hives in use are Dadant-Blatt, Layens', and Voirnot's. How is this for *little* Belgium?

THE HIVES OF CENTRAL EUROPE.

Every nation or race appears to have its own peculiar idea of the eternal fitness of things, for by no other reason can we account for the extraordinary variety of hives now in use in Central Europe, by which is meant Germany, Poland, Austria-Hungary, and Bohemia. There the races of men refuse to blend in one common mass as they do in this country, and we have Croat, Saxon, Czech, Vlach, Hun, Slav, Pole, Jew, Magyar, and all the rest united in an agreement to be disunited, each apparently firmly convinced his way is by far the best. Dr. Dzierzon, owing to his commanding position in the world of bee-keeping, succeeded in a considerable measure in beating down some of this prejudice so far as it applies to bee-keeping. But he was himself a victim of prejudice, for he persistently refused to accept the Langstroth hive in its entirety, though he recognized the value of movable combs in frames. Had he, with his great prestige, advocated with all his vehemence (which was not small) the Langstroth hive pure and simple, it is perfectly safe to say apiculture in Central Europe would have progressed to a point far beyond its present position, and probably be abreast of the best American practice. But the opportunity was lost, and we are waiting to observe developments, for these races generally prefer to follow a leader.

SWEET CLOVER AND LOCUSTS FOR BELGIUM.

The Bee-keepers' Association of Belgium met in Brussels on the 28th of October, under the presidency of Mr. Henry, Professor of Botany in the college at Flobecq. The president is a bee-keeper who has made an exhaustive study of bee pasturage. One proposal which came before the conference was to vote a sum of money to buy 440 lbs. of sweet-clover seed (white) for free distribution among the members in 25-gramme packages. They know where they are at in Belgium.

Professor Henry has an article in *Le Progres Apicole* for November on the locust-trees as honey-producing plants, and it may not be generally known that locusts are much more appreciated in France, Belgium, and Holland than they are in this country, the home of some of them. He calls attention to the fact that the leaves and small twigs of these trees form a food equivalent to alfalfa as a food for sheep, deer, and rabbits. This should be noted by game-preservers. Locust-trees of many species are very important to bee-keepers the world over, in the United States, in Mexico, where the national "dulce" is the pod of a locust; in Hawaii, where the "algorroba" produces great yields of honey; also in Cuba and Porto Rico; in the French West Indies, where the "quadoo" pods are valuable, and in South America, where the ombu is important. St. John the Baptist lived on locust-pods (husks).

At the annual meeting of the Vermont Bee-keepers' Association one gentleman gave his experience in building up weak colonies by the Alexander plan of setting the weak colony over a strong one, and pronounced the method a great success. It would seem that the art of bee-keeping was never advancing so rapidly as at the present time.

Mention has been made in one or two numbers of GLEANINGS of the high price of honey in England. We have taken some pains to get quotations from there, if we might know the truth of such high prices; but quotations are only three to six pence a pound. Meanwhile some one has been selling honey in Chicago for 50 cents a pound—two better than in England. A few days ago a gentleman told me that his own honey was retailing in New York, Brooklyn District, for 30 cts. a pound. It looks hopeful.

What do you mean, Mr. Editor, when you say, page 18, "Even the doctors must show what they put into their medicine when they give it to a patient"? Does this mean that their prescriptions must all be correctly labeled? I have found by inquiry at a drug-store that patent-medicine men are not compelled to divulge how or of what their medicine is composed, and print it on the label. They give the government their formula, and then are required to stick to it, while those who take their medicine remain in blissful ignorance of what they are swallowing.

In Mr. Holtermann's interesting notes from Canada he states that, within a circle of two miles, and in the city of Brantford, he counted up over 1000 colonies of bees. Supposing they fly two miles on every side beyond this circle, this would make 1000 colonies occupying about 27 square miles, or not far from 37 colonies per square mile. Presumably the bees, many of them, fly more than two miles; but then he tells us that there are quite a few bees kept outside

of this circle, which would balance up that. It would be interesting to know the sources of honey within this circle. I believe many more bees might be kept together than at present with care in spring and fall.

Mr. Holtermann's drastic method of treating those engaged in adulterating honey would seem to be pretty effectual. He can not help giving the small-hive men a little rap in closing; but I begin to think he is about right on the subject, especially for those engaged in the production of extracted honey. I have had only two seasons' experience in extracting on a large scale, and have much to learn. One thing has impressed me strongly, and that is, it is a mistake to use queen-excluders between the first and second stories, as such hives have been as ready to swarm as those producing section honey.

Prof. Bigelow's article in a December number calls for a little attention. I believe, as he says, that the producers of honey put up their goods in less attractive packages than any other goods in grocery stores. It is very hard for one who produces a few hundred or a few thousand pounds to believe that a little more spent in fancy cartons and cases will more than come back to him in higher prices for his honey, besides increased sales; and that whatever increases the demand has a strong tendency to raise the price of the product. I should not be surprised if some of our most important improvements in future would be along these lines.

H. H. Root's two articles on making beeswax are, I believe, the best and most exhaustive of any thing before published. I have been using for several years a home-made press after the Hatch-Gemmil pattern, and have been getting so much wax, or so much more than formerly, that I have had a very satisfied feeling that I was doing the wax-making all right; and now to be told by a youngster that I am still losing a tenth of my wax is rather humiliating, and still more so when I remember the hundreds of pounds that have gone to waste in the past because we didn't know enough to get it out. And once more let me commend his article in that he seems oblivious to the fact that the A. I. Root Co. is selling the German steam-presses, and gives the unheated press credit for all it is worth.

Some one in a back number of GLEANINGS tells how he is able to get foundation in full frames drawn out. This has been a vexatious job with me. I have, as a rule, found it difficult to hive a new swarm on foundation, and have them go to work contentedly. If I gave some full combs and some foundation, the foundation was apt to be drawn out unevenly. If I shook a swarm on to foundation they would many times desert the hive altogether, or sulk for a day or two in the best of the season. As a result of these experiences I have for quite a number of years used but little foundation in the brood-chamber, but, instead, old combs, carrying them over from year to year. During 1905 we used a large number of old combs for extracting, and, besides, increased the number of our colonies to a considerable extent, so that the beginning of the season of 1906 found us with a large stock of bees with comparatively few old combs. What should we do for combs to hive or shake our swarms on, seemed an all-important question for a time. This was the way I solved it: I prepared quite a large number of eight-frame supers, filling them with eight or nine frames of foundation, placing them over brood-chambers without any queen-excluder just before clover opened. It was surprising to see how quickly these frames of foundation would be drawn out — yes, and filled with honey too. Very few of these contained brood, the queen preferring to lay her eggs in the old combs in the brood-chamber. Not having any queen-excluder or other obstruction between the brood-chamber and frames of foundation above, the bees accepted the foundation and drew it out and filled it with honey before they would have done nearly as much in sections; and, what is more, the combs thus drawn out were about as true and even as so many boards. From many hives thus treated I removed one set of frames, when the foundation was drawn and replaced with another. Some of them would draw out three sets before preparing to swarm.

My right-hand man protested that it was poor policy to keep strong colonies building large frames of comb when they should be filling their sections; but when, in the latter part of June, I shook the bees from their brood-combs and gave them a full set of these new clean combs well filled with honey, and two clamps of sections, and he saw how quickly they were filled with the whitest combs, he had no fault to find.

All in all this has proved the most satisfactory way of getting new combs from foundation I have ever tried or seen recommended.

We note with pleasure the appearance of the *Commonwealth Bee-keeper*, published in Melbourne, Australia. This is the official organ of the Victorian Apiarists' Association, and is edited by an expert bee-keeper, W. L. Davey, who evidently understands the duties of the editorial chair, for the Nov. 15th issue, which is before us, contains some bright original matter that is a pleasure to read. At present this paper is bound up

with and forms a part of *The Fruit World*, but we believe it is the publisher's intention to issue it separately as soon as possible. Our Australian friends are up-to-date in their bee-keeping methods; and as they use liberally American hives and other bee inventions, the apicultural literature which they issue is likely to be very interesting and instructive. It looks to us as though the *Commonwealth Bee-keeper* was a very healthy child, and would live to be a valuable educator, monitor, and friend to the bee-keepers of the Southern hemisphere.

I have already quoted freely from the writings of Mr. Isaac Hopkins, in his Bulletin No. 5, published by the government of New Zealand. The ability of Mr. H. in his position as bee-master renders any apology unnecessery for referring to his works. We all know that some friction has been produced at times between farmers and bee-men. A farmer is supposed to ask, "Granting that the visits of bees may be serviceable to me in the fertilization of my fruit or clover, how will you prove that I am not obliged to pay too high a price for such services?" The question has, of course, been answered, but here is an answer that is worthy of the traditional "paste in the hat," etc.

For the answer to such a question one must fall back upon the researches of the agricultural chemist, which will furnish satisfactory evidence to establish the two following facts: First, that saccharine matter, even when assimilated and retained within the body of a plant, is not one of secretions of vegetable life which can in any way tend to exhaust the soil, being made up of constituents which are furnished everywhere in superabundance by the atmosphere and rainwater, and not containing any of the mineral or organic substances supplied by the soil or by the manures used in agriculture; and, secondly, in the form in which it is appropriated by bees, either from the nectaries of flowers or as honey-dew from the leaves, it no longer constitutes a part of the plant, but is, in fact, an excrement thrown off as superfluous, which, if not collected by the bee and by its means made available for the use of man, would either be devoured by other insects which do not store honey, or be resolved into its original elements and dissipated in air.

The best authorities in the world are then cited as proof of the above. Mr. Hopkins says that saccharine matter, once it is secreted by the plant and separated from it, is useless even as a manure.

What, then, is the primary object of nectar—to make honey for human food or for a still higher purpose? Mr. H. says:

The secretion of saccharine matter in the nectaries of flowers is shown to be one of the normal functions of the plant, taking place at the season when it is desirable to attract the visits of insects for the purposes of fertilization. It may, then, be fairly asserted that the insect, when it carries off the honey from any blossom it has visited, is merely taking with it the fee or reward provided by nature for that special service.

Sometimes the secretion of nectar is abnormal. Langlois is quoted as saying that in 1842 the air was so dry that the leaves of a linden-tree became covered with a thick sweet liquid in such quantities that for several hours of the day it ran off the leaves like rain. I think G. M. Doolittle once said he had heard drops of nectar from a basswood-tree. Well, that simply shows that nectar is a substance which vegetation tries to get rid of as an excrement, and that it is of no further use to the world unless gathered by bees and made into honey.

I hope soon to make one more quotation from this bulletin as to how much grazing stock lose when bees take the nectar from the plants in pastures. As time passes, we realize more and more that honey is a work of secondary importance so far as bees are concerned, and that the cross-fertilization of blossoms is the primary object of their creation.

BEE-KEEPING AS A BUSINESS.

The Importance of Being Fitted for It; Timely Advice to Beginners who are Choosing an Occupation; Specializing; its Advantages.

BY E. W. ALEXANDER.

When our attention is called to some new line of business, usually our first thoughts are, "How much money can I make out of it?" or, "How many dollars can be made annually clear of all expenses from a given amount of capital invested?" While I will admit that these are questions of much importance—questions worthy of due consideration—there is still one question which is of paramount importance above all others, which, I am sorry to say, we seldom think of. That is, "Am I naturally qualified for that line of business? If so, then I have the principal requirement to success; if not, then no amount of study or hard labor can fully take the place of my inability to fulfill its requirements." Oh how many of us spend our whole lives like water seeking its level, and never find the business that God fitted us best to follow! My young friend, if you have any thoughts of taking up bee-keeping as a business, then think this subject over carefully before you invest much money. My advice would be to work one summer, at least, for some successful honey-producer—one who would take pains to teach you all he could in regard to rearing queens, forming nuclei, increasing colonies, wintering, and producing honey—yes, and a thousand and one little things which only experience can teach. In this way you could be earning your board and fair wages while learning your business.

In regard to the amount of money that can be made from bee-keeping, it is like all other rural pursuits—it depends to a great extent on the season. It is no get-rich-quick busi-

ness; still, if rightly followed, it will give as good returns one year with another as any business of a rural nature, considering the amount of capital invested and labor required. About five dollars per colony, spring count, clear of all expenses, is a moderate estimate of the profit from the business—that is, if run wholly for the production of honey without any special care to see what might be accomplished; but if run by an expert on high-grade methods, then 15 or 20 dollars per colony can frequently be made.

Here is where the specialist has a great advantage over the man who divides his capital and time into two or more channels. These men soon find that they have twice or three times the trouble to contend with, and only a third or a half the capital to use in making a success of any one of the several lines they have taken up; but the lack of necessary capital is only a small factor, for that can be got at the bank. But the necessary intellect, business capacity, and experience can not be borrowed, and without these elements to success there is only one alternative, and that is and always has been simply failure.

Then there is another thing to take into consideration. It is pleasant to have a paying business that requires your time only about half of the year, and that the pleasant part, when you can be outdoors and enjoy all the pleasures of nature's spring and summer. With me it is a real pleasure to breathe free air unsoiled by either bell or whistle calling me to labor.

I will now take it for granted that you have spent one or two seasons in learning all that you could during that time from some competent person, and you still want to follow bee-keeping. I can not advise you to go slow, as some do. That "go slow" is a blight on any man. First be sure that you are right, then go ahead with willing hands and a good stock of perseverance ever ready to overcome the unexpected troubles as you meet them. Make up your mind from the first to take good bee literature; have good bees; use good tools and hives, and then produce good honey. Take pride in your business. If you have taken up queen-rearing, forming nuclei for sale, or increasing your colonies for sale, or producing comb or extracted honey, don't forget to look well to quality. Then advertise and let the public know what you have, and you will in a short time not only surprise your friends but yourself with your success. You now have a clear track and a light grade compared with what some of us older men had fifty years ago. We then had a hard time of it—no bee journals, no Italian bees, no comb foundation, no honey-extractors, no bee-smokers, and no market for the little honey we secured.

How different now, with our large markets established, where our honey is annually sought for, either in small lots or by the carload, and with our new inventions and improved methods enabling us to produce five times the amount per colony we did then! To me bee-keeping now seems like quite a good business. Still, I never advise one to take it up, not even my own sons, for I have always thought that, when it comes to choosing a life business, each one should choose for himself. While it is true that man to a great extent makes his circumstances, still it is also true that circumstances to a great extent make the man.

I am well acquainted with a man who was born on a farm, and worked hard on it for several years after he was married. He was temperate and of excellent habits, working early and late; but still his farm life was a perfect failure. After toiling in close circumstances for several years his wife's friends got him a situation in New York city. Then the scale turned. He struck a place that God had fitted him for, and for the past thirteen years he has had a net income of over twenty thousand dollars a year. I speak of this case to show that many of us are trying to to make a success of some business to which we are not at all adapted; also to show the importance of trying hard while young to start right.

You should look upon your business as your bank; and whenever you can add a dollar to it, do so, and it will return in due time many fold. Take pride in having a good apiary, and remember there is far more in the man than in the business. If the bee-keeper in the future will take our leading bee journals he can, through their advice, shun so many troubles that we older men had to bear that it is almost like another business—not but that it is still subject to many discouraging conditions; and our inability to have any control over the season is and always will be its worst feature. But all lines of business have some troubles with which to contend. When the farmer loses his stock it is hard and costly to replace, and it often takes some time to do it; or when his crops are ruined by untimely frosts or protracted drouths the loss is hard to bear and overcome. But when the bee-keeper loses a large per cent of his bees he still has the hives and combs left; and if he has some good colonies he can soon have his original number again with but little expense, and usually secure some surplus besides.

Here is one great advantage our business has over many others. Taking our bees safely through long cold winters and very changeable spring weather, with small loss, has been a hard problem to solve; but this part of the business is now so much better understood by nearly all bee-keepers than it was a few years ago that we feel much encouraged in eventually overcoming other troubles as we have this.

Each year brings some new methods perfected whereby our business is placed on a more reliable basis than it formerly was, enabling us to produce honey cheaper than we ever could before. Still, we have some dark clouds of losses and disappointments hovering over us. I have seen many through which it was almost impossible to see a ray of silver lining; but as the mariner's compass will guide the ship safely through ocean

storms, so will continual perseverance lead you on and on through these trying hours until a clear unclouded sunset welcomes you to a land of rest

Delanson, N. Y.

[The suggestions that our correspondent has made are, as a whole, good. There is one point, however, on which a few of our subscribers might take issue; namely, the profits in the honey business. Mr. Alexander estimates that, one year with another, there will be about $5.00 per colony, spring count, clear of all expenses, and he believes this will be a "moderate estimate." In Mr. A.'s locality this would not be far from right; but in the average locality the returns would be somewhat less than that. Mr. W. L. Coggshall, one of the most extensive bee-keepers in the world, once told us that, if he made on an average $2.00 per colony, from all his bees, he would be well satisfied, and he had some apiaries in places where buckwheat is one of the main crops.

But a large number of colonies in a locality will not begin to give the average net returns of a small number. A bee-keeper located where there are no other bees, with 25 or 50 colonies, if he devoted them to the production of fancy comb honey, might get on an average $7.50 to $10.00 per colony; yes, he might even double these figures if he had a good market.

In our A B C of Bee Culture, under the head of "Profits in Bees," we estimate that, in a locality not overstocked, the annual income per colony clear of expenses will be $3.50. If a feeding in the fall were required, it would make it approximately 50 cents less. Much will depend on whether the honey is sold at retail or to jobbers in the cities. Many a small bee-keeper works up a small trade that comes to the house for the honey, paying for it retail prices. In such cases the profits are necessarily larger than when the honey is sold in a lump in the city.—Ed.]

WET BEE-CELLARS.

Another Case where Bees Wintered Almost Without Loss in a Wet Cellar; Ventilation Necessary.

BY ERNEST W. FOX.

Mr. Alexander's article on cellar wintering of bees, page 27, interests me very much, as I have also made a success of wintering bees in a wet cellar. My cellar is made especially for bees, in a steep bank, covered entirely with dirt. It has always been so damp that the dirt on the bottom is gummy. Two years ago this winter we had a very heavy snowfall, and consequently there was no frost in the ground to speak of, so almost all the water from the snow soaked into the ground.

I hadn't been in my cellar for two weeks. During that time it had been so warm that nearly all the snow was gone. I was very anxious to see what condition the bees were in. To my great surprise I found about four inches of water on the cellar floor. I dug a trench through in under the doors and drained the water out as best I could. I feared bad results, as it was nearly a month after discovering the water before I dared to take the bees out, But, on the contrary, it seemed to be a benefit. They were more quiet after the water ran in than they had been for some time before. Bear in mind, though, the temperature did not go below 45 degrees. I lost just two colonies out of 83 that winter. The rest all came out in fine condition.

A year ago this winter my cellar was reasonably dry at the time of setting the bees in; but there came several heavy rainfalls just after putting the bees in. There being no frost in the ground to speak of, scarcely any water ran off, so it soaked into the cellar through the side wall again.

Well, I thought I should get it in the neck this time, sure. I opened up the trench through in under the door, and most of the water drained out. The cellar was wet all winter. I had to keep this ditch open all winter to keep the temperature down in the cellar. There was a direct draft of air through the cellar all the time, so you see there was no chance for foul air. The temperature ranged from 46 to 54 degrees. My bees never came out in better condition. I lost only one colony out of 117, and this one had but very few bees when I set them in, and I am sure they were queenless. Part of the hives I have standing on bottom-boards, just as they are on the summer stands—a piece of burlap or old carpet over the frames, the cover removed entirely. The rest I leave the cover on and raise the front of the hive from bottom-board on to one-inch blocks. I like this way of placing the hives in the cellar the best of any I have found yet. I have been in several bee-cellars in this neighborhood. They are all dryer than mine, and I have had better success in wintering than most of them. Almost every season I have wintered a few colonies in the cellar under house. I have 34 colonies in this cellar this winter. It is what I call a really dry cellar. The bees winter well; but they seem to come out stronger and in better condition, every thing considered, from the wet cellar. I don't care if the cellar is wet if it is warm enough to be well ventilated, allowing an inlet as well as an outlet of air. I have 135 colonies in the cellars, in fine condition.

Hillsboro, Wis., Jan. 11.

[Our correspondent mentions one very important thing, namely, that the temperature did not go below 45 degrees nor above 54—otherwise his losses would have been severe. On this question of temperature hinges the whole matter of successful wintering. A cellar reeking with dampness at a low temperature will kill bees at a fearful rate. One with a temperature of 45 degrees average, with a maximum of 50 and a minimum of 40, will winter bees whether wet or dry, other things being equal; but we should very much prefer to have it too dry than too wet. —Ed.]

OUTDOOR WINTERING AT THE HOME OF THE HONEY-BEES.

How to Pack; Taking Birdseye Photos of the Apiary and Lumber-sheds.

BY E. R. ROOT.

I have said considerable about *indoor* wintering as practiced here at Medina, and but very little, comparatively, about the outdoor method employed here. Like Mr. Doolittle, we use the two plans; for during a very cold winter the bees inside seem to fare better than those outside; but during an open season, such as we have been having up till within the last few days, the outdoor colonies seem to do better.

There is one thing we have never determined yet, and that is this: Granted that the bees outdoors consume more stores from month to month, is it or is it not true that this extra consumption produces stronger and more vigorous colonies for the harvest? This question has been raised time and again, but so far I believe there is no definite data that furnish absolute proof one way or the other. If we could be sure that the indoor colonies were just as good in the spring, with a consumption of stores of only one-half, we will say, of those outdoors—I say if we could be *sure*, we would abandon the outdoor method entirely, and we could well afford to, because the sugar or natural stores sufficient to take care of 600 or 700 colonies in a winter runs up into a big sum of money. If this amount could be cut in two it would be worth considering. I know this: That our outdoor bees packed according to our regular method come out in the spring with a loss on an average not to exceed three per cent; but every year we lose more than that because we are constantly trying different methods of outdoor wintering with the view of determining whether even the three per cent can be reduced. If it were not for the purpose of learning something we would cease our experimenting, and be content to continue on in the good old way by using double-walled hives packed with chaff or planer-shavings in the manner shown in the adjoining illustration.

Right after a snowstorm this winter I took a number of snap-shots from different points, illustrating our home apiary reposing in its cover of snow, and surrounded on all sides by a windbreak of evergreens and factory buildings. You see in these views something like 300 colonies packed for winter. At the outyards the bees are put up in precisely the same way. Briefly stated, what is our ideal method of wintering? A double-walled chaff hive, which is sold by all manufacturers, the space between the walls filled with planer-shavings, chaff, or any other porous material; an entrance contracted from $\frac{3}{4}\times 12$ inches for summer to $8\times\frac{3}{4}$ inch, by means of a suitable-sized stick with a slot cut on one side.

Instead of using a Hill device, a piece of burlap, and a loose cushion, as formerly, we now put on a thin board cover, or what is called in the bee-supply catalogs a "super cover." This the bees hermetically seal down. Between this and the frames there will be a bee-space of $\frac{5}{16}$, so the bees can pass readily over the top. Over the super cover is placed a wooden tray made of $\frac{3}{8}$ lumber 5 inches deep, with a bottom of burlap tacked on the under side. Into this is poured planer-shavings, chaff, or any other porous material. The burlap bottom is nailed on loose enough so that the sides of the tray fit down snugly over the raised edge of the water-table of the hive. A seven-inch cover telescopes over this tray, the edges projecting down below the before-mentioned water-table and the other portions of the hive.

The illustration in the upper left-hand corner gives a closer view of how the hives are prepared.

In the end of the telescope cover will be seen an auger-hole. Some years ago, when we used the Hill device and chaff cushion, we considered these ventilating-holes a necessity, in order that the moisture accumulating from the bees could dry out; but in later years, since we have adopted the sealed cover and the chaff tray, we consider these holes not only useless but detrimental. We soon discovered that a driving rain would beat through these holes, wetting down the packing material. We now nail over them a little strip of section, closing up the hole entirely.

The hives all sit up on hive-stands with an alighting-board attached to the entrance. The arrangement would be more perfect if the board reached clear down to the ground, for many bees get too much chilled to fly into the entrance, alight near the hive, and, unable to take wing again, perish, so that the illustration in the upper left-hand corner in this respect does not quite show the ideal arrangement.

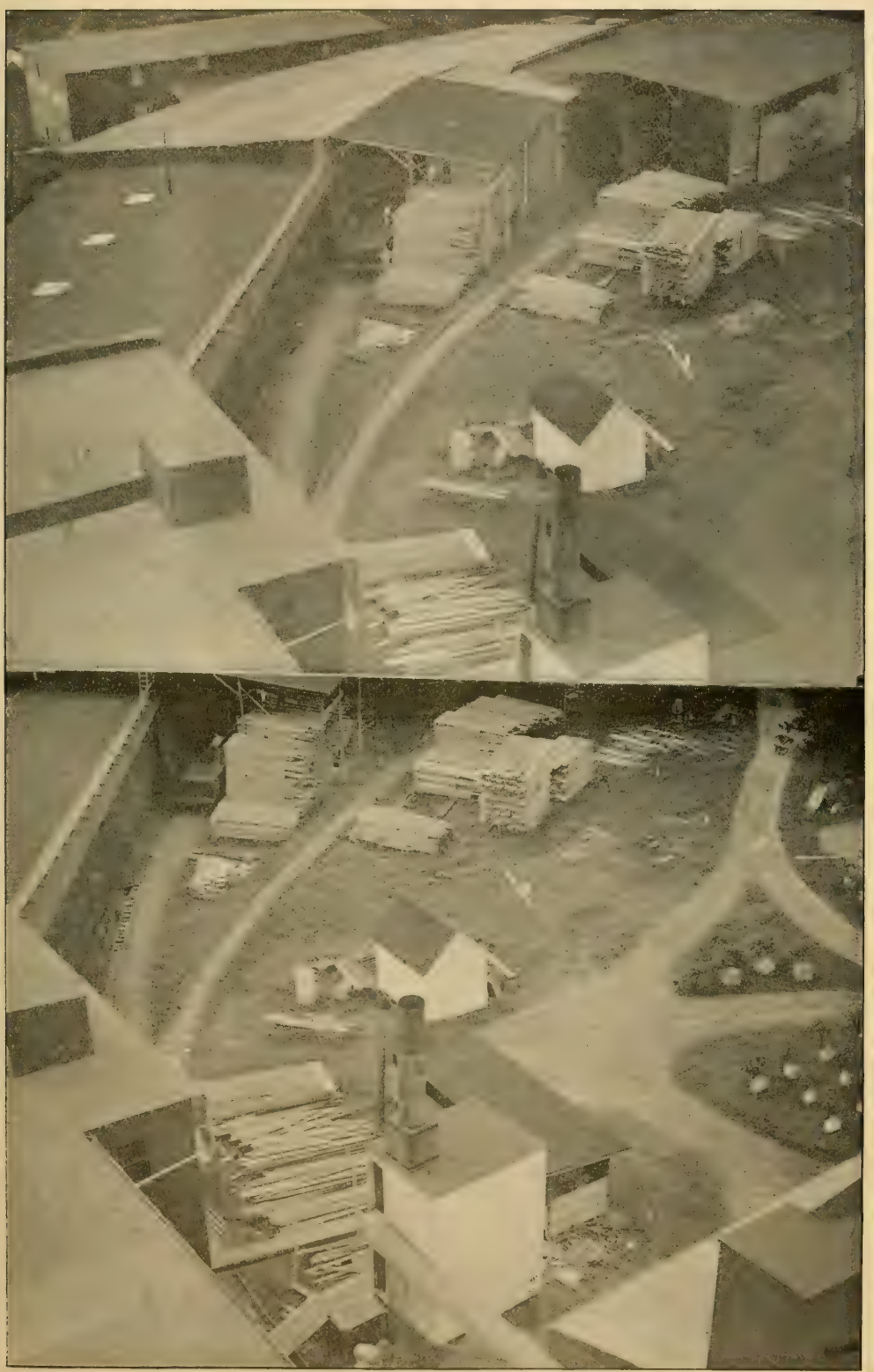
The lower view on the left is looking from the southeast. The right-hand lower view is from the northeast.

By looking very carefully in the center of the yard you will see a small structure that we call our smoker-house. It has a little cupboard door on one side, and on a shelf two-thirds the way up are several smokers, and in the lower part the fuel, consisting of greasy waste in a bushel basket. The low oblong building is the automobile-house, the same being located right over a steam-pipe which carries heat over to A. I. Root's dwelling. It is in this auto-house that we keep the machine that makes the trips to the outyards.

Thus far I have described the ideal method for outdoor wintering that gives such excellent results in wintering. It is practically the same we have used for years, with this difference: We have abandoned the old absorbing cushion, which we found too often would soak with moisture from the bees, and freeze, leaving, as it were, a big cake of ice on top of the colony. We soon discovered that the sealed cover, that would shut all dampness within the hive, leaving the packing-material above perfectly dry, is far better. The moisture, as fast as it accumulates,

WINTER SCENES FROM DIFFERENT POINTS OF THE COMPASS, IN THE APIARY AT THE HOME OF THE HONEY-BEES.

BIRDSEYE VIEW OF A PART OF OUR HOME APIARY IN 1906, SHOWING THE HEXAGONAL DESIGN AND THE WALL OF EVERGREENS AS PLANNED BY A. I. ROOT 30 YEARS AGO.



VIEW OF THE COVERED LUMBER-YARD CONTAINING THE MATERIAL FOR BEE-KEEPERS' SUPPLIES, AS SEEN FROM THE TOP OF THE SMOKE-STACK.

will run down the sides of the hive, and finally escape at the entrance. It was for this reason that any obstruction at the entrance was decidedly injurious. A year or so ago, you will remember, I told how we were covering the entrances with loose hay, thinking thereby to shut off the chilling blast. Theoretically the plan was all right; but Doolittle early predicted disaster to all colonies so treated, and he was right; so we now recommend leaving the entrance unobstructed, but contracting to the size already given. In this connection it is proper to state that it is very important to keep them clear by raking out the dead bees from time to time.

In the upper right-hand corner will be seen a view of some colonies in single-walled hives packed in paper cases. These are made of rubberoid roofing, folded up in the form of a cap, but of sufficient size to leave folds of newspaper between the top and sides of the hive and the cap. Under the newspaper is a super-cover which the bees are permitted to seal down early in the season. I see no reason why this arrangement shall not give good results. But the making of these cases—what a job! Our men aver that the cutting, folding, and riveting the folds of the stiff roofing, make such cases as expensive as those of wood, with the disadvantage that, when made, they are so flimsy that they would hardly answer for more than one season's use.

THE HEXAGONAL ARRANGEMENT OF THE HIVES.

While I am showing the views of the bee-yard in winter, perhaps I should stop to give the reader the general scheme of the arrangement of the hives. Our older readers will remember that A. I. Root, when he originally laid out this home yard, conceived the idea of making separate apiaries with driveways all around them. Each apiary he plotted out in the form of a hexagon, in imitation of the comb of the bee. All of these hexagons with driveways around them were arranged in the form of one large circle, making up one large bee-yard comprising several smaller ones, making a total aggregate of 500 colonies. In front of each hive, on the south side, he placed a trellis and a grapevine, to give the requisite shade in summer. We have never been able to show this hexagonal effect clearly, since it was carried out; for when one is on the ground the form of the separate apiaries does not appear. But during the last summer the big smoke-stack of our plant required some enlarging. The inner lining was taken out, and the stack was raised some 35 feet, making a total height above the ground of 125 feet. Just as the work was completed I had the men haul me up to the top of the stack, where I took a number of snap-shots looking down over the bee-yard. A few of these pictures are given in the next two pages. The lower view is one that shows the hexagonal form very distinctly; the smoker-house, and the old house-apiary that was built by A. I. Root just about 30 years ago; but I shall refer to this later. The upper view shows how the bee-yard joins on to the lumber-yard and buildings with the barn in the background. The two other views look down on our lumber-shed, where there are sometimes stored or piled up solid something like $75,000 worth of lumber. One can form some idea of the size of these sheds by noting the flat car and the men piling lumber. These sheds are not all shown here, as the range of the camera was not sufficient to take them in.

THE FIRST BUILDING BUILT BY A. I. ROOT IN THE INTEREST OF BEES.

There is one very interesting building, however, and it is situated just in range of the top of the small smoke-stack, shown in the two views — not the one from which the picture was taken. This is a plain frame structure with gable roof, and is the first building that A. I. Root ever erected for bees. It is double-walled, the lining being packed with sawdust. It was in this building in the late 60's and early 70's that he conducted his experiments in indoor wintering. The results of all this were given in a very interesting series of articles in GLEANINGS along about 1873. The enthusiasm that he put in this work was not unlike the enthusiasm he evinces in his chicken-raising, given in *Our Homes* in last issue. Well do I remember those early experiments. I can see this building, and the bees in it, as though it were yesterday.

The Root Co., consequently, considers this a rather interesting exhibit, because it was the nucleus of what now covers many acres of ground, and in a way shows the progress of the bee-keeping industry from the time of fathers Langstroth and Quinby. During those days a single carload of honey dumped in New York broke the market completely; but nowadays a trainload of honey with an aggregate length of 75 miles in length, without a break, said aggregate distributed over the selling season, does not appreciably affect the honey market.

BASSWOOD LUMBER FOR SECTION-MAKING.

But I have digressed. Let us go back to the pictures again. We soon found that, in order to make perfect sections, the basswood lumber, when it reached the right age of cure, should be piled up under sheds where the sunshine and the rain and the snow would not affect it. When basswood lumber reaches the right dryness, it begins to deteriorate very rapidly unless protected, hence the sheds. The boards are now loaded on to cars, clean and dry, no matter what the weather, rainy or snowy, and run directly inside of the factory building, and worked up into sections.

I omitted to state that the upper picture, showing a corner of the bee-yard, was a little dim, owing to the fact that a slight breeze was blowing at the time; yet this was sufficient to make that stack, 125 feet tall, with an internal diameter of about 5 feet, sway back and forth. There was a sort of sensation that the thing was going to topple over. It would have been too bad to spoil these pictures; but my own judgment, not my feel-

ing, mind you, showed me very clearly that, if this stack was strong enough to stand a sixty-mile gale (and it has stood several of them) this light breeze would not be sufficient to blow it over. Because the chimney swayed back and forth in the slight breeze, one view of the apiary is a little dim. As it was, I was compelled to wait for each pic ture until the wind stopped entirely, so great was the swaying of the stack. At some future time I may give you a snap-shot looking down on the other buildings — those where the manufacturing is done.

RAMBLER'S MONUMENT.

A View of the Last Resting-place of One whom our Readers Learned to Love.

BY DAVID HALL.

When I was getting John H. Martin's monument, Mr. E. R. Root requested a photograph of it. Perhaps you will think this is a late day for it. Two years ago last summer the monument was erected. I waited before having a picture taken, to have the lot graded and finished.

One face of the monument bears his inscription and his wife's. The other face has his father's and mother's name.

My wife, who was a cousin of Mr. Martin, suggested that some honey-bees be carved in the foliage toward the top. I don't know that you can distinguish them in the picture, but they show plainly on the granite. John helped lay out this cemetery, and before leaving for California he removed the bodies of his wife and parents from another cemetery to the lot he had purchased, and laid the foundation for a monument. He is there with all his own family, and many of his kindred in near-by graves.

The monument is of dark Barre granite; whole height 5 ft. 10 in.; width, 3 ft. 8 inches; thickness, 1 ft. 8 in.

Hartford, Wash. Co., N. Y.

[Perhaps we should explain for the benefit of our newer readers that John H. Martin

JOHN H. MARTIN'S GRAVE, AT HARTFORD, N. Y.

The older readers will remember Mr. Martin as "Rambler," who wrote for GLEANINGS so many years.

wrote for many years for these columns under the *nom de plume* of Rambler. He first began his writings as a traveling correspondent in the vicinity of his old home. His work pleased so well that we sent him across the country to California, then up into Oregon and finally into Cuba From all of these points he sent in regular notes of travel illustrated by his pen and camera. Perhaps the writings of no correspondent we ever had were more eagerly read than his. He was our "funny" man, and yet at the same time with all his fun-making he picked up and gave to our readers many a valuable idea which, with the aid of his camera, he placed before our readers. When he died in Cuba, some three or four years ago, he was sincerely mourned as a dear friend. His wife died early, as will be seen by the inscription on the stone; but during the years of his travels alone for this journal he continually mourned her loss. Notwithstanding that he made the bee-keeping world laugh, and laugh heartily, his life was one of sadness to those of us who knew him best. We are glad to present a view of the final resting-place of all that was mortal; but his soul has fled to that home that knows no sorrow, to meet that companion of his earlier life.—ED.]

CEMENT HIVE-STANDS WITH WOODEN FLOOR-BOARDS.

BY F. W. KLEINEGGER.

The engraving shows my cement hive-bottoms with board floors which I have been using this summer. Any one can understand the construction, so no description is needed.

Derby, Kan., Dec. 25.

[Your scheme of cement hive-stands is all right, except that such stands would be rather expensive. However, it would probably be economical in the long run, if one could be sure that he is going to stay in the bee business for thirty or forty years, and could also be sure that, during all that time, he would never change the style of his hive. The expense could be lessened, however, by making it of less height and making the side walls of it thinner.

Aside from the matter of expense would be the lack of portability. This alone would be a very serious objection to it, for in practice nowadays it becomes necessary to move hives frequently. A hive with this stand could not be moved without moving the whole thing. Would it not be better to make a cement hive-stand pure and simple, without the floor-board, and then put a regular hive-bottom on this stand? The hives could then be readily moved, leaving the hive-stands as a permanent fixture.—ED.]

A CEMENT HIVE-FOUNDATION WITH WOODEN FLOOR-BOARDS.

FULL SHEETS OF FOUNDATION TO AVOID DRONE COMB.

The Man who ought to Read Bee-papers.

BY J. O. SHEARMAN.

I noticed that most of the writers on California looked up the larger bee-keepers and big stories that looked well on paper, but hardly touched on the condition of bee-keepers here of the smaller class, say of 100 colonies or under—those who *ought* to take bee-papers and don't—many of them not up to modern methods at all, and not working their bees in their own interests. Some of them do not know how, and others do not have the means. Bees worked in that slipshod way never pay full returns anywhere. For instance, I saw an old gentleman in Pomona, at his house, putting narrow strips of foundation in the brood-frames. He was getting ready before swarming time. I asked him, "Mr. P., won't your bees fill up most of those frames with drone comb?"

"Oh, no! I guess not; that is the way we generally do here, and they always get

along pretty well — at least so far as I have observed."

I said, "I think they will put in enough drone comb to take off 25 per cent from your profits for this season. I should like to look into some of the supers already put on, and see how they are doing."

"All right," said he, "you may."

So as we had a trade on hand we soon agreed to go to his bee-ranch and look them over. We were soon on the way, and held a bee convention of two all of the way there — a drive of about five miles.

Now, it is the way here to keep the bees away from home in some little hollow or canyon, or even on a sidehill, in some place away from where teams pass, and where they won't bother stock, and right in the hot sunshine, generally. Sometimes they are left there the year round; sometimes moved in the spring, April or May, to catch the flow of orange honey, or possibly moved again the last of May to a sage location, and perhaps again to the alfalfa-fields, though most bee-men claim the alfalfa is not of much use to bees, as the custom here is to cut it before it blossoms. But, to continue my story.

We soon had the horse put out, and Mr. P. picked for one of his best colonies, opened up, and drew forth a nice new comb, solid drone brood, then another, and, in short, most of his best colonies had a super on nearly half full of drone comb with brood in it.

"Well, Mr. P., what do you think of your crop of drones?"

"I think I'll run my bees a lot different another year. I'll use more foundation and put on queen-excluders, as you said coming on the road."

Well, we made a trade, but that is another story. I told my brother George about it, and he did not advocate using "starters" in brood-frames any more as he had been doing "to do as they do here."

He said, "Only the mossbacks do so." I answered him, and got him to ask Mr. Andrews a question the next time he went to Carona. Now, Mr. A. is president of the Los Angeles Society. He had 700 colonies, and produced 40 tons of extracted honey last year. I had explained to George that Mr. A. could not do as well as that if he used only starters in the surplus chambers; so when he put the question to Mr. A., "Do you use full sheets of foundation in your brood-frames?" "*Always*," answered Mr. Andrews emphatically. I had met Mr. Andrews in February at his home, and knew how he stood. Well, that settled it. So when we bought more bees we got more foundation.

Pomona, Cal.

A CHIP OF THE OLD BLOCK.

BY C. B. PHILLIPS.

The young bee-keeper who is here shown is certainly as much interested in the profession as some who are much older in experience, even though he does not do his own manipulating. He is Charles B. Phillips, Jr., who is 15 months old, and "a chip of the old block."

Crafton, Pa., Dec. 28.

CHAS. B. PHILLIPS, JR., AT WORK AMONG HIS BEES.

[GLEANINGS offers its congratulations to Charles B. Phillips, Jr.; and if he continues to like bees we should be glad to make him a present of a bee-smoker when he is old enough to open bee-hives. We can scarcely say that he is too small to handle a smoker,

for he seems to be quite an adept at it already.—ED.]

LOWER FREIGHT RATES ON HONEY.

How to Prepare the Honey for Shipment; New or Second-hand Packages; Importance of Bottom Starters; Some Good Suggestions from a Honey-buyer.

BY FRED W. MUTH.

At the annual convention of the National Bee-keepers' Association held at San Antonio, Texas, in November, there was a committee appointed to secure, if possible, lower freight rates on honey. Being one of the committee in question I wish to make an explanation in behalf of the recognized high freight rates, and then point out to bee-keepers the steps that must be taken in order that the committee appointed may be successful.

We are dealers in both comb and extracted honey, and in the course of a year receive many carloads as well as innumerable small shipments. In one year's time we are obliged to enter many claims with the railroad companies, and are subjected to experiences which enable me to write intelligently upon this subject.

I am informed by a railroad official that the Classification Committee determine their classifications on an average, based upon the number of claims and the amount of money expended for damages incurred *en route* in the course of one year; therefore it may be plainly seen that the shippers are responsible for the exorbitant freight charges imposed upon them, and lower rates need not be expected until the losses paid by the transportation companies have reached the very minimum. Consequently we must help ourselves by learning how to ship our honey. Other industries have done it; why not we? Take, for example, the packages used by the sugar-refineries. They are perfect, as well as those of the coffee-importers, cereal-manufacturers, and others that I could mention. They were compelled to work, and work hard, in order to bring their losses down to the minimum, and soon discovered that it was absolutely necessary to use *perfect packages and nothing else*. They now have the advantage of lower freight rates than the honey-shipper.

"AGERITES" — *BERBERIS TRIFOLIATA*; YIELDS MUCH POLLEN IN FEBRUARY.
See Bee-keeping in the Southwest, on another page.

IN THE SOUTH—JANUARY, AND A PEACH-TREE IN "FULL BLOW."
See Bee-keeping in the Southwest, on another page.

In order to accomplish our aim to secure lower rates, we must, without one exception, ship both comb and extracted honey in first-class packages. Brother bee-keeper, if you are raising comb honey for the market, by all means use *bottom* as well as *top starters* in your sections, so that the honey can not break loose at the bottom. This is the first and a very important step to be taken. Furthermore, be sure to use the no-drip shipping-case. Wrap each case in paper, so that it will be kept clean *en route*. Pack six or eight cases into one carrier well supplied with straw in the bottom, and having handles that will extend

from four to six inches beyond the sides of the same. Lastly, do not forget the usual "Handle With Care" placard. Now, if every bee-keeper and shipper of honey will follow the above instructions to the letter that will tend to introduce a method that is both simple and practical, he will not only realize a greater profit in his product, but will also be assisting those who are giving their time and lending their experience to secure lower freight rates for you.

The producers and shippers of carloads of comb honey appreciate the value and advantage of using bottom as well as top starters. For instance, last summer we received two carloads of comb honey from two different shippers. The one car contained 1170 and the other 1350 cases, and in the entire lot there was not one comb broken. These shippers understand their business. On the other hand, we received quite a number of small shipments, with here and there a broken comb, frequently some badly damaged lots, caused by the failure to use bottom starters. These experiences are trying and disgusting; and were the shipper in question subjected to a few of them he would, without a doubt, pay more attention to the manner in which he raises his honey and his mode of packing for shipment. These are the shipments that are responsible for the high rates. Do not misunderstand me; there are many producers and shippers of honey on a small scale who thoroughly understand this part of the work, and we must give the credit that is due them.

A word regarding extracted honey; the railroad companies pay more damage claims on account of poor packages used for extracted honey than for comb honey, and it behooves us to ship our extracted honey in *new* cans, if this style of package is to be used; or if it be barrels, let them be good ones, well coopered, first class in every respect.

The greatest trouble rests with the bee-keeper. He clings entirely too much to second-hand packages, just because he can buy them a little cheaper; whereas, if he were to ship his product in good packages, the freight rates would be comparatively less, and, in the end, his cost for shipping would be a great deal less than at the present time, and there would be no trouble with the railroad companies, nor any unsatisfactory transactions.

Therefore, friends, we must ask you to help, each and every one, if you want us to obtain lower freight rates for you.

Cincinnati, O.

[Some good suggestions are made by Mr. Muth, especially in the matter of preparing honey for market. We regard also as very important the suggestion of using bottom starters. The purpose of this, of course, is to secure a bottom attachment to the combs as well as at the sides and top. Such fastenings will very greatly eliminate the chances of damage to the honey during shipment. Perhaps it might be better yet to use full sheets of foundation—sheets reaching out to the sides and bottom also. But a good many do not regard this as practical, while some of our correspondents have already tried it and proved it a success. Besides securing well-fastened comb on all four sides of the section, they are able to obtain a much fancier box of honey. When a close-fitting full sheet is fastened on all four sides, a Van Deusen foundation-fastener should be used. A brush dipped in melted wax will give nearly as good results.

Mr. Muth is doubtless correct in stating that the classification committee bases its rates on any commodity by the number of claims that have been filed against such commodity. It is thus very important that we bee-keepers should use proper care so there will be no occasion for filing a claim against a railroad company. While there is no excuse for the careless freight-handlers for breaking honey out of sections, yet we bee-keepers can eliminate this breakage of the bunglers to a very great extent by seeing to it that the combs are attached on all four sides.—ED.]

THE BRANT CO. DISTRICT CONVENTION.

Some Valuable Hints on Breeding up in the Spring.

BY R. F. HOLTERMANN.

The Brant Co. District Bee-keepers' convention held at the City Hall, Brantford, Jan. 29, 30, 31, was highly successful. The foundation of its unprecedented success was, no doubt, owing to the offer to pay the expenses of a good and well-known bee-keeper, Mr. House, from a distance. Many such men would, no doubt, be willing to go to conventions at considerable distance for the sake of seeing and hearing what can be seen and heard in other sections, and from others on these terms; and by so doing we would draw men and women to our conventions and make better bee-keepers of them, when otherwise they would not come. From the United States we had Mr. and Mrs. S. D. House, Camillus, N. Y.; Messrs. O. L. Hershiser, Buffalo, N. Y.; W. L. Coggshall, Groton, N. Y.; E. R. Root, Medina, Ohio.

At some future time more may be said about the convention and what was brought forth. The following are notes on the address of Mr. S. D. House, upon "the building-up of colonies for the honey-flow."

He stated that the subject was very important, and had many factors entering into it. The foundation must be laid by the time the bees go into winter quarters. First we want a good queen. During the past half-century many strides have been made in bee-keeping, but not much in the direction of progress could be said to have been made in the breeding of bees. If we bought an Italian queen from its native haunts (Italy) we would probably find the average queen from there the equal of the average Italian queen whose ancestors had for generations been in our own

hands. Breeders there were who had bred for color, and we have golden-colored bees, and they can breed true to this color. If we could do this in one hive why not in another? He did not consider the Italian a bee sufficiently prolific. We should breed in the direction of having more prolific Italians; and if this could not be developed in its purity, then we should mix. The Carniolan bee is a wonderful wax-secreter, and very prolific—ahead of any thing he had seen in other varieties. The queen must be young. In youth, in the queen, we have all the vitality we can ever get. With plenty of good stores, whether it be outside or in winter repositories, we shall be likely to winter the bees well. In his locality he removed bees from the cellar about April 15. They should then at the first opportunity be examined and their true condition ascertained.

Too much stores is almost as bad as the lack of stores, as it reduces the room for a brood-chamber. Where necessary, clean the bottom-board and hive. An ordinary cover is not sufficient protection. There should be a non-conducting cover, and it should telescope deeply so it can be packed.

The queen in a good colony, under proper conditions, should in 15 days occupy with brood all the space bees can cover; and if then we want to spread more we must do something to raise the temperature of the hive.

Bees, according to investigations, in order to produce temperature, when quiet, give three to five inspirations, then remain quiet for three to five minutes; when very active they will increase the inspirations to 160 a minute.

The blood of the bee receives oxygen through cells, and the blood fed with fuel (carbon) produces heat. The temperature of the hive is connected with the respiration and activity of the bees, and activity on the part of the bees causes greater respiration, and this, again, causes a higher temperature. It has been found that the thorax of the bee is of a higher temperature than the abdomen. One pound of honey set out to rob could be made to agitate 100 colonies of bees. Greater heat would enable greater expansion of the brood-nest.

The temperature of the cluster at swarming time is 96 inside, and 66 outside; later in the season the inside temperature is 86 and outside 78 to 80. Activity causes stimulation; and by stimulation we secure greater activity and greater heat. If the stimulation is from outside, bees are sometimes tempted outside; and, owing to changes of weather, bees might be lost. The feeding to agitate the bees should be done inside the hive; and to prevent, by opening the hive, the loss of heat, the feeder should be manipulated from the outside. The feeder should be so small that only a few bees can get at it at a time. The feeding should be done at the close of the day. Low temperature generally prevails at night, and to hold the temperature at night where it was during the day, the feeding should be done at evening; 4 oz. at a time is quite sufficient.

In the course of three or four weeks the bees under such conditions start into fruit bloom with the brood-chamber filled with brood and honey.

As to the hive, we need a large one if we want to breed large colonies of bees; and it is a question as to which is the best hive for brood-rearing.

He used a divisible brood-chamber; if more room was required he gave another section. To prevent swarming he found that three sections in most cases, using part foundation and part drawn comb, gave best results. He prepared his bees in this way for the honey-flow, which opened about June 5. At that time each colony should be hatching 2000 to 3000 bees per day, and we shall then have an enormous colony.

Manipulation now depends upon whether the aim is comb or extracted honey. If extracted, then use a queen-excluder, with supers above; for comb honey, no queen-excluder is used. Swarming can be prevented by the displacement of brood and honey, the queen-excluder being used above the second section of the brood-chamber.

A CONVENTION SIDE-LIGHT ON BREEDING HORSES PROOF AGAINST BEE-STINGS.

Most of the members of the convention drove in a van 2½ miles out of the city to see Mr. Holtermann's bee house, cellar, and bees. On the way out an informal discussion took place on bees and horses, and the action of each in combination. One bee-keeper from Caledonia stated that there were some horses the bees would not sting. Doctor Burt, V. S., a prominent horseman from Simcoe, who is also an extensive bee-keeper, said he knew that. It was a saw-horse or a clothes-horse. The Caledonia bee-keeper said, "No, no! but horses, if they are of certain colors, will not get stung. The bees will leave those colors alone." Another member present said the gentleman was quite right. He had never known a blue or green colored horse to be stung.

THE REVOLUTION IN CUBA.

Its Effect on the Honey Business; Why Cuban Honey will Never Enter the American Markets; Why Wax is the More Profitable Crop; an Interesting and Valuable Article.

BY FRANK REIMAN.

Of late, considerable fear has overtaken some American bee-keepers lest Cuba should be annexed to the United States and honey be admitted free. I would say that there should be no cause of alarm at all, as the comb-honey business is entirely dead in Cuba, and the strained honey will go to Europe, even though the tariff on honey is entirely removed by the United States. The only parties that use Cuban honey in the United States are the bakers, and they will pay 5 cts. more a gallon for Mexican honey. My experience is that all Cuban honey ferments sooner or later. Cuban comb honey must be

sold at once when it is sealed, as in 30 days much of it is unmarketable. For the same reason I have entirely discontinued raising comb honey, for several years being the largest comb-honey producer in Cuba.

The highest price paid for strained honey, delivered in Havana, in the warehouse, is 42 cts. per gallon. The expense in getting the barrels and paying all the freight on the empties from the warehouse until the filled barrels arrive in the warehouse is 10 cts. a gallon. This leaves net 32 cts. a gallon, or less than 3 cts. per lb.

All the above figures are Spanish gold, which is still 10 per cent less than United States money.

Seven cents a pound is the best price offered for comb honey this year; and as the expenses are fully 4 cts. per lb. in comb, it will leave 3 cts. net. No bee-keeper can raise comb honey for that price. Wax is by far the most profitable product from the bees, selling for 30 cts. per lb. all the year round. The exportations of wax exceed the exportations of honey by $100,000 a year.

At present I have a few more than 500 hives of bees, and expect no less than $1500 worth of wax this year. As the bees make some honey all the year round, whenever there is only a small flow I cut all the drone comb and all dark or brown comb containing but little honey, and throw it under the hives for the bees to take the honey from. In this manner I cut about 100 lbs. of wax a week from 500 hives. When honey comes pretty lively I cut only wax when I extract, cutting all dark and all drone comb, and placing full combs alternately with empty frames. My hive has ten frames in the bottom and nine in the super, all frames six inches deep I usually leave one inch of comb at the top-bar for the bees to start straight. There is no time in the year in Cuba when the bees will not rob. The best I have ever seen a hive do in Cuba was to average 15 lbs. of comb honey a week for four months, straight. I can not say that I always keep cutting the comb; but the average, I think, is about ten gallons to the hive in a season of six months, and the other six months the bees must be fed.

For the past three years the honey business has been on a decline in Cuba on account of bad seasons. To my certain knowledge there are not half the bees now in Cuba there were three years ago. Many lost all by foul brood and starvation. I lost last year from 800 down to 300, and most of these were only scraps of swarms; but I succeeded in increasing them to 650 hives by August, when I had to leave for Havana on account of the revolution, leaving a man in charge. Consequently I lost over 100 hives by thieves, queenlessness, etc.

The future of the honey business in Cuba is far from bright. Revolution is liable to break out any minute, as the negroes now have a taste of horse-stealing, and eating oxen free of charge. Ninety-nine per cent of the revolutionists are negroes, or of negro descent. One band of 400 which strayed near my bee-yard did not have a white man in it. From the best authority I can obtain, the United States troops will leave next June, and I expect another revolution at once then. These revolutions are not to obtain liberty, but are for the sake of getting office to rob the public funds, and the negroes to steal horses. It does not make a particle of difference what political party starts a revolution, the same ones will go, but not to fight. In this last revolution less than 30 were killed fighting, and these were mostly killed with wounds in their back while trying to escape. Some 13,000 revolutionists on the outskirts of Havana were afraid to enter because there were 50 American marines landed in Havana, and 300 more on the cruisers. The future will tell what will become of Cuba. It will probably be a second Haiti unless Uncle Sam takes a hold of it, which is not at all likely.

Nueva Paz, Cuba.

[What our correspondent says regarding conditions in Cuba is confirmed by other advices from the same source. He is also correct when he says there is no danger of an invasion of Cuban honey in the United States. Those who are the most familiar with the situation have always said so.—ED.]

THE FUTURE OF THE HONEY BUSINESS.

Will the Supply Exceed the Demand? the Effect of the National Pure-food Law.

BY W. L. PORTER.

In entering a business, no matter what it may be, there are always three phases that an intelligent man will consider: What has been the past history of the business? What are the present conditions? and what are the future prospects? On the first proposition it is a matter of history. There are many volumes of text-books and files of bee literature that will give the investigator an idea of what has been done in the past. We may find recorded that man has given attention to the study of the bee back to a very early day. Honey is spoken of in the Bible, and the question asked, "What is sweeter than honey and the honey-comb?"

The bee in the early history was looked upon as a very intelligent insect, endowed with almost superhuman intelligence. They were supposed to know their master, and to grieve for him at his death; and in order to keep them in their hives, and in a prosperous condition, they must be told by one of the family when he passed away.

There are many things written in the past that are exceedingly interesting. In the early period of bee-keeping the methods of handling them were very crude. The hives were made of hollow logs, wisps of straw, or clay; and to secure the honey the bees were destroyed. There was no great progress made until father Langstroth invented the movable comb, which was over fifty years ago. Since that time the bees have been a

constant study, and their natural history has become familiar to many; and from this dates the period of progressive bee culture.

From this time we find men studying the bees from a financial point; and not very long after this time men began to keep bees as a way of making a living, and the specialist in bee culture soon appears—a man who spends his entire time in bee culture, supporting and educating his family from the products of the bees alone.

Finding this to be the case, we inquire, "Have these men made a fair living and income? Are they intelligent and progressive? Are they on a par with other men in like pursuits? Do they enjoy luxuries of life, and educate their families?"

It may be said that bee-keepers rank well in the way of education and intelligence. Their calling is one that draws out research and investigation. While part of the time a bee-keeper's life is a strenuous one, there is a part of the time when he has time to read up, travel, and become generally well posted; and wherever you find a body of bee-keepers you find men high in honor, intelligence, and sociability.

While bee-men do not make fortunes at the business, they do make an honest and fair competency. There are years that have drawbacks, and years of prosperity; and there are years of low prices and years of good prices. But when the average is taken, there has been fair pay for the labor and investment.

After considering the past and present we may ask, "What is the future of the honey business? Will there be large quantities of honey produced in the future?"

In looking into the future it is only reasonable to expect there will be great advancements made in bee culture. In opening up the West, new fields are coming in which will very soon be the paradise of the bee-keeper. In my travels through the West and Northwest I find that many sections are being reclaimed and watered by the government and other capital.

All of these lands will be the home of alfalfa, and will all very soon be thoroughly occupied by the bee-keeper.

In Southern Idaho the government is spending some fifteen million dollars on two projects, and these lands will soon be ready for the tiller, and the settlers are fast coming in. The same condition exists in Washington, Montana, and Wyoming, as well as in Utah, New Mexico, Arizona, and Nevada. In all of these States there are valleys which have hundreds of thousands of square acres which will produce alfalfa and other honey-bearing plants. These will soon be occupied by settlers, including bee-keepers, and large crops of honey will be coming from every section. In Hawaii and Manila there will be honey produced in large quantities. We shall also find larger amounts of honey coming into our markets from Cuba and Porto Rico in opposition to our own product.

The question now arises, "Will the consumption of honey increase so as to make a demand for all of this increase of product?" There is every indication that the demand will be adequate for the supply. There are various reasons why this will be true. On the 1st of January, 1907, the national pure-food law took effect. This will take out of the market large amounts of adulterated honey that has been put up and sold for the pure article. This has already affected the price of extracted honey. The demand for the latter has never been so keen as now.

Another thing that will help on the demand will be the thorough organization of bee-keepers. By organization they will concentrate effort and capital to advertise honey and place it before the people, setting forth that it is the only sweet produced by nature ready for man's immediate use. It is stored by nature in the tiny flowers, and gathered by the bees, carried in the honey-sac, and stored in the comb by the bees as nature secretes it in the flowers.

It is a predigested hydro-carbonaceous food, easily digested, so that many invalids can use honey that can not use other sweets. It is certainly true, since glucose has been invented, and has come so generally into use, that Bright's disease, appendicitis, and many forms of stomach trouble have alarmingly increased. Honey is soothing to the stomach and to the mucous membranes, and can be used freely where glucose and even cane sugar can not be used without injury.

This is a time of organization. Both capital and labor combine to push these interests to the utmost extent. This has proven of great benefit to each, and to-day we see the wages of all clases are fully doubled compared with a few years ago. On account of a combination of capital we find most of the products we use going higher and higher. The high wages received makes it possible for the masses to buy and use on their tables that which they think is best for the health of themselves and families; and we see manufacturers catering to this condition of affairs.

There are innumerable brands of food prepared, all of them setting forth that they are predigested, have wonderful health-giving and strength and muscle building qualities. This is wonderfully true of the class of cereal foods, all of them costing from double to treble what the original wheat cost from which they are made; yet the people buy them freely because they believe they have merit. When we take up any magazine we find beautiful cuts, very often colored plates, and advertisements setting forth the merits of the wonderful life-giving pre-digested breakfast foods which have the power to build up the lost and worn-out forces of man. Suppose bee-keepers were all organized, and that each one would contribute a small amount toward a fund to write up and explain to the general public the beauties and superior qualities of honey as a food, setting forth that, for the amount of *vital force*, heat, and strength it gives, it is one of the most concentrated foods, and that the price paid for it, according to all of its good qualities, makes it a very cheap article of food.

It is not the idea to boom the consumption of honey, but merely to set forth the facts so that the public may be educated as to its wonderful qualities, so that all classes of consumers will know its value and use a proper proportion. It will then be seen that there is not too much honey, but not enough to go around, and the price will be advanced to a proper level with other products.

Denver, Colorado.

TWO YOUNG QUEENS LAYING IN A HIVE AT ONE TIME.

I had a little experience yesterday; and, having seen nothing like it in GLEANINGS, I ask for information. On the 1st of July No. 28 had attempted to supersede their queen; but as they were hybrids I killed her and gave them a young Italian. Five days later I examined them and found the young queen laying nicely. I also noticed several cells about ready to hatch. I left them alone, thinking the bees would destroy them. Yesterday I was working with them again, and when I took out the comb next to the side of the hive I saw a large young queen, busy laying. I was surprised, as she looked so much darker than the one I gave them. On lifting out the fourth frame from the side of the hive I discovered the yellow queen. To say I was astonished is putting it mildly. I again lifted out the first comb, and, catching the darker queen, I put her on the same comb as the other. The bees treated her as if she were their only queen, and the queens were at one time no more than three inches apart, but did not seem to pay any attention to each other. Looking further I found an old cell that had evidently hatched. Now, whether this queen was hatched and mated in this hive containing a young laying queen, or whether she came from some other hive by mistake, and why the bees allowed her to remain, is a mystery to me. She, without doubt, was a young queen, as I clip all laying queens. E. D. ANDERSON.

Saspamco, Texas.

[In the case given, it is plain that the bees were preparing to supersede the old queen, and in doing so must have started several embryo cells supplied with eggs or larvæ from this old mother. When you destroyed her, you helped matters along. In the mean time, the queen you introduced began to lay; but, contrary to the usual procedure in such cases, allowed one or more cells to mature, resulting in a young hybrid queen from the old mother which you destroyed. Contrary to the usual rule again, neither queen made any effort to kill the other. That two exceptions to well-established rules occurred in the same hive and at almost the same time is rather rare. It is not uncommon for mother and daughter to lay together in the same hive for a time; but in the course of a month the old queen will be missing as a general thing. It is very seldom that two *young* queens will lay together like this.—ED.]

SOUTHERN QUEENS; ARE THEY NOT AS SAFE FOR NORTHERN BEE-KEEPERS AS THOSE BRED IN THE NORTH?

Referring to p. 498, Vol. 34, I would say that I consider Mr. Coggshall has done a great injustice to the queen-breeders of the South. On page 828 the inference that Mr. Todd draws points still more to the queens from the South. I certainly think that testimony should be called for, and the truth of the matter known before Southern queens are condemned. It seems that, among the thousands of queens that are bought in the South some one would have found this out before. I for one do not fear the truth of the matter, and am sure that the Southern queen-breeders can show any amount of testimonials from satisfied purchasers in the North.

I feel sure that this matter has been misrepresented, and I hope that you will do all in your power to sift out the truth.

James Island, S. C. H. M. PARKER, JR.

[Referring back to the item by Mr. Coggshall, in our April 15th issue, we do not find any thing there that positively asserts that our correspondent believes that Southern bees are less hardy than others. Note that he says that those bees that died that winter "filled their brood-nest so full that they all froze, and they dwindled badly." We infer that, because the hives were too full of stores and no winter nest, this was the cause of death, and not because the bees were southernbred. We do not believe that any one would seriously assert that bees bred in the South are less hardy than those bred in the North. The bulk of queens this season of the year are from the South; and yet we venture to state that all such queens will show as good a record for honey as those bred later in the North. If we are misinformed as to the facts we shall be glad to be corrected.—ED.]

THE ADVANCED HONEY PRICES A DETRIMENT.

As peddler, I have peddled for 15 years, and I have the following to say: The advanced honey prices mean a standstill in honey-trade. How can the peddler make a living when his customers are not willing to pay more for honey? I can assure you, too, the honey-trade rests mostly on peddlers. They have to teach the people what honey is good for; and, thanks to GLEANINGS, I am well informed and am able to interest people about bees. The commission house of Hildreth & Segelken as well as Mr. Stringham, of New York, will say that I have drawn many cans of honey from there, and now it

looks very discouraging. I hope that next year may give a better crop, and that we may have regular and uniform prices.

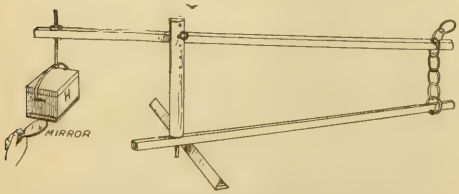
Milltown, N. J. RUDOLPH LICHTWER.

[Since the new national pure-food law went into effect, conditions have materially changed. The reason your customers objected to paying fair prices for honey is because they could buy corn syrup for one-fourth or one-half of what you ask for honey; but all such concoctions, unless properly labeled, will hereafter be barred from the market, and when properly labeled, will not sell. The cane-syrup men anticipate a rise in their product, because the competition with glucose mixtures will be practically eliminated. What is true of pure cane syrup will also be true of pure honey. The public will object to paying these advanced prices for a time, doubtless; but when it understands it is getting more sweet for the money than formerly, and a good deal better flavor, no objection will be raised. We shall be glad to hear from you again about two years hence on the effect of this pure-food law.—ED.]

A NEW FORM OF HIVE-LIFT.

In submitting this idea I have no comments to make, as I am in the greenhorn class yet. Try it. WILLIAM BEESON.

Gilt Edge, Montana.



[It would seem as though the hive-lifter proper should show only about half the size, in proportion to the hive, that is here given. The lifter is carried around, we should judge, from point to point, and is set down in front of the hive, when the lever is tilted with the long end up in the air, the short end slanting over the hive. The tongs grab the handholes, when the operator gets hold of the long end of the lever, pushes it down, and hooks the chains over the end as shown. This will hold the hive up in the air and enable one to look under the frames with a mirror, or lift a super or supers off the hive. —ED.]

HOW TO GET RID OF LAYING WORKERS; A PIN FOR TRANSFERRING LARVÆ INTO CELL CUPS.

I took a queen-cell that was about capped over; gave it to the colony, let them hatch it out, and that was the end of laying workers.

I want to tell how I transfer larvæ from the combs to cell-cups, as it is far ahead of the transferring needles or tools that I bought. I take a medium-sized pin and drive it into a small stick about the size of a penholder, then bend the pin at an angle so the stick will be out of the way. The head will slip under the larva and out again easier than you can get a larva off from a regular transferring-needle. Then the combs are not injured in the least. FRED TYLER.

San Jose, Ill.

COMB-HONEY PRODUCTION; ALEXANDER'S PLAN FOR FEEDING BACK EXTRACTED HONEY ENDORSED.

I have been feeding back extracted honey for comb honey since 1902, and can vouch for the practicability of Mr. Alexander's plan, p. 649, 1906. Three years ago this was the only way by which I was able to get any marketable honey. The method enables one to overcome in a measure the vagaries of our honey-harvest weather. It also puts out of business the half-finished-section nuisance, if one is willing to do some feeding back after the main flow is over.

Aikin, Md. J. FORD SEMPERS.

PUTTING IN STARTERS BEFORE THE SECTIONS ARE FOLDED.

I do not remember ever seeing it recommended to put on foundation starters while the sections are in the flat. I took the short block which supports the section off my Daisy, and put on one about 16 or 18 inches long, so that I could put on top and bottom starters at one handling. It is not necessary to have two plates and lamps, for I can slide the flat section along to the proper place. I have practiced putting on starters in the flat a good many years, and think it the best way. A starter that will not stay on to fold the section is not safe to give to the bees. Another important point is that one large plate does for any size of section.

Altona, Ills. ALVAH REYNOLDS.

HOUSE-APIARIES VERSUS HIVES OUTDOORS.

Has any one tried a bee-house constructed so as to do away with the bee-hive?

St. John, Wash. PETER TAYLOR.

[Bee-houses have been constructed without any hives in them. We have had one at our place for the last 30 years, but it has long been out of commission. Such a house is not satisfactory, and we would not advise you to invest in any thing of the sort. You can use a building with hives inside; but even then it is better to put the hives outdoors, both for economy and convenience.—ED.]

A BEE-KEEPER WHO GAVE AWAY SWEET-CLOVER SEED.

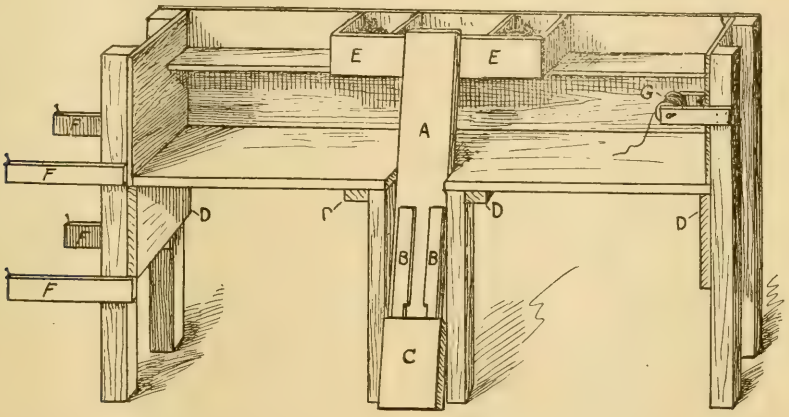
The honey crop with us has been quite good. The bees are in good condition for winter. My honey was all sold in my home market. I have given away all my sweet-clover seed—some 35 pounds—in one-pound lots to bee-keepers, and still have inquiries for more. I wish you would state that I have no more seed. JOS. EGGE.

Willamette, Oregon, Nov. 8.

CONVENIENCES IN THE WORKSHOP; A BENCH ARRANGED FOR NAILING AND WIRING FRAMES.

I have watched with interest the various devices for simplifying the work of the bee-keeper; and as I have a bench for nailing frames which I consider handy, I am sending a sketch and a description of it. This bench is built just the right height so that a man can sit in a chair and have room for his knees under it. Mine is 25 inches from the under side; but being built for a tall man it is higher than the average man will desire.

The standard in the center, A, is to rest the top-bar in when nailing. The cleats, B, B, hold it from falling sidewise; and the block C holds it at the desired height for nailing. This block is nailed over the cleats, leaving a space into which the projecting end of the top-bar will slide, which holds it much firmer than it would with the bar resting on the extreme end. The whole is made so the bar fits easily, and is given a slight backward tilt.



The bench being weakened in front, where the notch is sawed for this standard, I fastened two strips, D, D, of inch lumber to the under side of the table, at front, giving them a slight backward tilt, and fastened them to the bottom of the standard A, the whole resting on the floor. At the back of the bench are four nail-boxes, E, E, in which I keep my nails, end-spacing staples, etc. From the boxes to each end of the bench are left shelves on which I keep my knife, pincers, nail-set (which is just the right size to slide under the end-spacing staple to give it the desired depth), and any little tools I need.

The pieces nailed on the end, F, F, F, F, are to place top and bottom bars upon, where they are within easy reaching distance. There is plenty of room at the left on the bench to lay end-bars after the nails have been started. I start nails in the bottom and end bars and pile them on the bench, and at the end as long as I have room, before I begin nailing up. At the right is a reel, G, for wire.

LEON C. WHEELER.

Barryton, Mich., March 13, 1906.

[Almost any work-bench can be made more convenient by having an extra shelf or ledge just a little way above it so that extra tools, nails, and the like can be put on it, leaving the bench proper free for the actual work in hand. Your work-bench is probably as convenient as any thing that has been thus far shown.—ED.]

THE IMPERIAL VALLEY OF CALIFORNIA; ALFALFA FOR CATTLE.

I think I have found an ideal bee country, one where the extractor can be used every month in the year. We not only have the best alfalfa lands in the world, but wild flowers in endless variety. Five acres of alfalfa will keep six head of dairy cows and a few pigs the year around. This old valley, you know, has been known in our old school geography as the Colorado Desert, a part of the chain of Death Valleys where untold thousands have perished with heat and thirst, following the ever receding but seductive mirage. But all the horrors of the old days are gone. Canals and ditches are everywhere carrying the fructifying waters of the great Rio Colorado to the growing fields of grain and meadow. On every hand the stately eucalypt, pepper-tree, and date palm and palmetto are springing up as if by magic. Our prevailing winds are from the Pacific Ocean, purified and sucked dry in their passage over the San Jacinto Mountains, making this one of the most healthful places in the world. To all sufferers with asthma, lung affections, or rheumatics, I would say, get you a tent, gun, and fishing-tackle, and hie to this favored clime and live close to nature for a few months, and you will surely be rewarded with health and a life-long affection for our grand valley.

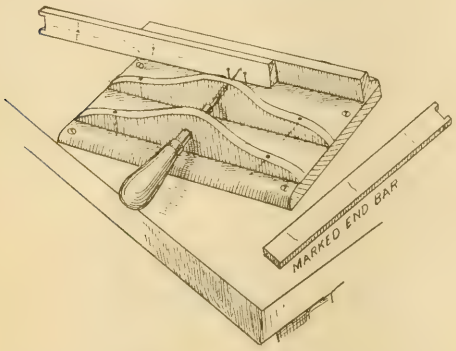
BYRON IAMS.

Holtville, California.

A HAND DRILL FOR PIERCING END-BARS.

I see my California brother has sent you a drawing of a machine for punching holes in end-bars to receive wire, and I notice your comments on the same. I will warn you beforehand that I too am a Canuck, so, be care-

ful. In the first place, the machine I use drills the hole, leaving the edge of it rather harder than the rest of the wood. The whirling motion of the drill forms a glaze in soft wood. This might save the wire from cutting in the wood. The machine is simply a No. 1 automatic drill made by the Goodell-Pratt Co., Greenfield, Mass. It cost $1.50, and with it a set of small drills. Take one of the smallest ones; cut it off so as to leave a drill about an inch in length; sharpen the same as any drill; place the machine in two



hard-wood brackets—one for the large part and the other for the small portion. The holes in the brackets should fit snug, avoiding any play. Fasten the brackets to an inch board by the use of screws at either ends; also attach a 1×1×4-inch piece directly in front of the drill, about ¼ inch from the drill-point. When the same is drawn back on either side of the drill-point, drive an eight-penny nail close enough to the punch-block to allow the end-bar to slide through; mark the desired space wanted. With a firm quick push, the drill passes through the end-bar. Draw it back and slide the end-bar through to the mark, when the right hand starts the drill again. Fasten the machine on a bench; and as the drilled bars pass through they may fall in a box or basket placed there for that purpose. The writer can drill at the rate of 1360 holes per hour. I would not take ten dollars for it if I could not get another like it. WM. LOSSING.

Phœnix, Ariz.

COLOR OF HIVES; A VARIETY OF COLORS UNDESIRABLE.

On page 1428 Wm. Lossing tells his experience with bees marking their location by the hives being painted different colors. I agree with Mr. Lossing as to the bees, where the hives are painted different colors, marking their location *largely* by the color; and it is this trait that makes many colors in hives undesirable. I once had the red, white, and blue idea, and found that, if a colony in a white hive swarmed, or if we made a "shook" swarm, or if for any reason we changed the hive-body and replaced it with another, unless the new hive was white or of the same color as the removed hive, the bees would scatter around in the nearest hives to the old location, most of them going into the nearest hive of the same color as their old one, which will materially weaken a colony at just the time we want it at its best. I am painting my hives all one color again. I have worked with hives standing from one to three inches apart under sheds; and while I think some bees, in their hurry to get home with their load, sometimes enter the wrong hive, I think they are always welcome, and would be invited to come again (when they have another load). The queens should be raised in nuclei outside. IRVING KINYON.

Camillus, N. Y.

WHERE BEES GATHER PROPOLIS.

We had quite a flood recently, and the water washed rails, etc., down. The rain washed out and bruised quite a lot of roots and wood of sumac, and out of them oozed a dark pitch, the regular genuine propolis. I could tell by the odor; and I saw the bees busy gathering it. I tested it and compared it with the propolis in the hives, and it smells and tastes the same. At first I wondered why the bees were gathering there along the bank of the creek, and went and looked, so I found they were at the roots. I tasted and found it was not sweet. I was reading in the A B C of Bee Culture, and found that it seems to be unknown just where the bees get it, so I thought I found out something that might add to our bee knowledge.

Queen, Pa. WM. CLAAR.

[It has long been known that propolis is a substance that bees gather, but the exact source from which they gather it is not always known. This is true of pollen and honey also.—ED.]

BEES IN TENNESSEE GATHERING HONEY IN JANUARY.

As it is very unusual for bees to build comb and gather honey and pollen in midwinter, I thought a report of such an incident would interest you. For the last four days, beginning with the 16th, my bees have been carrying in pollen and honey the same as in May. I examined a few colonies this morning—one in the empty super with extracting-frames in. They had built three combs about half way across the frames, and the same in depth, and as white as if built in June. Nearly all I examined had whitened their combs on top. The soft maples, elms, and willows are in bloom.

Atwood, Tenn., Jan. 14. GEO. W. RICH.

WORM-EATEN PINE.

The white pine of New Zealand is subject to a grub or worm that riddles the lumber through and through until buildings are destroyed. It is a very small grub, the beetle being only ¼ inch long; but they riddle sound boards through and through until they crumble up like rotten wood. If you could give us a remedy for stopping it in our hives we should be much obliged. J. C. HOBBS.

Palmerston, N. Z.

[Carbolineum arvenarius is said to be very useful for this purpose in this country.—ED.]

FLORIDA "FLYING-MACHINES."

If anybody should ask you what A. I. Root is doing this winter you can tell him he is down on an island off the west coast of Florida, manufacturing flying-machines. No, that isn't quite right—*not* "manufacturing" but *creating*. But *that* is not right either, for it is not he that "creates," but "God," who "in the beginning created the heavens and the earth." A. I. Root has graciously been permitted to be present and to witness the "creating," and perhaps to help some by running errands, and, to a certain extent, in a humble way, assist in the creating. Yes, and we have the "flying machines" that not only *fly* but they are the most beautiful and *wondrously* wrought conceptions of the infinite mind that pen, poet, or painter could well conceive.

Years ago I won the gratitude and affection (I think this last is true) of a little Brown Leghorn hen by saving her life when our teamster was going to "wring her neck" because she *persisted* in roosting on the back of one of the horses. I gave her a decent roosting-place in cool weather, and she showed her gratitude by giving me eggs and chickens until I said to Mrs. Root:

"Sue, I should like no better fun than to see that little hen cover a farm with her chickens and their posterity."

I have many times since looked back and thought I could afford to give a year or more of my life just to enjoy the fun of seeing how large a family one good hen (with a suitable companion) could evolve in, say, a year or a year and a half.

I have already told you that Mr. Shumard, by my direction, purchased five White Leghorn pullets. Well, these five were descendants of a little White Leghorn hen that (like the one I have mentioned) had a *mania* for laying eggs and hatching chickens, winter and summer, year after year. I said White Leghorn; but the mother had also a dash of game blood in her veins, and this helped, probably, to make her such a devoted and fearless mother in caring for her chickens. Mr. S. brought the five pullets home,* but they were so wild that, when let loose, instead of going with his regular flock all five decamped for the woods and had been there alone perhaps a week or ten days when I reached the island. As they had neither food nor *water* (except salt water) he thought they would eventually come up with the other poultry. Not so, however. When I first saw them they hid like wild birds. I took to them at once. There was something aristocratic and high-bred in the way they carried their heads high up in the air, with their tail feathers standing almost horizontally straight back. As they are pure white this peculiarity of carriage is about the only thing that indicates their game ancestry. When caught they were so exceedingly wild it was for some days a hard matter to make friends with them at all. They are in a circular yard about 50 feet across; but for a long time they would skulk out of sight amid the clumps of cedar whenever I came in sight. Little by little I have gained the confidence of these high-toned wild birds, and, with the help of plenty of good food and water, they soon began to flesh up and get handsomer every day. The first egg one of them laid was taken "straightway" to the incubator, and now it is a handsome white chick ten days old. A full-blood choice Leghorn rooster was given them, so you see I am going to have a family of respectable ancestry—that is, according to *my* notion.

I like to hear a boy's voice just when it is changing, indicating he is turning from boyhood to manhood. While I think of it (?) I also like to listen to the musical voices (and laughter) of young *girls* that are just turning from girlhood to womanhood; but I do not know that I ever enjoyed any thing much more than the notes of one of my wild pullets when she did her first cackling over her first egg. Her poise as she stood on one leg was grace and beauty, and the high key and flute-like note or her childish cackle thrilled me through and through.* But, "what has all this to do with flying-machines?" do you ask? Patience, please. It is just ahead of us.

Stoddard, in his book, "The Egg-farm," lays great stress on the importance of *exercise*—exercise almost from the day the chicken is hatched. My oldest ones are now a little over two weeks, and they go chasing about outside the yard from the time they can see in the morning until it is dark at night. They are about ten days older than the white one from the pullet's first egg; yet this one, when he was 48 hours old, followed the hen with her 27 older ones. I tried to keep him in a little longer; but he caught sight of the rest, and *would* go. These chickens are almost constantly on the jump. When hungry they "leg it" back to where they know the wheat is kept for them (and for them only), and then they are off in the woods again. The hen pretends to be mother to them all, but I am quite sure those two weeks old would do quite as well without a mother, *on this island*. Now, it is not only the legs that need exercise, but it is the wings also. All our fowls on the island roost in the trees. While on a visit last fall to Dry

*He tried to buy the mother, but they would not sell her at any price, and consented to sell these pullets only because they could not be kept from getting out of the yard.

*To-day, Jan. 22, for the first time I got five eggs from the five pullets. I had been having four for several days. I planned to have my five hens keep the incubator running continuously, but this is going to overload it.

Later.—Yesterday, only three eggs; but to-day, 24th, five eggs again.

Knob, Laclede Co., Mo., at a brother-in-law's, I was greatly interested in their flock of about 50 turkeys. I was particularly interested in seeing them start from the ground and fly to the top of the highest trees. Ever since I have been studying flying-machines I never tire of seeing all kinds of birds *fly*. While I am about it I want to say there are two things I especially admire in the region about Dry Knob. First, nobody ever steals poultry there (no saloons), no, not even when turkeys roost on the fence right adjoining the highway at *Thanksgiving time*. The other is, there is only one kind of *time* in all that region. *Everybody* has railroad time. "Sun time" and all that nonsense is unknown.

Well, Stoddard is right, I think, in saying that chickens must be taught at a very early age to use their *wings* as well as legs. Encourage them in every way to learn to fly. Open-air exercise cures every thing, and where in the world do you find *any thing* that combines *both* exercise and open air like flying? One day, in feeding my old hen with her flock of 29, I dropped some feed on top of the work-bench. She hopped up and found it and commenced her shrill "cut-cut-cut." Like loyal soldiers, a lot of the ten-day-old chicks essayed to fly up. Some of them got more than half way up; and when I set a box just right it was great fun for them to get up where their mother was. I began then admiring those beautiful little rudimentary wings — God's handiwork, or, perhaps we might say, *fingerwork*. They are now about 18 days old. They have wheat all the time, but I give them for a change dry bread moistened with water, or other things I know they are fond of. I do not know but the little "darlings" have got it into their heads there is sure to be "fun going on" of some kind whenever I come round, and they fly up on my hands and arms, and on the dish I am holding, and give me all the chance I could ask for to study the penciling of those beautiful gauzy wings as well as the graceful airy motions that *God* taught them in order that they may fly.

While I am writing I have just spread out one of the soft lacy wings in my fingers, and almost fear I shall lose my love for flowers in admiring these *animated* creatures, so full of life and energy. The Wright Bros. have done a wonderful work; but, oh dear me! when will mankind *ever* approach any thing so strong, light, and graceful as a chicken's wing? and when shall we ever get the wondrous power and strength for so little weight as was tied up in a tiny fragile eggshell only 18 days ago?

Did I forget to mention that my good old friend the sitting hen takes all the chicks as fast as they come from the incubator? Well, she does; and when the late arrivals get tired and chilly she broods them, while the older ones roam near by and scratch to their hearts' content.

A. I. ROOT'S WATERING-DEVICE.

I think I have seen most of the watering-devices; but where they are on loose ground the fowls will scratch more or less dust or dirt into them. Here is one that pleases me. Get a board an inch larger around than a common saucer. Round or eight-sided is rather better than a square board. With a compass draw a circle an inch larger in diameter than the saucer. Now drive ten-penny nails in this circle, 1¼ inches apart. Let the nails go in about half through the board. This forms a little stand, as it were, with a lot of legs; and, when set over the saucer, it lets the chickens' heads in to drink, but no more. Of course, 29 chicks will soon drink a saucerful; but you are to get the biggest bottle you can find, and bore a hole in the center of the board large enough to let the neck of the bottle go down a little below the top edge of the saucer. This will keep the saucers just level full, and no more, as long as there is water in the bottle. To keep it clear away from dust and trash I would set it up on a box and have steps or stairs for very small chickens to go up. A similar arrangement will do for wheat or any kind of grain. To keep the older fowls from interfering or bothering the chicks I have the wheat and water under my work-bench, with poultry-netting clear around the legs of the work bench. The mother-hen is let into this inclosure nights, so she and her 29 are secure from cats or any other night prowlers. Now, at the other end of my workshop I made a nest in one corner of pretty good size, with an opening through the wall of the shed. This is a retired nest that seems to please the laying hens. Well, one night the hen with her 29 got in here with her brood, and *she* decided it was a better and more secure place for her large family than in her inclosure under the work-bench, as explained. I rousted her out and made her take her old place, but she did a lot of scolding about it.

Well, last night I came round just as she was making for this forbidden place again, when I said, "No, no! you can't go in there." She obeyed orders, but with a snarling protest. When she objects to my "dominion" she has a saucy note that I understand as well as words. It is something like this: "You, you, you," as much as to say, "Well, who are you, anyhow?"

Mr. Cosgrove said in the *Rural New-Yorker*, about a year ago, that the talk he had with his pullets when they are just commencing to lay was often more interesting to him than the talk of many "humans," and I think I fully agree with him. I have one comical little chick that was "born (in the incubator) out of season," as it were, and he follows me everywhere, and keeps up an incessant talk and visiting. For the very small chicks I fixed for water a tin box-cover placed on a block of wood with nails all round the cover driven slanting with their tops all near together. They very soon learn this means "drink," no matter where I place it. Well, this morning my pet chick came running up to me full of animation and talk, and then he ran up to the drinking-apparatus, putting his head between the nails as if to drink, and then scampered back to

me. I said, "Why, bless your little heart, is the water really all gone?" When I brought some more, even before he had taken a drink, he uttered a queer little note of thanks and contentment that was sweeter to me than music.

Dear reader, don't think I am making too much ado about a common every-day chicken. What *I* heard was *God's* voice — the "still small voice" of the great Father, the Creator, speaking through one of the humblest of his creations. Again I stand appalled at the wondrous intelligence and matchless energy stored away in that tiny creature less than a week old. My chicks of 20 days now sail over the workbench, and seem to take delight in fluttering their new and gauzy wings over my shoulders and in my face.

I have just received a lot of "rooted cuttings" from florists in the North. As they unfold their pretty leaves and take root in their little pots, they too speak of the little speck of the great Creator that is tied up in their little buds, roots, and leaves.

I reached Braidentown, Manatee Co., Fla., after 10 P.M. Saturday night, Dec. 15, but was awakened before daylight by the vociferous crowing of the roosters. By the way, it seems to me the feathered tribes crow, cackle, and sing louder in Florida, or perhaps this part of Florida, than anywhere else. The hotels are two slow for me, especially Sunday morning, so I got breakfast at a restaurant, and was out in the glorious country before friend E. B. Rood's folks had been to breakfast. As part of my errand there was to get something to study the Sunday-school lesson I was very soon happy with the *Sunday School Times*. Friend R. has a large, very bright, and intelligent Bible-class in the Presbyterian church, and this was turned over to me. Before closing, the superintendent said there was a man with them who *always* attended Sunday-school; and if he ever brought up where there were none, a Sunday-school was started *then* and *there*. Said he, "Just one year ago he did this at Osprey (our county), and he gave it such a *good* start that, when he went back north, it kept on and is going yet. He will talk to us briefly." After the school was over we listened to an excellent sermon.

Dear friends, I am aware I have been criticised for some things I do and say on the sabbath; but while I can feel that the Holy Spirit is with me I do not believe I make any very serious mistake. Jesus said, "Wherefore it is lawful to do good on the sabbath day." Mr. Westwell, one of our Medina employees, recently moved to Florida on account of hemorrhage of the lungs. He is located out in the country five miles from Braidentown, and on the way to my destination. When I told friend Rood I had planned to walk out to his place Sunday evening, in time for the evening meeting,* he declared I should not go on foot, even if it *was* true that his horses were never hitched up on Sunday for any other purpose than going to meeting. I reached there a little before meeting time. A revival had been going on there, and I was pleasantly surprised to see extra seats had been improvised in the little church by putting planks across bee-hives. When the prayer-meeting was about half over, the man who owned the hives remarked that A. I. Root was present, and the leader suggested that I be requested to occupy the remaining time. No doubt some of the good people feared when I started out that I was forgetting I was in a Sunday-evening prayer-meeting. I spoke something as follows:

"Dear friends, it was something over forty years ago that my attention was directed to the honey-bees. For a year or more good people thought it was a pity I should neglect a good business to waste time and money in studying bees. But after I had secured a *barrel of honey from one hive*, in *one season*, they began to think there was, after all, at least *some* 'method in my madness.' I did this by means of the honey-extractor, and I believe I made the first one of 'all metal' the world ever saw. Well, at that time there were many patent bee-hives — expensive structures with moth-traps, glass drawers, etc. An 'individual right' was $5.00 or $10.00, and the hive about as much more. I soon declared no patent hive was wanted. For the hive-body, all that was required was a simple plain box, *without top or bottom*, so the hives could be tiered up to accommodate the size of the colony or swarm, or, in other words, to adapt it to the ability of the queen. I named it the *Simplicity bee-hive*. Such hives are now in use all over the world. When I first got it out and declared it was all the bee-keeping world needed, I had visions and great anticipations. But, dear friends, in all my visions and day-dreams of its usefulness, I never thought, until to-night, it might also be used to help spread the gospel of Jesus Christ by making a convenient and secure support for the seats we sit on. May God be praised that I have lived to see my pet bee-hive consecrated to such a purpose. May the good brother who was willing to contribute even his hives to help along a revival meeting have a rich reward; and may God help us, each and all, to be equally ready to respond with *all* that we have and all that we are, for his honor and his glory."

These Simplicity hives were probably of

* When I decide circumstances justify me for Sunday, I *prefer* to go on foot because this requires no Sunday labor for any man or beast.

my make years ago, for the good brother had brought them all the way from "old Missouri." They had served to hold tons of honey, and were, apparently, good for tons more in the future. The next morning, the proprietor of the hotel said, when I took his hand at parting, "Mr. Root, it has been a great privilege to feel that I have met and had a talk with one whose writings I have followed for so many years," for he too was a bee-keeper at one time in his life.

Now, friends, are you sure I am wrong when I feel that God calls *me*, at least, to make Sunday a busy day when there is so *much* to be said and done? It *is* a day of rest to me, because my week-day duties are all laid aside. "Wherefore it is lawful to do well on the sabbath day."

POCKETS AND HOW TO USE THEM, ESPECIALLY WHILE TRAVELING.

I don't suppose this will apply very well to the women-folks, for they do not have any pockets, or at least very few; but we men-folks, in the way clothes are ordinarily made, have a dozen or more. Now, I have learned be experience, and sometimes by sad experience, how to use my pockets. When I start out traveling I always keep one pocket for my ticket. I never put it anywhere else, and I never put any thing else in my pocket with the ticket. Then I never have any trouble from hunting for my ticket when the conductor comes around for it, if he comes along when I am not looking and touches me on the shoulder. Then I have another pocket for my milage-book—the one I am going to use next. I never put any thing else in that pocket. How often we see people, especially on trains, pull a whole lot of stuff out of one pocket, and then hunt in another place and then another for a ticket! If they do not find it at all, there is sometimes serious trouble. Then I have another pocket, for my railroad folder; and I study that folder so as to find out all about the road I am traveling over, and all about my connections where I take another road. After I had lost some hard-earned dollars by not being posted in time, I have learned to *save* a good many dollars. Then I have another pocket, for my silk handkerchief. I do not want any kind but silk, but other folks can do as they please; and I do not want any thing else in the pocket where my handkerchief is. If you push your ticket in on top of your handkerchief when you are in a hurry, you may pull it out with the handkerchief and lose it, and so with other things. In a similar way I have a pocket for my change, one for my bills, a pocket for my *pocket* knife, a pocket for my spectacles, and a pocket for my watch. One of my hip-pockets I use to put my handkerchief in when it is not very clean. That is in order to have at least *one* clean handkerchief all ready for instant use. My other hip-pocket is for shoe-laces. You may ask what in the world I want of shoe-laces. Well, when I rode a bicycle I kept them to tie packages on my handle-bars; and if you want to tie up a neat handy package of any kind, there is nothing else so neat as shoe-laces of assorted lengths. Then I have still another pocket, for letters that I am not ready to file; another one, for addressed postal cards and envelopes so I can write home on the train, and still another, for lead-pencils. May be you wonder where I find room for so many pockets as I have enumerated. Well, there are five in each coat; five in my vest; five in my overcoat, and five in my pants. That makes twenty at least. Oh, yes! there is a little pocket in my overcoat that I use for checks when I check my baggage. I never put any thing else in that pocket, and I can always put my fingers on it in a moment. Now, I do not know that I would have quite so many pockets if I were bossing the job; but they are already there, and I have outlined as above so as to make use of them; and it helps me a good deal to keep happy and to keep my nerves steady, to feel that I can put my fingers instantly on whatever may be needed when I am traveling.

OUTDOORS BETTER THAN HOUSE.

"Home is the most dangerous place I ever go to," remarked John Muir, the famous geologist and naturalist. He was on the train returning from Arizona to his home in Martinez, Cal., after the earthquake. "As long as I camp out in the mountains, without tent or blankets, I get along very well; but the minute I get into a house and have a warm bed and begin to live on fine food, I get into a draft and the first thing I know I am coughing and sneezing, and threatened with pneumonia, and am altogether miserable. Outdoors is the natural place for a man. Walk where you please, when you like, and take your time. The mountains will not hurt you, nor the exposure. Why, I can live out for $50 a year for bread, etc. All I need is a sack for the bread and a pot to boil water in, and an ax. The rest is easy."—*World's Work.*

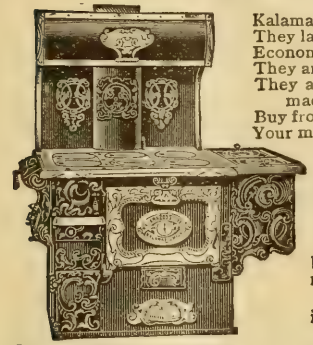
The above may be putting it pretty strong, but there is certainly lots of truth in it, and thousands of people are just beginning to find it out. Both "chickens" and human beings, in many localities, would be far better off if their houses were burned up and the occupants turned loose right out in God's open air.

GIVING THE WOMEN A RIGHT TO VOTE AT LOCAL-OPTION ELECTIONS.

BELOW is the resolution of the recent Anti-saloon League Convention:

We recognize the merit and value of the measures championed by the Woman's Christian Temperance Union to give women the right to vote at local-option elections. Without committing the League to the general proposition of Woman's Suffrage, we deem it just that the wives and mothers should have equal opportunity with the husbands and fathers to protect their homes and families against the peril of the liquor traffic, and we pledge to the W. C. T. U. our hearty co-operation in securing the passage of their measure.

"A Kalamazoo Direct to You"



ROYAL STEEL RANGE
For All Kinds of fuel.

Kalamazoos are fuel savers,—
They last a lifetime—
Economical in all respects—
They are low in price and high in quality,—
They are easily operated and quickly set up and made ready for business,—
Buy from the actual manufacturer,—
Your money returned if everything is not exactly as represented—
You keep in your own pocket the dealers' and jobbers' profits when you buy a Kalamazoo.

OAK STOVE HEATER,
For All Kinds of Fuel.

WE PAY THE FREIGHT.

We want to prove to you that you cannot buy a better stove or range than the Kalamazoo, at any price.

We want to show you *how* and *why* you save from 20% to 40% in buying direct from our factory at factory prices.

If you think $5, or $10, or $40, worth saving

Send Postal for Catalogue No. 416

Examine our complete line of stoves and ranges for all kinds of fuel. Note the high quality; compare our prices with others, and then decide to buy from actual manufacturers and save all middlemen's profits. Catalog shows 267 styles and sizes for all kinds of fuel. Write now. Sold on 360 Days Approval Test.

Kalamazoo Stove Co., Manufacturers, Kalamazoo, Mich.

All Kalamazoo Cook Stoves and Ranges are fitted with patent oven thermometer which makes baking and roasting easy. All stoves blacked, polished and ready for immediate use when you receive them.

Oven
Thermometer

You Can Buy and Lay ROOFING

Gordon, VanTine Flintcoated Fireproof Rubber

50% BELOW DEALERS' PRICES

We'll sell you, if you want roofing, **better** roofing than you can buy anywhere else—**Flintcoated, Fireproof Rubber** Roofing. Sell you **direct at half what your local dealer** will charge you for ordinary roofing—half what shingles will cost you, for we ship right from our factory to you. Send you a Free Roof Book on our roofing, telling why it's

Rustproof and Practically Fireproof if you'll only send us a postal. Send you a sample so you can test it—try to tear it—pound it—smell it to see that there's no tar in it to burn or melt—try it with hot coals—try it with acid—try it any way to satisfy yourself.

All You Need is a Hammer to put it on your house, barn or outhouses. We send you with every order all the nails, metal caps and cement you need to put it on. Also 8 sq. ft. for laps. And it's the easiest roofing to put on made today.

It Lasts a Lifetime and will keep your buildings dry, warm and substantial in appearance. **Won't rust out like steel roofing.** This isn't an ordinary roofing. We make it from a special process material with such heavy machinery that when it's finished there's absolutely no "wear-out" to it. We tell you in our Roof Book all about the process—the pressure it gets—the flintcoating—the acidproof soaking—the weatherproofing that we give it. **It makes 25 per cent saving on insurance.** It's

Sold Only Direct to the man who uses it, so you save 50 per cent, which on other roofing goes into your local dealer's, the jobber's and the wholesaler's profits. You'll see from what we tell you in our

Free Roofing Book just why it will pay you to use our roofing. **We guarantee safe, prompt delivery everywhere in the United States.** We save you 50 per cent, freight included. We ship to you from Kansas City, Minneapolis, Chicago or Davenport. This saves on freight. Write or send catalog requests only to Davenport **and let us save you—dollar for dollar—HALF.**

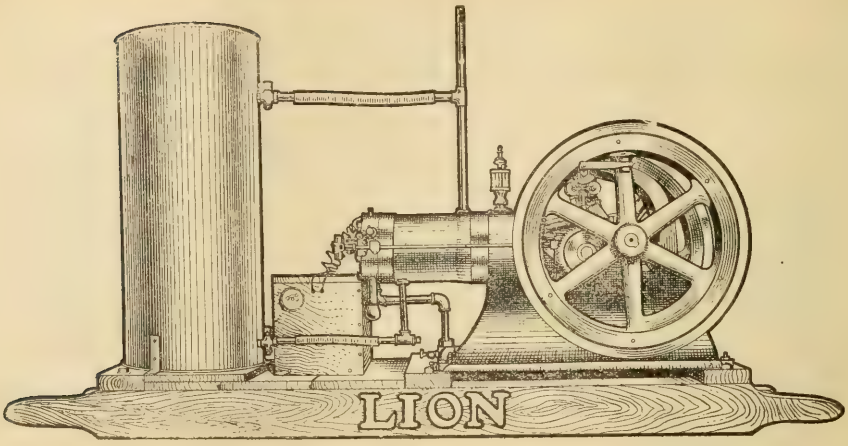
Write today.

Less Than Half What Shingles Cost You

PRICE	Per Square 108 sq. feet
1-Ply	$1.41 per Roll
2-Ply	1.96 per Roll
3-Ply	2.29 per Roll

GORDON, VAN TINE & CO. Largest Mill In America Station D45 **DAVENPORT, IOWA**

Grand Catalog of **Factory Prices** on Sash, Doors, Building Material and Woodwork sent free also.



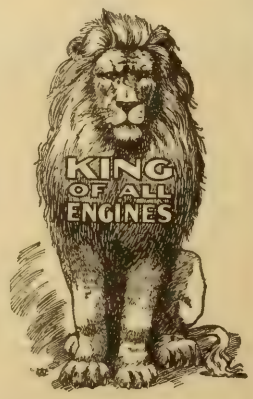
IT'S READY TO OPERATE

There's no firing-up—no waiting for steam with a **Lion** Gasoline Engine. It is **always ready to operate.** Easily started—no engineer necessary—a boy can operate it. Can be used with perfect safety in any building and is very **economical** in the use of fuel. If you want a reliable, practical, durable and powerful power producer get

The Lion Engine

It is **not** an experiment but an engine that has **made good** wherever used. On the farm it proves especially valuable for operating feed grinders, wood saws, cream separators, corn shellers, pump, etc. It furnishes ideal power for operating machinery used in mills, shops, printing offices, private electric-light plants and water-works. Speed can be changed from 100 to 600 revolutions per minute while engine is running—a very desirable feature.

We sell direct from factory to buyer, thus saving you all middlemen's profit. Lion engines are so simple and practical in construction that with the explicit directions which we send with each engine, it is unnecessary to have an expert come to your place to set it up and start it for you. Get a **Lion** engine and increase your profits with much less labor and time devoted to the work. Write now for catalog giving full information and illustrations of the **Lion** engine. It is free if you mention this paper when you write.



Ballou Manufacturing Co.,
Successors to Lyons Engine Co.
Belding, Mich.

Get Your Order In Early

For a Detroit Tongueless Disc Harrow Sold On Time—or For Cash

ON 30 DAYS' FREE TRIAL

Last year 1463 people waited *too* long before ordering. We were all sold out—factory couldn't keep up and we had to disappoint these 1463 people by returning their orders. Just *couldn't* make Disc Harrows enough to go round—that's all. Why?

Well, if you are at all familiar with Disc Harrows, and will look at the picture in this advertisement, you will see some of the reasons why we could not make enough to meet our demands.

There is no tongue to pound up horses—whipping back and forth. No pushing or crowding of the team on corners. No tongue weight to gall up the horses' necks. No one horse pushing—and one pulling, on turns—just straight, even pulling ahead all the time. Perfect balance of frame makes Disc roll smoothly. Lightest draft Disc made.

These are a *few* of the reasons why we sold so many Detroit Tongueless Disc Harrows last year. There are *other* reasons explained in our book—too many of them to give here.

Now here's a big patent feature for 1907—an additional feature over last year.

OUR TRANSPORT TRUCK ATTACHMENT

Notice the truck wheels just back of the Disc blades? You can attach them in a minute's time to the Detroit Tongueless Disc Harrow—and Discs are raised from the ground—elevated on light running front and back trucks.

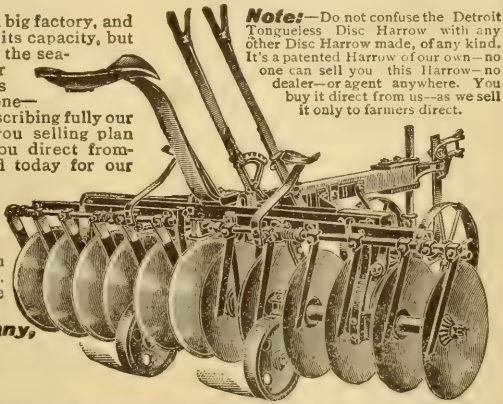
This puts your Disc on wheels and you can drive anywhere—over rough roads—sand—gravel—stones—or bridges—without dulling the Discs or cutting up the surface. Strong brake makes driving down the steepest hill perfectly safe.

It's a great convenience—that patent TRANSPORT TRUCK of ours! *And it's found on no other Harrow* on the market.

Important. Now we have a big factory, and are running it to the very limit of its capacity, but Right now—'way in advance of the season—half of our factory output for Spring is sold—and a flood of orders are coming every day. If you want one—and you will if you get our Book describing fully our various sizes and our direct-to-you selling plan (time or cash) and prices quoted you direct from-factory-to-station—you should send today for our Book, Plan and Price.

Just write us on a postal—say "Send me full particulars of Detroit Tongueless Disc Harrows"—and we'll send you our Book and other printed matter and quote you a direct price, at your station. Freight guaranteed—on our Free Trial Plan.

American Harrow Company,
W. W. Collier, Gen'l. Mgr.,
4647 Hastings St., Detroit, Mich.



Note:—Do not confuse the Detroit Tongueless Disc Harrow with any other Disc Harrow made, of any kind. It's a patented Harrow of our own—no one can sell you this Harrow—no dealer—or agent anywhere. You buy it direct from us—as we sell it only to farmers direct.

GET THE RIGHT GARDEN TOOLS

It pays to get **Planet Jr** farm and garden tools. No other kind does the work so well or lasts nearly so long.

Planet Jr tools increase a man's capacity three to six times.

No 25 Planet Jr Combined Hill and Drill Seeder and Double-Wheel Hoe, Cultivator and Plow. Simple and easy-running. In one operation, it opens the furrow, sows the seed accurately in drills or in hills 4 to 24 inches apart, covers, rolls, and marks out the next row.

No 8 Planet Jr Horse Hoe and Cultivator will do more things in more ways than any other horse hoe made. Works the ground thoroughly, any depth desired, with perfect safety to plants. Strong, simple, perfectly adjustable. Plows to or from row. A splendid hiller.

Write today for **1907 Catalogue** of these implements, also Wheel Hoes, One- and Two-horse Riding-Cultivators, Harrows, Orchard- and Beet-Cultivators—45 kinds in all.

S. L. Allen & Co., Box 1106 S, Philadelphia, Pa.

PLANET JR.

I AM THE PAINT MAN

O. L. Chase
St. Louis, Mo.

I Guarantee Freight Charges

I AM the paint man. I have a *new* way of manufacturing and selling paints. It's unique—*it's better*. It revolutionized the paint business of this country last year.

Before my plan was invented paint was sold in two ways — either ready-mixed or the ingredients were bought and mixed by the painter. Ready-mixed paint settles on the shelves, forming a sediment at the bottom of the can. The chemical action in ready-mixed paint, when standing in oil, eats the life out of the oil. The *oil* is the very life of all paints.

Paint made by the painter cannot be properly made on account of lack of the heavy mixing machine.

My paint is *unlike* any other paint in the world. It is ready to use, but not ready-mixed.

My paint is made to order after each order is received, packed in hermetically sealed cans with the very day it is made stamped on each can by my factory inspector.

My $100.00 Cash Guarantee

I guarantee, under $100 Cash Forfeit, that the paint I am offering you does not contain water, benzine, whiting, or barytes—and that my Oilo is pure, old-fashioned linseed oil and contains absolutely no foreign substance whatever.

Two full gallons free to try—6 mos. time to pay

NOTE
My Eight-year Guarantee backed by $50,000 Bond

I ship my thick pigment, which is double strength, freshly ground, in separate cans, and in another can, I ship the pure, old process Linseed Oil—the kind you used to buy years ago. Any child can stir them together.

I sell my paint direct from my factory to user—pay no dealer or middleman profits.

I guarantee freight on six gallons or over.

My paint is so good that I make this wonderfully fair test offer:

When you receive your shipment of paint, you can use *two full gallons*—that will cover 600 square feet of wall—two coats.

If, after you have used that much of my paint, you are not perfectly satisfied with it in every detail, *you can return* the remainder of your order and the two gallons will not cost you one *penny*.

No other paint manufacturer ever made such a liberal offer.

It is because I manufacture the finest paint, put up in the best way, that I can make this offer.

I go even further. I sell all of my paint on *six months' time*, if desired.

This gives you an opportunity to paint your buildings when they need it, and pay for the paint at your convenience.

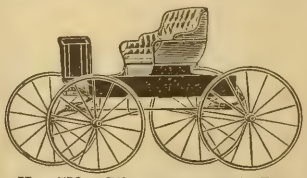
Back of my paint stands my Eight-Year officially signed, iron-clad Guarantee.

For further particulars regarding my plan of selling, and complete color card of all colors, send a postal to O. L. Chase, St. Louis, Mo. I will send my paint book—the most complete book of its kind ever published—absolutely free. Also my instruction book entitled "This Little Book Tells How to Paint" and copy of my 8-year guarantee.

O. L. CHASE, The Paint Man : Dept. 24, St. Louis, Missouri

34 Years Selling Direct

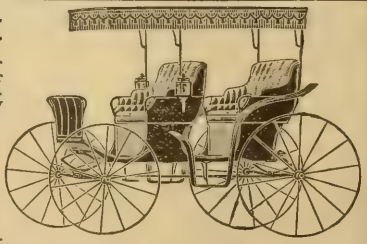
Our vehicles and harness have been sold direct from our factory to user for a third of a century. We ship for examination and approval and guarantee safe delivery. You are out nothing if not satisfied as to style, quality and price.



No. 756. Bike Wagon with Fine Wing Dash, Automobile Seat and ⅞ in. Guaranteed Rubber Tires. Price complete, $58.50. As good as sells for $25.00 more

We are the Largest Manufacturers in the World

selling to the consumer exclusively. We make 200 styles of Vehicles, 65 styles of Harness. Send for large, free catalogue.

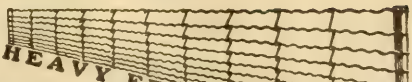


No. 313. Canopy Top Surrey with Automobile Style Seats. Price complete, $73.50. As good as sells for $25.00 more.

Elkhart Carriage & Harness Mfg. Co.
Elkhart, Indiana

BROWN FENCE

AN EXTRA HEAVY FENCE



Every wire—both strand and stay—No. 9 gauge. Thickly galvanized. Best grade steel. We mail free sample for inspection and test. A more substantial, stock-resisting, time-defying fence was never stapled to posts. We pay freight on 40 rods. Write for book showing 133 styles. The BROWN FENCE & WIRE CO., Cleveland, O.

SAMPLE FREE

15 TO 35 CTS. PER ROD DELIVERED

PAGE Poultry Fence

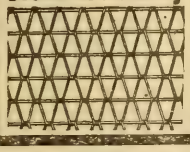
Strongest, best on the market. Fences poultry *in*, stock *out*, and lasts. Costs less erected than common netting, because it requires *no boards* at top or bottom and so *few posts*—one every 50 feet. You can't afford to buy poultry fence without investigating Page. Write for descriptions.

Page Woven Wire Fence Co.
Box 546, Adrian, Mich.

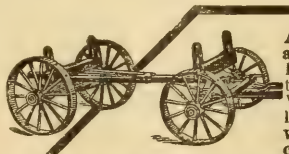
THE "BEST" LIGHT

The only 100 Candle Power Light that burns its own gas and gives absolute satisfaction during a long life of efficient service.
No Grease, Smoke, Dirt or Odor.
Brighter than electricity or acetylene, cheaper than kerosene. Over 100 styles. Every lamp warranted. The Best Light Co., 306 E. 5th St., Canton, O.

Stock & Poultry FENCE



Many styles and heights; Diamond or Square Mesh; prices low. **Sold direct on 30 days free trial,** freight prepaid. Catalogue free.
KITSELMAN BROS.
Box 21, Muncie, Ind.

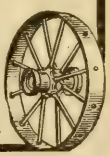


A low wagon at a low price. Handy for the farmer. Will carry a load anywhere a horse can travel.

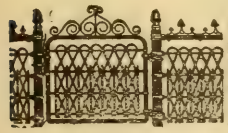
Low Down Wagons

soon earn their cost on any farm.

Steel Wheels



for farm wagons. Straight or staggered spokes. Any size wanted, any width of tire. Hubs to fit any axle. For catalogue and prices, write to
Empire Mfg. Co., Box 91-H Quincy, Ill.



LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. **Special Prices to Cemeteries and Churches.** Address
COILED SPRING FENCE CO.,
Box 448 Winchester, Ind.

DOUBLE QUICK **WASHING**
Half the time, half the work.
100 Pieces an Hour with the
"Busy Bee" Washer
The machine with a record. No rubbing. No dirt left. **AGENTS WANTED.**
Exclusive territory. Busy Bee Washer Co., Box 103, Erie, Pa.

SPRAY PUMPS

"TAKE OFF YOUR HAT TO THE MYERS"

MYERS

The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers. Pumps, Hay Tools & Barn Door Hangers. Send for catalog and prices.
F. E. Myers & Bro.,
Ashland, Ohio.

DEMING

Get something reliable when you buy.

Barrel, Bucket, Knapsack, Hand and Power Outfits. No greater variety nor better types than Deming

SPRAYERS

For trees, shrubs and vines. Model appliances for poultrymen for whitewashing, disinfecting, etc.
Write for catalogue with full particulars.

THE DEMING CO.,
245 Depot Street, Salem, Ohio.

General Agencies in Principal Cities

MATTHEWS' "NEW UNIVERSAL" GARDEN TOOLS

6 TOOLS IN ONE

Seeder, marker, hoe rake, plow, cultivator. Single or double wheel. Adjustments easily made. For planting and all kinds of cultivation.

Send for FREE BOOKLET of valuable information for planting and cultivating the garden and full description of these implements.

6 Styles Seeders

Opens furrow, drops in plain sight, covers marks.

Hand Wheel Plows

Rear wheel gives steadiness & ease.

Double or Single Wheel Hoe

Cultivator, Plow, Rake. Changes quickly made. Cultivate between or astride the rows. Any depth, any width.

Note High Arch and Plant Guards. Bent Oak Handles on all Tools.

AMES PLOW COMPANY, 88 MARKET STREET, BOSTON, MASSACHUSETTS

Let Us Send You Our Book.

about good wheels and good wagons that will save you a lot of work and make you a lot of money—the

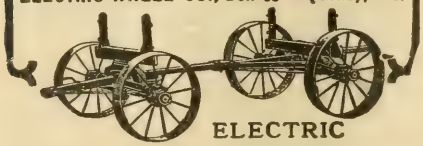
ELECTRIC STEEL WHEELS

—and the—

ELECTRIC HANDY WAGON.

By every test, they are the best. More than one and a quarter millions sold. Spokes united to the hub. Can't work loose. A set of our wheels will make your old wagon new. Catalogue free.

ELECTRIC WHEEL CO., Box 95 Quincy, Ills.



ELECTRIC

MORE POTATOES

and better ones, earlier to mature and using less seed, when you plant with our

Acme Hand Planter

Deposits seed at just the right depth in moist soil. Neither seed nor soil can dry out. Seed grows at once. Cheapest and easiest way to plant. Works well in any soil, sod or new land. If your dealer can't furnish it, send $1 and his name; we will ship charges paid. Write for Booklet, "The Acme of Potato Profit," Free

Potato Implement Co., Box 520, Traverse City, Mich.

HOW TO GET MORE EGGS

Help your hens. Feed them fresh cut **green bone** and you'll get more eggs—you'll get eggs in winter when eggs are worth while. The **Standard Green Bone Cutter** prepares bone right for feeding, quickly—easily. Prices $8.80 and up; sold on **guarantee**—sent on **trial**. Write for catalog.

Standard Bone Cutter Co. Milford, Mass.

GET MORE EGGS

Larger, more fertile, vigorous chicks, heavier fowls, larger profits by feeding cut bone.

MANN'S LATEST MODEL BONE CUTTER

cuts fast, easy, fine; never clogs. 10 days free trial. No money in advance. Cat'lg free.

F. W. Mann Co., Box 37, Milford, Mass.

BOOKS ON POULTRY CULTURE.

POULTRY HOUSES AND FIXTURES. Shows plans of low-cost, practical and labor-saving houses, designs for inside fixtures, roosting-coops and coops for young chicks, and all necessary appliances for the poultry-yard; 96 pages, 9x12 inches, illustrated. Price 50 cts.

ARTIFICIAL INCUBATING AND BROODING. Solves all problems of artificial incubating and brooding. Tells how to obtain strong-germed, fertile eggs, etc. Results gained from practical experience; 96 pages, 9x12 in., illustrated. Price 50 cts.

EGGS AND EGG-FARMS is made up of articles of experienced breeders, giving methods of housing, breeding, rearing, and feeding to increase egg production. Contains chapters on pedigree breeding; 98 pages, illustrated. Price 50 cts.

THE PLYMOUTH ROCKS. Barred, buff, and white. Gives rules for mating followed by the most successful Plymouth Rock breeders, with a chapter and chart on line breeding. Contains color-plate of each variety; 110 pages, 9x12 inches, illustrated. Price 50 cts.

THE LEGHORNS. The best illustrated standard of all varieties of the popular Leghorns. Mating schemes clearly described. Color-plate of S. C. W. Leghorns; 78 pages, 9x12 in., illstd. Price 50 cts.

ASIATICS. A work on Brahmas, Cochins, and Langshans Contains "inside" information necessary to success, with standard and ideal charts for all varieties. Color-plates of Buff and Partridge Cochins; 100 pages, 9x12 inches, illustrated. Price 50 cts.

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It will take one penny for a postal, and a minute of your time, to write for Special Prices on 1907 Chatham Incubators and Brooders. No matter what kind of a machine you have in mind—no matter where you intended buying, or when—**TODAY** you should send me a postal and get my catalog and prices.

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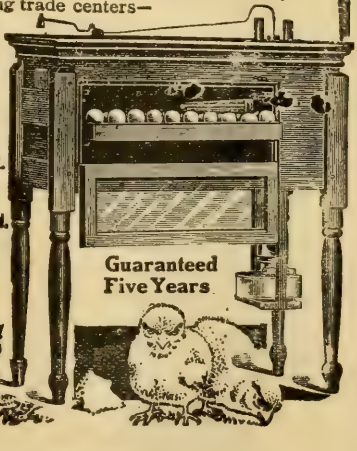

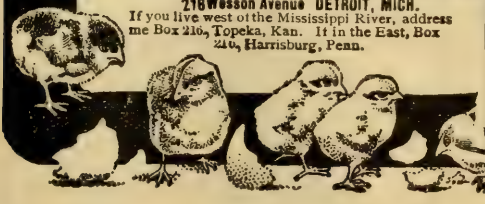

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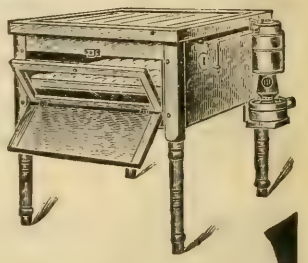

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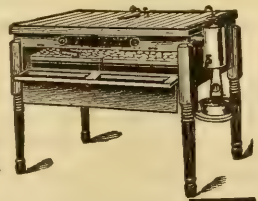

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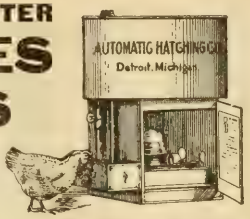

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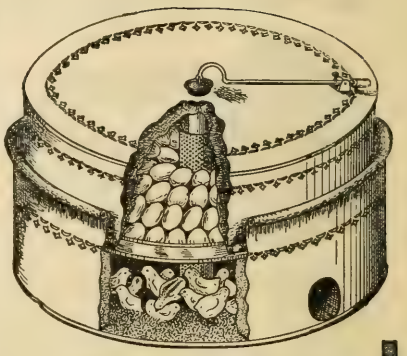

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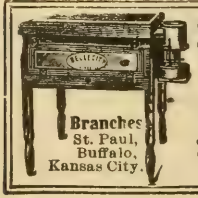

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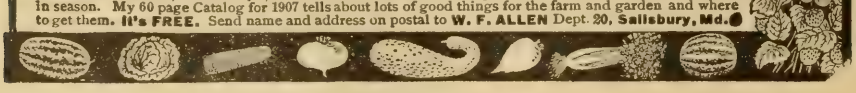

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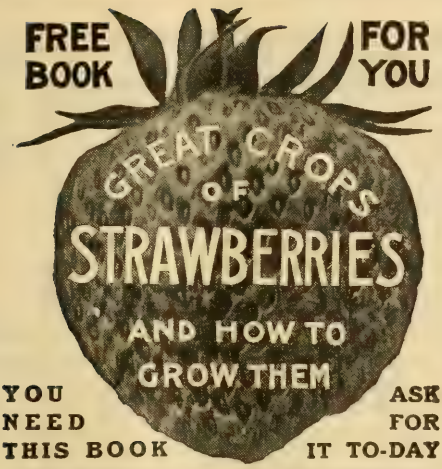

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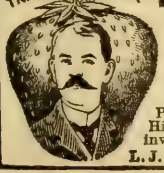

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To get this valuable **"Blizzard Belt"** Chestnut quickly introduced and at same time gain new friends, we offer to send a **Hardy Sweet Chestnut** tree 1 year old, entirely **Free** to a limited number of property owners not already our customers. Mailing expense 5cts which send or not as you please. A postal will bring the tree. Our **Catalog** containing 64 colored plates of our **"Blizzard Belt"** Fruits, Ornamentals, Evergreens, etc., and a mine of valuable information for fruit-growers is free. Write today.

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fine, stocky, hardy, grown on the bank of Lake Erie; two miles from any peach orchard, free of borers and all diseases. Large stock of **Apple, Peach, Pear, Plum, Cherry, Etc. Headquarters for ORNAMENTAL TREES, Shrubs, Roses, Plants, Vines, Bulbs, Seeds. Over 50 acres of Hardy Roses, none better grown.** 44 greenhouses of **Everblooming Roses, Palms, Ferns, Ficus, Geraniums, Etc.** Mail size postpaid, **safe arrival and satisfaction guaranteed,** larger by express or freight. **Direct deal will insure you the best and save you money. Try it.** Valuable 168-page Catalogue **FREE.** Correspondence solicited. 58 years, 1200 acres.

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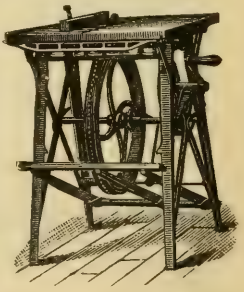

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Isn't it reasonable that you can get more for your money if you buy your Soaps and Pure Foods direct from our factory and do away with the middlemen's profits. We give this fine Oak Rocker absolutely free with $10 worth of our guaranteed Soaps, Tea, Coffee, Baking Powder, Flavorings, Toilet Needs etc. 1000 other premiums with $2 orders and up. Test our goods before you buy. We give 30 days free trial. **No Money in Advance.** Sample of soap free for a postal. Send for large catalog & style book for ladies.

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Quick Shipment, Honest Goods, Low Freight

Our sections are manufactured from young basswood timber.
Hives are almost clear lumber—they are beauties.
Shipping-cases made strong and substantial, nice, smooth, and perfect.
Send for our free catalog of supplies.

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Fire Sale Bee and Poultry Supplies!

Come or send, and save 25 to 50 per cent on slightly damaged goods. NEW LEWIS GOODS at factory prices by return freight. Honey and beeswax wanted. State lowest price and particulars. Honey in five-gallon cans for sale. Send for new 1907 catalog.

Two per cent Discount for February Orders

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W. H. Laws, the Queen-breeder, will as usual be on hand with his superior bees and queens for the coming season. Laws' Leather or Red-clover stock and Golden Italians, also Holy Lands and Carniolans bred separately and in their purity. Several of my customers write me that the queens received from me were the only ones that gave any surplus the past poor season. I also breed the Carni-Italian cross, the bees for white comb honey and lots of it. I have some wonderful reports from this cross. Single queen, any race, before April, $1 25; five for $5.00. J have also some extra-fine breeding-queens at $10.00 each. Safe arrival and satisfaction guaranteed. I also offer another car of bees for the coming season. Circulars on hives and queens on application.

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Best of every thing needed.
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Cash paid for beeswax. Send for catalog and price list. . . . . .

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APIARIES, GLEN COVE, L. I.

Queens from 50 Cents Up!
Bred from Root's Imported Italians. Write for prices, stating wants. . .
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Same Old Place

is where you get the best of queens; untested, $1.00; $4.25 per 6; $8.00 per dozen. Tested, $1.50; best breeders, $5. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy-Lands, Italians.

The JENNIE ATCHLEY CO.,
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Bees and Queens for 1907

I am fully alive to the importance and value of good queens for profitable keeping of bees. I think I can raise just as good queens as anybody. I will book orders for 1907 at the following prices: Each, 55c; $6.00 per dozen; $45.00 per 100. Also eggs to hatch, Buff Wyandotte, R. I. Red, S. C. Buff Orpington, Barred Rock. Circular free.

A. H. Kanagy, Milroy, Pa.

Italian Queens

Golden, Three-banded, or Leather-colored. Write for circular to-day. . Prices right. . Queens all right.

Robt B. McCain, Rt. 1, Oswego, Ill

ITALIAN QUEENS and BEES

I can supply select untested Queens at 75 cts. each; $7.50 per dozen. Orders for early delivery will receive careful attention.

David S. Hurst, Box 102, Letohatchee, Ala.

Classified Advertisements.

Notices will be inserted in these classified columns at 20 cents per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Help Wanted.

WANTED.—Hustling helper in the bee and honey business. A steady job for the right man
B. WALKER, Clyde, Illinois.

WANTED.—An apiarist accustomed to large apiaries. State age, experience, and wages.
DR. GEO. D. MITCHELL & Co., Ogden, Utah.

WANTED—Representatives to sell our teas, coffees, and olive oil, direct from importer to consumer. Mail orders solicited. Price list free.
RIO VISTA TRADING CO., 670 Main St., Buffalo, N. Y.

WANTED.—Young man to work in large apiary in Southern California: after honey season can work for me on ranch or vineyard. Good board and wages.
Address L. L., care of A. I. Root Co.

WANTED.—A man competent to manage my home apiary of 150 colonies when I am away inspecting apiaries. An opportunity for the right man to learn the management of out-apiaries and get a start in life. State age, experience, wages, etc.
CHARLES STEWART, Sammonsville, N. Y.

WANTED.—One student who wishes to learn bee-keeping (he getting his board, and, if it is a good season, and he faithful, some wages) can have a place with me. A man single, clean in mind and body, willing, industrious, and trustworthy, apply to
R. F. HOLTERMANN, Brantford, Can.

NAVY offers excellent opportunities to young men of good character to receive instruction fitting them for promotion; good pay at start, advancement as soon as qualified. Apply to Navy Recruiting Station, Commercial Bank Building, Cleveland, O., or Postoffice Building, Cincinnati, O.

Situation Wanted.

WANTED.—Situation by a practical apiarist, or a large apiary to run on shares for extracted honey.
W. W. MCNEAL, Wheelersburg, O.

For Sale.

FOR SALE.—250 Heddon hives.
W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—Fine job-printing outfit.
C. A. STEBBINS, Broad Creek, Va.

FOR SALE.—4000 ferrets; some trained. Prices and book mailed free. N. A. KNAPP, Rochester, Ohio.

FOR SALE.—200-egg (Excelsior) incubator, good as new, $10.00. HARRY C. DRIVER, Rt. 1, Beech Ck., Pa.

FOR SALE.—Melilotus (sweet clover) seed, $2.50 per bushel (35 lbs.). W. P. SMITH, Penn, Miss.

FOUND.—After thirty years' experimenting, a comb-frame that is practical and bids defiance to propolis. All about them; write the inventor.
D. S. HALL, So. Cabot, Vt.

FOR SALE.—Paragon Chestnut. I can furnish Paragon Chestnut grafts for spring grafting, 25 fine grafts for $1.00. J. H. BUPP, Loganville, Pa.

FOR SALE.—We pay the freight. Send me a bill of your 1907 supplies needed, and I will figure. New factory. G. ROUTZAHN, Biglerville, Pa.

FOR SALE.—At a bargain, 21 new nailed and painted Danz. hive-bodies and supers with frames, fences, springs, etc. T. P. ANDREWS, Farina, Ill.

FOR SALE.—Forty acres, Lafayette Co., Mo., near Hodge, on Mo. Pac., $27.50 per acre.
R. L. WEBB, Warrensburg, Mo.

FOR SALE—at a bargain, 10-inch Rider compression hot-air pumping engine, in good condition.
JAMES E. FOWLER, Newfields, Rock. Co., N. H.

FOR SALE.—Concert flute, Boehm system, full ebonite; silver-plated keys; new, and in perfect condition; cost $85; C. G. Corne make; will sell at a great sacrifice. E. B. NELSON, Vale, Oregon.

FOR SALE.—Comb foundation, both brood and surplus. Beeswax worked into foundation at a very low price. Send for price list and free samples to
THE DELTA APIARIES, Delta, Colo.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1907 send your name and address to FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE.—Ninety second-hand chaff hives (forty 10-frame Quinbys, and fifty 13-frame Gallup); three 4-frame Cowan extractors, used but two years; 900 lbs. buckwheat comb honey.
E. D. TOWNSEND, Remus, Mich.

FOR SALE.—100 supers (or less) for 4¼ sections, and 8-frame hives complete with holders and fences, no sections; been used one year; painted, and good for 50 years; 25 cts. each.
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FOR SALE.—In lots to suit, several hundred eight and ten frame size comb-honey supers for 4¼x4¼x1⅞ sections, all made up and painted, used but little. Special low price if ordered at once. For particulars address THE ROCKY MOUNTAIN BEE CO.,
Berthoud, Colo.

FOR SALE.—Thirty acres of land in Pennsylvania; modern house and barn; 100 fruit-trees; good bee pasture, and fine opportunity for out-apiaries. Price $1200. If you mean business, write at once; good reason for selling.
MRS. G. W. RUGABER, Cameron Mills, N. Y.

FOR SALE OR EXCHANGE.—One 260-egg Excelsior incubator; 200 eight-frame (L. size) hives; 400 supers; foundation and other supplies; also 16 volumes GLEANINGS. I want beeswax, high-grade typewriter, or cash.
F. H. MCFARLAND, Hyde Park, Vermont.

FOR SALE.—Best Wisconsin sections, per 1000, $4.00; No. 2, $3.40; plain, 25 cts. less. Discounts on Danz. hives and other Root's goods; also berry-boxes. Italian bees for sale. H. S. DUBY, St. Anne, Ill.

FOR SALE.—One-piece sections, of all the standard sizes, 1000, $4.00; No. 2, $3.50; plain, 25 cts. less. These sections are strictly first-class. Also other supplies very cheap. JAS E. MORGAN,
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FOR SALE.—Eighty acres extra-good clay loam, cleared; buildings, etc.; fences fair; well drained; good well; 10 acres wheat, 30 acres clover seed; extra-good for clover-seed and sugar-beet culture; one mile from depot and elevator. Thirty-five colonies bees; Root's chaff hives, plenty of drawn combs and other necessities for producing extracted honey. Extra-good clover-honey locality; produced 7000 lbs. in 1906. Will sell farm separate if wanted; easy terms; good reason for selling. For particulars call on or address
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FOR SALE.—400 colonies pure Italian bees in lots to suit. Write for prices. F. A. GRAY,
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FOR SALE.—100 eight-frame hives of hybrids, single story, and will sell lot cheap. G. P. HOWELL,
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FOR SALE.—Italian queens, red-clover and golden-bred for business; order now for June delivery. Satisfaction guaranteed and safe arrival warranted. Untested, $1.00; tested, $1.25; select tested, $1.50.
CHAS. W. ZWILEY, Fremont, O.

FOR SALE—500 colonies of bees located in several apiaries; will sell whole or part with fixtures; sheds, extracting-houses, etc.; no foul brood; no bad winter results. Also land for sale. Get a start under the Tonto Basin Reservoir. H. F. DOLSON,
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FOR SALE.—A fine pen of Black Minorcas.
L. A. STAFFORD, Blodgett Mills, N. Y.

FOR SALE.—W. Wyandotte cockerels, stock and eggs at low prices. J. F. MOORE, Tiffin, O.

FOR SALE.—Single-comb White Leghorn cockerels, $1.25 each. THEO. KELLER, Harlem, Mo.

FOR SALE.—White Wyandotts Exclusively (Duston Strain), eggs, $1.50 per 15.
HARRY C. DRIVER, Rt. 1, Beech Creek, Pa.

FOR SALE.—Choice poultry. Ten leading varieties for the farmer or the fancier. Circulars free.
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FOR SALE.—M. B. turkeys. Hens, $3.00 each; Toms, $5.00 each; eggs in season, $3.00 per dozen.
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FOR SALE.—Barred P. Rock and Pekin duck eggs, $1.00 per setting. Circular free.
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FOR SALE.—White Rocks only. Breeding-pen has average score of 92. Eggs $2.00 per 15. Stock for sale.
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FOR SALE.—Choice Barred Rock, extra laying strain; eggs, $1.50 per 15. Also vegetable-plants, all kinds, 12 cts. per dozen. LE CLAIRE GREENHOUSE,
Le Claire, Ia.

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WANTED.—A hand-lever printing-press for feed-mill, 2-horse-walk cultivator, and corn-sheller.
G. A. LUNDE, Wausau, Wis.

WANTED.—We should like to exchange step and common ladders for bee supplies.
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WANTED.—Mr. Bee-keeper, your order *now*. Let us quote you prices on goods before busy season. Root's Goods for Western bee-keepers.
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Wheelersburg, O.

WANTED.—To let, apiary of over 300 colonies on five years' time. Produced $6.00 per colony this year. Great opportunity in Colorado.
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WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—A second-hand extractor, two-frame, in good order, cheap. R. CRAWFORD,
139 North 5th St., Paterson, N. J.

WANTED.—To buy 200 colonies of Italian bees for spot cash, L. frame preferred.
WOODWARD, FORSYTH & WOODWARD,
Rt. 1, Rexford Flats, N. Y.

WANTED.—Bees on shares, or the management of an apiary or apiaries in California or any Western State. State wages and time. Address
LOGAN CALDWELL, Banning, Cal.

WANTED.—The address of some person who would let his bees on shares—California preferred. State number of colonies, and conditions.
PERRIN, 117 N. Butler St., Madison, Wis.

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WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.
R. A. BURNETT, 199 S. Water St., Chicago, Ill.

WANTED.—Beeswax. We will pay 30 cts. per pound for fancy pure yellow beeswax delivered in New York until further notice. CHAS. ISRAEL & BROS.,
486 Canal St., New York City.

WANTED.—20,000 pounds pure clover honey. Send average sample and state best price.
J. E. CRANE & SON, Middlebury, Vt.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here. GRIGGS BROS., Toledo, O.

WANTED.—Well-ripened basswood or clover honey. Prompt payment on receipt; 8¼ cts. per pound, f. o. b. West Bend. H. C. AHLERS, West Bend, Wis.

WANTED.—In large or small lots, No. 1 white and amber extracted honey in 60-pound cans or barrels. Send sample and quote lowest cash price delivered in Preston. M. V. FACEY,
Preston, Fillmore Co., Minn.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

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FOR SALE.—50 cases of comb honey in no-drip cases.
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FOR SALE.—Buckwheat honey in 60-lb. cans, at 6c per lb. C. J. BALDRIDGE,
Homestead Farm, Kendaia, Seneca Co., N. Y.

FOR SALE.—1000 lbs. extracted buckwheat honey at 6 cts. Purity and quality guaranteed.
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FOR SALE.—50,000 pounds California water-white extracted honey by the case or car.
H. J. MERCER, 731 E. Third St., Los Angeles, Cal.

FOR SALE.—75 cases comb honey, 24 sections to case, amber and buckwheat, at $2.30 per case; white comb at $2.75. QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

FOR SALE.—Fancy basswood and clover honey in barrels or 60-lb. cans; sample 10 cts., which may be deducted when ordering. ROBT. A. HOLEKAMP & SON,
4263 Virginia Ave., St. Louis, Mo.

FOR SALE.—3000 lbs. basswood and 1000 lbs. clover honey in kegs. C. J. BALDRIDGE.
Homestead Farm, Kendaia, Seneca Co., N. Y.

FOR SALE.—I have left a few cases of that nice Colorado alfalfa honey. It is going fast at $10 a case of 120 lbs., F. O. B. A. A. LYONS, Ft. Collins, Colo.

Better than an Island

This place is just as good as an island for breeding queens, for there are no other bees within five miles, and so pure mating is guaranteed. It is better than an island when you order queens, for the fastest trains stop here, and hence queens are not away from the colony long enough to impair their usefulness. Safe introduction is guaranteed if you follow my special directions. I consider the Banat Caucasian bees the best and gentlest in the world. Banat Caucasian bees are bred here; other races in outyards. Queen-breeders should secure their breeding-queens from this pure stock. Order now. Banat Caucasian queen, $3.00. Caucasian queen, $1.50. Golden Italian, 75c. Tested queens, one year old, double these prices.

Dele Collins, Ph D., Emporium, Pa.

3-BANDED ITALIAN BEES.

The best all-round bees on earth. My stock is composed of selections from my own strain of 3-banded Italians that were awarded diploma at the Pan-American Exposition, and The A. I. Root Co. clover stock.

Tested queens, $1.50; select tested queens, $2.00; fair breeding queens, $3.00; extra select breeders, $5.00—ready to go promptly. Untested 1907 queens, $1.00; select untested queens, $1.25—ready early in March. Yours for a prosperous 1907.

W. O. VICTOR,
Queen Specialist, HONDO, TEXAS.

TAYLOR'S STRAIN OF ITALIANS IS THE BEST.

Long tongues and goldens are the best of honey-gatherers; 18 years a specialty, breeding for the best honey-gatherers. Untested, 75 cts. each, or $8.00 a dozen; tested, $1.00 each, or $10.00 a dozen; select tested, $1.50 each. Breeders, the very best, from $3.00 to $5.00 each. Carniolans same price as Italians. Try them. We also sell nuclei and full colonies of bees. Bees in separate yards. Safe arrival guaranteed.
Send all orders to
J. W. TAYLOR & SON, Beeville, Bee Co., Texas.

QUEENS!

Untested, from imported mothers, and also goldens; $1.00 each, or $9.00 per dozen.

R. O. COX, Rt. No. 4, Greenville, Ala.

BEE-HIVES ALL COMPLETE Double-story, $1.50. **75c each**
ALL KINDS OF BEE-KEEPERS' SUPPLIES.
T. A. GUNN, TULLAHOMA, TENN.

Bee-keepers' Directory

This department is for the exclusive use of all-year-round advertisers. If you have any thing the bee-keeper needs, your card in this department keeps your name always before your prospective customers at half our flat rates. We reserve the right to reject or modify any ad. not eligible to these special rates.

2 lines, 24 issues and GLEANINGS one year $ 5.00
3 " " " " " " 7.50
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Cash in advance. Ad's can be changed only in the first issue of January, April, July, and October.

I club a high-grade Italian queen with GLEANINGS, new or renewal. W. T. CRAWFORD, Hineston, La.

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FINEST Golden and red-clover queens, Caucasian and Carniolan. DANIEL WURTH & GRANT, Pitkin, Ark.

ITALIAN AND CAUCASIAN bees and queens of best quality; price list free. A. E. TITOFF, Ioamosa, Cal.

MAPLEWOOD APIARY.—Choice comb honey, Italian bees and queens. GEO. H. REA, Reynoldsville, Pa. R. 2.

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ITALIAN BEES, queens, beeswax, honey, and bee-keepers' supplies. M. E. TRIBBLE, Marshall, Mo.

ITALIANS, CARNIOLANS. No disease. Two-comb nucleus with queen, $3.00. A. L. AMOS, Comstock, Neb.

FOR SALE.—Bee-keepers' Supplies. Write for catalog. Lengst & Koenig, 127 S. 13th St., Saginaw, Mich.

ITALIAN BEES and queens—red clover and golden strains. E. E. MOTT, Glenwood, Cass Co., Mich.

ITALIAN BEES, queens, honey, and bee-keepers' supplies. A. T. DOCKHAM, Box 95, Rt. 1, Eagle Bend, Minn.

SWARTHMORE Golden-all-over, Caucasian, Banat, Carniolan, Cyprian queens. E. L. Pratt, Swarthmore, Pa.

QUEENS. Free list giving safe method of introducing, ready Feb. 15. E. E. LAWRENCE, Doniphan, Mo.

ITALIAN BEES, queens, honey, and ROOT'S bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

GOLDEN-ALL-OVER Caucasian Banat bees and queens. We book orders for early queens from our best imported breeding stock for honey, with 600 twin mating-boxes. THE SNYDER APIARIES, Lebanon, Pa.

QUEENS.—Improved Red-clover Italians bred for business; June 1 to Nov. 15, untested queens, 60c; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

FOR SALE.—Honey, bees, and queens; cartons at half price, and some other supplies. Bees on Danz. and L. frames. Free circular.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

SWEET-CLOVER SEED.

We have a good stock of white unhulled sweet-clover seed which we are selling at the following prices: 1 lb. by mail, 22 cents; not postpaid, 12 cts. per lb.; 10 lbs., $1.00; 100 lbs., $8.00. We have only a limited amount of the unhulled yellow variety and of the hulled white variety, either of which will cost 8 cents a pound more than the unhulled white while it lasts.

TOBACCO DUST.

We have to offer two kinds of tobacco dust used as an insecticide and fertilizer on plants in greenhouse work. A fine dust made in part from ground stems we offer at 3 cts. per lb.; 10 lbs. for 20 cts.; 100 lbs., $1 50; by the case of about 300 pounds, at 1¼ cts. per lb. A better grade, not so fine, will cost 1 cent a pound more than above for a like quantity. Sample mailed on request to those interested.

SECOND-HAND FOUNDATION-MILLS.

We have the following second-hand comb-foundation mills to offer. We give a brief description of each, and shall be pleased to mail a sample of foundation, representing any one or more of these mills, to those interested, on application:

No. 058, 2½x6-inch hex. thin-super mill in good condition. Price $12.00.

No. 059, 2½x6-inch hex. exrta-thin-super mill in good condition. Price $12.00.

No. 072, 2½x10-inch hex. medium-brood mill in fair condition. Price $15.00.

No. 077, 2x10-inch round-cell brood mill in old-style high frame, in good condition. Price 12.00.

No. 075, 2x9 hex. brood mill in the oldest-style wood-base frame. Original price of this machine was $80.00. We offer it for $10.00.

BUSINESS OUTLOOK.

Judging from the orders and inquiries which we receive, there is an optimistic feeling concerning the coming season. Business in most lines is booming to such an extent that we are obliged to anticipate our wants months in advance in order to get stock of different kinds when we want and need it. Prices of honey were never more firm at this season of the year, and available supplies seem to be limited. With the price of bee-supplies no higher than they have been for several years in spite of advancing cost of materials there is abundant reason for stimulating trade, for there is no assurance that present prices can be maintained through this season. If the demand becomes so great that surplus stocks on old contracts are used up, an advance in price will be inevitable. We are finding greater difficulty than ever before in our experience in getting cars in which to ship our goods, and the traffic on the railroads is so heavy that it is congested, and goods are delayed in transit. If you would not be disappointed in getting what you need in time, do not put off ordering too long.

Convention Notices.

The Southeastern Minnesota Bee Association will meet in the court-house, Winona, Minn., on Tuesday and Wednesday, Feb. 26 and 27, 1907. Everybody is invited. E. C. CORNWELL, Sec.

Dear Sir:—I am instructed by the Executive Committee of this association to send you the enclosed announcements for the information of your readers.
St. Paul, Minn. WALTER R. ANSELL.

The Minnesota Bee-keepers' Association, which was founded in 1888, has made a new departure this year by incorporating, with a membership of 51, under the educational laws of the State of Minnesota. By the acceptance of its three delegates to the meeting last month of the Minnesota State Agricultural Society, it is recognized as the State Association. With its new lease of life it has adopted a new constitution and by-laws, its objects now being the promotion of scientific bee culture and of the general interest of the bee-keepers of the State of Minnesota. To assist the State authorities in the enforcement of laws against the adulteration of honey, and for stamping out foul brood, and to coöperate with the National Bee-keepers' Association in defense of its members in their lawful rights. Article VII. reads:

"Any member shall have the right to vote by proxy on any subject and at any general meeting, provided that no member present shall vote more than two proxies."

The association is affiliated with the National Bee-keepers' Association, so that, by payment of $1.00 annually, a bee-keeper may become a member of both associations.

Besides its annual meeting in December it will in future hold a spring meeting and another during the Minnesota State Fair week, and the proceedings of each meeting will be published by circular to the members. In future, Coöperation will be the watchword of its policy.

Subscriptions should be sent to the Secretary, Mr. Chas. Mondeng, 160 Newton Ave., N. Minneapolis, or to the Treasurer, Rev. J. Ridley, Monticello, Minn.

KIND WORDS.

THE CITY AND THE COUNTRY, BY AN ENGINEER.

I was raised on a farm, which I left twelve years ago to learn steam engineering, in which I have been fairly successful. But life in the city was very unsatisfactory; and, after the greatest loss of our life, the death of our little girl, we moved to a small place in the country, I still retaining my position as engineer. Now my wife and I, instead of spending our evenings and money seeking fresh air and amusement, find health, happiness, and money in caring for a cow, some pigs, poultry, and a large vegetable-garden. I ride a bicycle or walk three miles to work, all kinds of weather, and never was in better health. Oh if all the thousands that live in the cities could only realize the benefits they would get from working just a few feet of earth!

I write these lines hoping they may be of some encouragement to you in your good work. Keep after the humbugs and the drink evil.
Somerville, N. J. LEWIS B. THATCHER.

Many years ago, when I was a young girl, my father kept a small colony of bees, and for several years he was a regular subscriber to GLEANINGS. I became much interested in the pages devoted to Our Homes, and your earnest home-like talks there had much influence in my early Christian life. My home was not a religious one. My father, though notably an honest, generous, and kind-hearted man, was never a professing Christian. My mother was a professed but not progressive Christian, so we children had scant religious training; and, strange as it may seem, it was in a bee-culture journal that I first learned to see the vital connection between truly righteous conduct and the religion of Christ. Holiness of heart must express itself in holy action was the lesson your Home talks impressed upon me. Many times in after-life, when tempted to be unjust or dishonest in trifles, the thought of the pennies you returned would come into my mind. Soon after I became interested in a study of the epistles, and from them to the gospels; and so I found Jesus, and learned that it was he who had been leading me through that by-path to himself.

Again thanking you for the talks in Our Homes, and wishing you continued prosperity and growth in grace, I am very sincerely yours,
Ashkum, Ill. LILIAN E. FOWLER.

The only roofing sold on a money-back guaranty.

READ OUR TRIAL OFFER.

Paroid Roofing

IF YOU want the most *durable* and most economical roofing you can buy, please read the guaranty we give on *Paroid*.

We *can* and *do* give you this guaranty because *Paroid* is the best ready roofing ever made.

If you will compare a sample of it with others, you can *see* and *feel* the difference.

Use your own judgment.

Put your samples out in freezing weather and then try to bend them.

Paroid will be soft and pliable.

The others will all break and crack!

The difference is in the way *they are made*.

We make the felt for Paroid in our own mills, established in 1817. We know how and we take no chances.

Other manufacturers buy their felt, the most important part of a ready roofing, where they can get it the cheapest, and run big risks at the very start.

We *saturate* the felt in a compound of our own, that renders every fibre of it water proof. *Soaked*, mind you, not merely dipped.

We coat it with the *toughest*, *strongest*, thickest, smoothest, most flexible and most durable coating used in any ready roofing ever made.

You can see and feel that for yourself.

Then we give you with every roll of Paroid a complete roofing kit, containing our patented caps—the only rust-proof cap made. Water can't rust them and cause them to work loose and spring a leak as *all other* caps do.

These are some of the reasons why Paroid has stood the test of time for the United States Government here and in Cuba and the Philippines, for railway companies, manufacturers, farmers, dairymen and poultrymen everywhere.

Send today for *free samples*. Enclose 4c in stamps and we will send you our new 48-page book of plans for practical farm and poultry buildings.

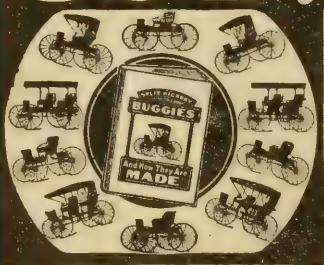
If your dealer will not supply you, send to us direct. We pay the freight.

BUY one lot of Paroid; open it; inspect it; apply it to your roof, and if then you are not satisfied that you have the *best* ready roofing made, send us your name and address, and we will send you a check for the full cost of the roofing including the cost of applying.

F. W. BIRD & SON,

20 Mill Street, East Walpole, Mass.
1420 Monadnock Bldg., Chicago, Ill.

30 Days FREE Trial



THE FAMOUS SPLIT HICKORY VEHICLES
You Pay Us Nothing Unless Satisfied

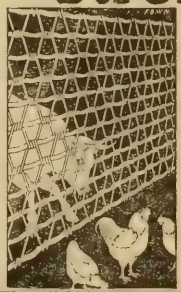
Send No Money But write me at once for full information about this most liberal offer. Remember, you can have **30 days' free trial** on any of my famous *Split Hickory Vehicles*, and you don't have to pay us any money unless you are satisfied.

Write For BUGGY BOOK Mailed FREE

Don't buy a buggy or vehicle of any kind from anyone until you get my valuable Buggy Book. It is the most wonderful Book about Vehicles ever published. Just write me a postal card and say: "*Send me your free Buggy Book*," and I will send it to you by return mail **absolutely free.** Write me now, before you forget it.

H. C. PHELPS, President
THE OHIO CARRIAGE MFG. CO., Station 293, Cincinnati, O.

Strongest Fence Made



When you buy our **High Carbon Coiled Spring Fence** you buy strength, service and durability combined. Twenty years of experience—hard knocks, taught us that the best fence is made from heavily galvanized **Coiled Spring Steel Wire**

CLOSELY WOVEN FROM TOP TO BOTTOM

Our Fence is so closely woven that small pigs cannot "wriggle" through it. So strong the vicious bull cannot "faze" it. We have no agents and do not sell to dealers but sell direct to the user

AT WHOLESALE PRICES FREIGHT PREPAID

Coiled Wire provides for expansion and contraction and prevents sagging between posts. Every pound of wire used in the construction of our fence is made in our own mill from the best high carbon steel obtainable. We give

30 DAYS FREE TRIAL that our customer may be sure they are satisfied. We make a full line of FARM AND POULTRY FENCE. Our wholesales prices will save you money. Catalog Free.

COILED SPRING FENCE COMPANY
BOX 101 WINCHESTER, INDIANA.

A New Factory

and also a new firm name, but in the same place with the same management. We have just put in a complete

Weed Process Comb Foundation Factory

of the very latest type, and we are now ready to work up wax for western bee-keepers at low prices. . . We want several thousand pounds of beeswax at once, and will pay top market price for same. Let us hear from any one having wax to offer. .· .· .·

Buck & Wilson, Augusta, Kan.

Butler County

One step won't take us very far;
We have got to keep on walking.
One word won't tell folks what we are;
We have got to keep on talking.
One inch won't make us very tall;
We have got to keep on growing.
Promptness once won't do it all,
We have got to keep on moving.

Single orders are good enough in their place,
But more are necessary to keep up our pace.

No doubt you are planning for next season's supplies. Write us for catalog and other information. Give us a trial. We can please you. By handling the Root Co.'s goods, with excellent shipping facilities, promptness, etc., we can serve you in a satisfactory manner.

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.

Mr. Texas Bee-keeper:

I should like to talk to you *personally.*

First, I want you to know about my supplies. I handle Root's Goods, of course; for I believe in giving my customers complete satisfaction—for that's better in the long run than low prices. My place of business is on the S. A. & A. P. Ry., just opposite the passenger depot, where I have built a warehouse 40×250 feet, and I have filled it full to the brim, for I handle Root's goods by the carload. This means I can furnish you with supplies with the utmost promptness.

Then, too, I have installed a complete Weed-process Foundation factory. I can turn out 500 lbs. a day. I can work your wax into foundation. In fact, my facilities in this line are not surpassed in Texas.

My can business is increasing by leaps and bounds. That is because of the quality of the goods. It will save you dollars to get my prices. Better write for them to-day.

Nothing pleases me better than for bee-keepers to make their headquarters at my office when in San Antonio. You are always welcome. I have fitted up my office with plenty of desks and chairs, with writing-material, a reading-table, and all the bee journals on hand. Consider yourself invited.

If you haven't my catalog just drop a postal.

I can supply Red-clover and Golden Italian queens promptly.

I am now paying 23c cash and 26c in trade for average clean beeswax delivered here. Save your slumgum. I will buy it. Let me know how much you have, in what condition the slumgum is, and in what kind of an extractor it was rendered, and I will make you price I am paying.

Call or Address

Udo Toepperwein, - San Antonio, Texas

1322 South Flores Street

We are Not in a Trust!

Bee-hives, Sections, Brood-frames, Extractors

Every thing that bee-keepers use at LOWEST PRICES.
Quality the Highest. We've been making them 25 years.

American Bee-keeper

A profusely illustrated practical bee-journal which we have published for 17 years. 50c year. Sample copy and our 1907 illustrated catalog and price list free. Address

The W. T. Falconer Mfg. Co., Dept. G, Jamestown, N. Y.

New Goods - Big Stock

New Warehouse : Root's Goods : Prompt Shipment : Low Freight

Everything for the Bee-keeper at Savannah, Georgia

We are prepared to furnish promptly a full line of supplies; choice new stock just from the factory. BEES and QUEENS. We have large apiaries of fine stock. Book your orders at once, as there will be a heavy demand this season. Catalog sent free. Correspondence solicited.

Howkins & Rush, 124 West Liberty St., Savannah, Ga.

Dadant's

Foundation

It Excels

Every Inch Equal to Sample

Beauty! Purity! Firmness!
No sagging; no loss.
Twenty-eighth Year.
We Guarantee Satisfaction.
Wax Worked into Foundation.

Bee-supplies of All Kinds

Beeswax wanted at all times.
Send for Our 1907 Catalog.

Dadant & Sons, Hamilton, Ill.

Root Goods

for the West

Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS.

My shipping facilities are unsurpassed any where. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

Write for estimate with liberal discount for orders sent in now.

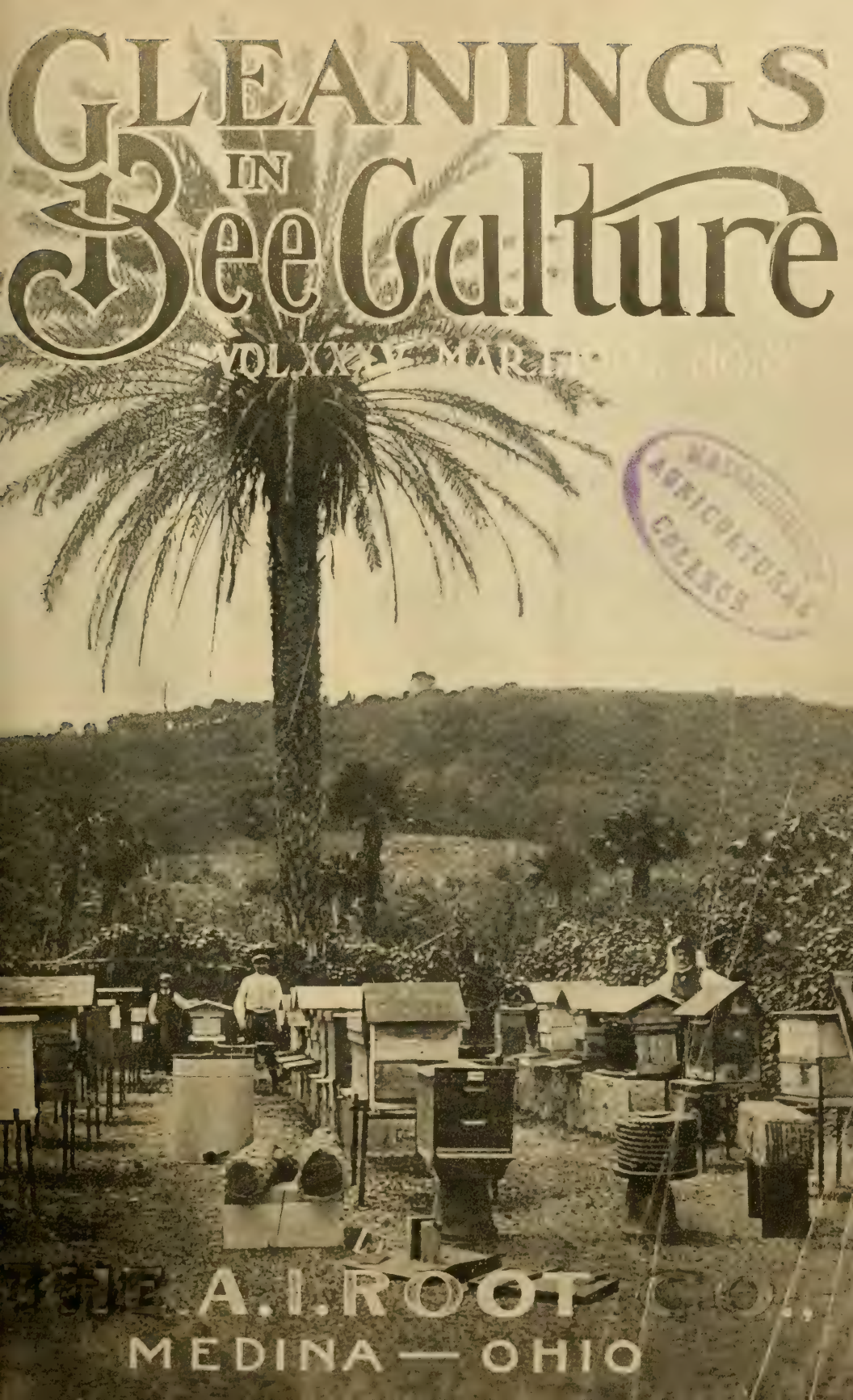
Jos. Nysewander, Des Moines, Iowa

565, 567 West Seventh Street

GLEANINGS IN BEE CULTURE

VOL. XXX, NO. 3, MARCH 1

WASHINGTON AGRICULTURAL COLLEGES



THE A. I. ROOT CO.
MEDINA — OHIO

The Swarming Season

will soon be here. Are you prepared? Why not order your supplies now, and take advantage of

The Large Discounts

which we offer this month on Bee-supplies? Only remember the

Low Freight Rates

from TOLEDO places our goods in your door cheaper than you can get them elsewhere. We afford you every advantage in both Poultry and Bee Supplies. We sell The A. I. Root Co.'s bee-supplies, Model Incubators and Brooders, Prairie State Incubators and Brooders, Poultry Supplies of all kinds.

Our Large Illustrated Catalog

illustrates and describes our complete line; tells how to raise bees and chickens successfully. . Free upon request.

The Griggs Bros. & Nichols Co.

523 Monroe St., Toledo, Ohio.

European Bee-keepers!

Save Time and Expense

by sending direct all your orders and correspondence to our exclusive agent for the European continent and its colonies. . .

EMILE BONDONNEAU

142 FAUBOURG - ST. DENIS, PARIS

Prompt Service and Satisfaction Guaranteed....

The A. I. Root Company

Root's . . . . . Goods

Stand for

Reliability

Uniform excellence . . . . . always maintained.

Popularity

Everywhere in high favor.

Quality

Material and workman- . . . . . ship unexcelled.

In Other Words-----It's Root Quality

We Sell the Root Quality Goods in

MICHIGAN

Write for prices and discount on your list of goods for the coming season.

"Where Quality Counts, We Win."

M. H. HUNT & SON

Redford, Wayne County, Michigan

C. H. W. WEBER

HEADQUARTERS FOR

BEE-SUPPLIES

Distributor of Root's Goods Exclusively at Root's Factory Prices.

Give me your orders for the BEST GOODS MADE. You will be pleased on receipt of them. You will SAVE MONEY by ordering from me. My stock is complete; in fact, I keep EVERY THING the BEE-KEEPER needs CINCINNATI is one of the best SHIPPING-POINTS in the Union, PARTICULARLY IN THE SOUTH, as all freight now GOES THROUGH CINCINNATI. Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly FREE OF CHARGE.

A Special Discount on Early Orders

I will buy your HONEY AND BEESWAX. I pay CASH ON DELIVERY; or, if you are in NEED OF HONEY, write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of EXTRACTED or COMB HONEY. I guarantee its purity.

Queens and Nuclei

Let me book your orders for queens. I breed the finest GOLDEN ITALIANS, RED-CLOVERS, CARNIOLANS, and CAUCASIANS. Can furnish NUCLEI beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White and Yellow Sweet-scented Clover, Alfalfa, Alsike, Crimson Clover, Buckwheat, Phacelia, Rocky Mountain Bee-plant, and Catnip.

C. H. W. WEBER

Office and Salesroom, 2146-48 Central Ave.
Warehouse, Freeman and Central Avenues.

Cincinnati, - - Ohio, U. S. A.

Honey Markets.

GRADING RULES.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

MILWAUKEE—There prevails a very quiet feeling here in the market for honey of all kinds; the supply is moderate, and demand not heavy. The sales are confined chiefly to the best grades of either comb or extracted. Broken or out of conditioned sells very slowly; indeed, we would encourage shipments of fancy comb, as it will sell well. We can now quote for fancy, 17 to 18; A No. 1, 16 to 17; amber or dark, good, 15 to 16; extracted white, barrels, cans or pails, 8 to 9; dark, 7 to 8. Beeswax, 28 to 30.

A. V. BISHOP & CO.
Feb. 18. 119 Buffalo St.

BUFFALO.—The market is firm for white comb honey, but very slow for No. 2 white, dark, and mixed. Not much white comb in our market, and only small lots come in occasionally. Fancy and A No. 1 white comb honey, 16 to 17; No. 1, 15 to 16; No. 2, 12 to 13; No. 3, 11 to 12; No. 1, dark, 10 to 11; No. 2 9 to 10; mixed, 10 to 11; white clover, extracted, 8 to 8½; amber, 7 to 7½; buckwheat, 6 to 6½; jelly-tumblers, 85 to 90 per doz. Beeswax 30 to 32. W. C. TOWNSEND.
Feb. 19. Buffalo, N. Y.

DENVER.—Producers in this State are practically closed out of both comb and extracted honey. We have not sufficient good comb honey to supply our local trade, but have a good supply of white extracted of excellent quality. We quote strictly No. 1 white comb honey, per case of 24 sections, at $3.00; No. 1, light amber, $3.00; good No. 2, $2 80; white extracted, 8 to 8½; light amber, 7¾ to 8. We pay 27 to 28 for clean yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASS'N.,
Denver, Colo.

ST. PAUL.—Supply of honey is limited. Fancy white No. 1 in 1-lb. sections, new, 15 to 16; No. 2 white clover, in 1-lb. sections, 13 to 14; extracted, white, in 60-lb. cans, per case, 9 to 10. W. H. PATTON, Sec,
Feb. 19. St. Paul, Minn.

ST. LOUIS.—The receipts of comb honey are exceedingly small. Extracted is not as scarce, but there is very little on the market of both kinds. The demand is good at the following prices: Fancy white comb honey, 17; No. 1, 15 to 16; light amber, 15; broken and inferior, less. Extracted light amber, California, 7½ to 8; Spanish needle, 8; all in 5-gallon cans. Southern in barrels is quotable at 5½ to 6; same quality in cans, 6½ to 7. There is no stock on the market, however, of this description. Beeswax firm at 31 for choice pure. All impure and inferior, less.

R. HARTMANN PRODUCE CO.,
Feb. 18. St. Louis, Mo.

CHICAGO.—The market continues to absorb practically all the offerings of the best grades of comb and extracted honey, there being no perceptible change in prices from the quotations last given. Beeswax strong at 30. R. A. BURNETT & CO.,
Feb. 18. 199 So. Water St., Chicago, Ill.

BOSTON.—Our market is cleaned up on honey in good shape, and it now looks as though this season would clean up all of the old stock which has been such a bugbear for the past two years. Fancy white, 17; No. 1, from 15 to 16; No. 2, 14; extracted, 7 to 8, according to quality.
Feb. 19. BLAKE, SCOTT & LEE CO.

SCHENECTADY.—We are having the usual lenten demand for honey, and expect to close out stock on hand during the next month. We quote fancy white, 14 to 15; No. 2, 12 to 13; buckwheat, 11 to 12; extracted, light, 7½ to 8; dark, 6½ to 7. CHAS. MACCULLOCH,
Feb. 21. Schenectady, N. Y.

ZANESVILLE—The demand for honey is by no means brisk, though the market shows some improvement. Fancy white and No. 1 comb bring 17 to 18 wholesale. Not much demand for extracted, save in small retail packages. I quote 1-lb. jars at $2.20 per dozen, wholesale. Beeswax, 40.
Feb. 19. E. W. PEIRCE, Zanesville, O.

DENVER—Prices on comb honey unchanged and demand better. We quote strictly No. 1, white, per case of 24 sections, $3.20; No. 1, light amber, $3.00; No. 2, $2.80. We have a good stock of exceptionally fine extracted honey which we are offering at 8 and 9 for fancy white and 7½ to 8 for light amber. We are in the market for beeswax and pay 27 to 29. Cash delivered here for a good clean yellow article.

THE COLORADO HONEY-PRODUCERS' ASS'N,
Feb. 21. F. RAUCHFUSS, Mgr.

INDIANAPOLIS.—Market on comb honey is very quiet, regardless of the short crop. Fancy white comb brings 16 to 17; No. 1 white, 14; amber, 12 to 13. Best grades of extracted honey bring 8 to 9; amber, 6 to 7. Good average beeswax sells here at $35 per 100 pounds.

WALTER S. POUDER,
Feb. 25. 513 Mass. Ave., Indianapolis, Ind.

Honey and Wax Wanted and for Sale. See Classified Ads. on pages 358–360.

BEE SUPPLIES.

We handle the finest bee supplies, made by the W. T. FALCONER MFG. CO., Jamestown, N. Y. Big Discounts on early orders, let us figure with you on your wants.

MUTH SPECIAL DOVE TAIL HIVES, have a honey board, warp-proof cover, and bottom board, think of it, same price as the regular styles. Send for Catalog.

THE FRED. W. MUTH CO.,

51 WALNUT ST., CINCINNATI, OHIO.

WE WILL BUY AND SELL

HONEY

of the different grades and kinds

If you have any to dispose of, or if you intend to buy, correspond with us.

We are always in the market for WAX at highest market prices.

HILDRETH & SEGELKEN,

265-267 Greenwich St. 82-86 Murray St.

NEW YORK.

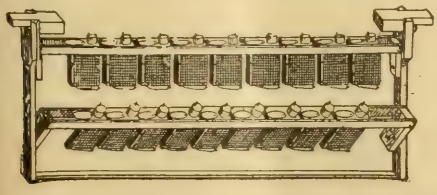
BEESWAX ADVANCED.

From this date until further notice we will pay 30 cents cash, 32 trade, for average wax delivered here or at our branch offices. This is a higher price than we have ever paid before at this season of the year. If any of our readers have any wax to dispose of we shall be pleased to hear from them. Be sure to mark your shipment with your name so that it may be identified on arrival, and mail us shipping receipt with gross and net weight of shipment.

The A. I. ROOT COMPANY, Medina, Ohio.

THE ROOT QUEEN-REARING OUTFIT.

In this outfit are embraced the best points of the best systems in use. It will give satisfaction to the amateur as well as the expert. The cell-cups are made of wood, wax-coated. No melted wax is used in their manipulation, as they are attached to the cell-stick by means of a small nail-point.



The nursery cage combines the features of nursery and introducing cages. By their use a queen can be released on the candy plan or caged in the hive as desired.

In connection with the outfit goes a booklet on queen-rearing—one which ought to put the veriest amateur on the high road to success. Outfit comprises three cell-bars with fifty waxed wooden cells, 1 frame cages (20); one cell-forming stick; one set grafting-tools, and a book on queen-rearing, $4.50. Postage 55c.

Tools for Queen-breeders.

Root cell-cup, with point for attaching to bar, 50c per 100, $4.00 per 1000. Postage 10c per 100.

Same, waxed ready for use, 75c per 100; $6 00 per 1000. Postage 10c per 100.

Titoff wire nursery-cages, 15c each; $1.35 for 10; $12.50 per 100. Postage 1c each.

Frame for holding 20 cages, including cages, $3.00. Postage 22c.

Cell-stick, each 10c; $1.00 per dozen. Postage 1c each.

Transferring-needle, double-ended and nickel-plated, 15 cents. Postage 1c each.

Jelly-spoon, nickel-plated, 15 cents. Postage 1c each.

We can supply, also, fine-pointed lace-scissors with extra large bows, for clumsy fingers, at 35 cents each. Postage 1c each.

The A. I. Root Co., Medina, O.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize
A GOLD MEDAL
at the World's Fair,
St, Louis, 1904.

IS THE BEST, CLEANEST, COOLEST, STRONGEST, CHEAPEST, AND LARGEST SMOKER SOLD FOR A DOLLAR.

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to clog.

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke. I find it all you claim. In the spring I shall want several. I always want the best.

N. E. FRANCE, Platteville, Wis.

Grant Stanley, Nisbet, Pa, July 24, 1905, writes: "After giving the Danzenbaker Twentieth Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until the fuel is all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker."

Price $1.00; three for $2.50; by mail, 25 cts. extra.

F. DANZENBAKER, MIAMI, FLORIDA

THE SWARTHMORE LIBRARY.

A series of booklets on bee subjects by E. L. Pratt, of Pennsylvania, known to the bee-keeping world as "Swarthmore." These books are full of the most valuable information. The Swarthmore method of queen-rearing is spoken of as the most important innovation in bee-keeping of recent years:

INCREASE. The first of the series. Any one desiring to enlarge his apiary should learn the Swarthmore way. Price, postpaid, 25 cts. French edition entitled "Accroissement," 50 cts. postpaid.

BABY NUCLEI. The using of little frames and a handful of bees for mating queens has created quite a stir in the queen-rearing business. From this booklet you get your information direct. Price, postpaid, 25 cts. French edition entitled "Nuclei Miniatures," 50 cts. postpaid.

COMMERCIAL QUEEN-REARING. A complete description of the Swarthmore methods of queen-rearing in regard to cell-getting. Price, postpaid, 25 cts.

SIMPLIFIED QUEEN-REARING. Revised edition. It tells the honey-producer how to rear queens by the very simplest method ever published. Good queens for little money and little trouble, in just as effective and economical plan for the bee-keeper who works for profit. Price 25 cts. postpaid.

SWARTHMORE QUEEN-REARING TOOLS. Complete outfit or separate parts. Write for price list.

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Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

Published by
THE A. I. ROOT CO., Medina, Ohio

J. T. CALVERT, Business Manager

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Many years ago, when I began keeping bees at Rogersville, I bought Italian queens of different breeders. One trial of some strains was all I cared to make. Of a few breeders I bought repeatedly. From repeated trials, year after year, I gradually came to the conclusion that no bees were the superior of those furnished by Mr. J. P. Moore, of Morgan, Ky. They were just plain, dark, three-banded Italians; but as workers I have never seen them equaled. They seem possessed of a steady quiet determination that enabled them to lay up surplus ahead of others. Easier bees to handle I have never seen. Their honey was capped with a snowy whiteness rivaling that of the blacks. In addition to these desirable traits, they wintered well.

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For several years I sold these queens, thousands and thousands of them, and in only two instances was I called on to refund the money, while I could fill a small book with the enthusiastic letters of praise that I received. That honey crops have been materially increased by the introduction of this stock there is *no question*. For years I did not reveal the name of the breeder who furnished this stock, and it was quite amusing sometimes to get a letter from some would-be purchaser saying, "I have some of the J. P. Moore stock; and if you have got any thing ahead of that you have got something pretty good."

I can still furnish queens of this stock at $1.00, the very same kind of stock that I sold at $1.50 each; but there will be no guarantee except safe arrival. The queens will be shipped direct from Mr. Moore. As fast as orders are received they will be forwarded to Mr. Moore, who will book them and treat them exactly as though they had been sent to him direct. A postal will be sent acknowledging the receipt of each order, and another notice will be sent before sending the queen. After Mr. Moore has received and receipted an order my connection with the matter will cease, except that I will guarantee Mr. Moore's truthfulness, honor, and integrity in filling orders.

The price of the Bee-keepers' Review is $1.00, and the price of a queen is $1.00; but I will furnish both for $1.50; and, just at present, I furnish the back numbers for 1906 free of charge to new subscribers. That is, for $1.50 you can get the queen, and the Review for 1906 and 1907. By adding $1.00 more you can get the book Advanced Bee Culture.

I know it sounds like self-interest; but if my own brother were a bee-keeper, and did not possess them, I would advise him to send $2.50 for a copy of Advanced Bee Culture, a queen of the "Superior Stock" for a breeder, and the Review for 1906 and 1907. He would never spend $2.50 to better advantage.

W. Z. HUTCHINSON, Flint, Mich.

Northwestern Bee-keepers!

We are headquarters for the ROOT supplies for the States of Montana, Minnesota, the Dakotas, and Western Wisconsin.

You can save freight by ordering from this branch. A complete line of bee-keepers' supplies always in stock.

Secure a catalog at once.

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to all points in the South and Middle West.

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We sell at factory prices.
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Gleanings in Bee Culture

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Catalogs Received

Four-page circular (28th annual) of Italian and Caucasian bees and queens, imported and home-bred, from A. D. D. Wood, Lansing, Mich.

One of the seed catalogs that is highly valued by every recipient is that of Northrup, King & Co., packed from cover to cover with practical information regarding all farm and garden crops. Their ad. appears on another page, and, if interested, it will pay you to write for their catalog.

Nursery stock grown in the South can not be as satisfactory for the North as native-grown. The Gardner Nursery Co., whose ad't appears on another page, will gladly send you their catalog describing their "Blizzard Belt" nursery stock.

When you buy a buggy you want to get your money's worth. By the Anderton plan you receive the buggy you order on a two-years' approval backed by a $25,000 bond. They issue a splendid 140-page catalog which will be gladly sent to GLEANINGS readers. See Anderton Mfg. Co.'s ad't on another page.

Every farmer and gardener, whether he has a Planet Jr. or not, should send for the new 1907 Planet Jr. catalog of seeders, wheel hoes, horse-hoes, riding, orchard, and beet cultivators—45 kinds in all—with the new and practical improvements. A postal mailed to S. L. Allen & Co., Box 1106 S, Philadelphia, brings this interesting book by next mail.

There are, in almost every line of industry in this country, a few large companies whose product is recognized universally as superior in quality to similar goods of other makes. The Elkhart Carriage & Harness Mfg. Co., of Elkhart, Indiana, in the carriage industry represent one of these quality manufacturers. They have, during the past 34 years of their existence, built up the largest direct-to-the-consumer carriage and harness business in the world. They make over 200 styles of vehicles and 65 styles of harness. Their large catalog, showing complete line, is sent free upon request.

BEST POULTRY BOOK.

In response to numerous inquiries from subscribers for a reliable book on incubators and chicken-raising, we suggest that you send for the Sure-Hatch book.

This is a splendidly illustrated book of 102 pages, and gives more practical information than many books that sell for $1.00 to $1.50.

The Sure-Hatch book is so interesting that you'll sit up late to read it. Some poultry books are simply compiled from encyclopædias by men who don't know enough about chickens to set a hen.

Write to the Sure-Hatch Incubator Co., Box 107, Fremont, Neb., or Dept. 107, Indianapolis, Ind., and ask for a copy of the Sure-Hatch book. They will send it to you free, postpaid, by return mail.

No one nowadays doubts the efficiency of spraying. To buy the best outfit is a question every intending purchaser should consider, as a poor outfit is dear at any price. The Deming Co., whose ad. appears on another page will send you a catalog fully explaining their excellent line of goods. Mention GLEANINGS when you write.

It's only a hop, skip, and a jump till springtime now—the time when you want to be cleaning up the yard, trimming up the trees, and giving the house a new coat of paint.

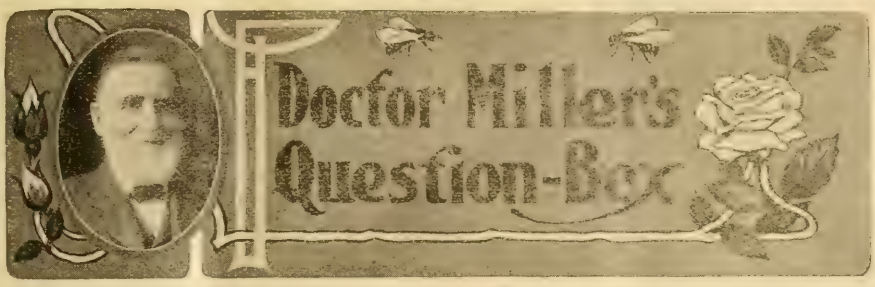
What kind of paint to buy—that's the question.

O. L. Chase, the Paint Man of St. Louis, has about as liberal a selling offer on his made-to-order paint as we have ever seen. He advertises to make fresh paint *to order*—dating each can the day it's made—and he sells it under a one-hundred-dollar guarantee as to purity and freshness. He also gives two full gallons of the paint free, to try.

Such an offer as this makes one believe that Chase must be making pretty good paint or he would not dare to sell it on this plan. He issues a fine paint book—showing big, handsome color-cards, and before you decide to buy somewhere else we believe you ought to write for this book. It will give you some mighty interesting paint information. The address is O. L. Chase, The Paint Man, Dept. 24, St. Louis, Mo.

Books Received.

SONGS OF BEEDOM.—This is the title of a unique publication by Geo. W. York & Co., Chicago, Ill. It comprises all the popular bee-songs that have been rendered at our bee conventions, with some new odes. Every music-loving bee-keeper's family ought to have a copy to enliven the winter's evenings. Price 25 cents. We can furnish from this office at publishers' price.



This is one of the many departments of the old **Weekly American Bee Journal** that make it so valuable, not only to the beginner in bee-keeping, but also to the more experienced. Dr. C. C. Miller is able to answer satisfactorily more questions on bees and bee-keeping than perhaps any other man living. If you really want to learn the **how** of bee-keeping you should read the Questions and Answers found in "DR. MILLER'S QUESTION-BOX," which appears **every week** in the American Bee Journal.

The yearly subscription price of the Weekly American Bee Journal is only $1.00—less than a 2-cent postage stamp per week. But in order that you may give it **a trial,** we will send it to you for **3 months** (13 weeks) **for only 20 cents.** (We can send back numbers for a while yet from Jan. 1st, if you wish them.) A sample copy will be mailed free on request. The American Bee Journal is better than ever this year, which is its 47th. Better send in your subscription **right away.** Address,

GEORGE W. YORK & CO., 334 Dearborn St., CHICAGO, ILL.

Special Queen Offer For $1.50 we will send you the Weekly American Bee Journal one year, and a fine Standard-Bred Italian Queen in May or June. Subscription can begin now or with Jan. 1st, and Queen mailed later. If you want something fine both as to bee-paper and Queen, this is a bargain.

AT THE CLOSE OF THE SEASON FOR 1907

ROOT'S HIVES WILL OUTWEIGH NEARLY ALL OTHER STYLES.

SEND IN YOUR ORDER NOW.

The A. I. ROOT COMPANY

Syracuse New York

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Twenty cents per agate line, flat.
Fourteen lines to inch.

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One-fourth page $11.00
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One page..... 40.00

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Preferred position, inside cover pages, 50 per cent additional.
Outside cover page, double price.
Reading notices, 50 per cent additional.
Cash-in-advance discount, 5 per cent.
Cash discount, if paid in 10 days, 2 per cent.
Bills payable monthly.
No medical or objectionable advertising accepted.

"A Square Deal."

We believe that every advertisement in this paper is backed by a responsible person. But to make doubly sure we will make good any loss to paid subscribers sustained by trusting any deliberate swindler advertising in our columns, and any such swindler will be publicly exposed. We protect subscribers against rogues, but we do not guarantee to adjust trifling differences between subscribers and honest responsible advertisers. Neither will we be responsible for the debts of honest bankrupts sanctioned by the courts. Notice of the complaint must be sent to us within one month of the time of the transaction, and you must have mentioned GLEANINGS IN BEE CULTURE when writing the advertiser.

Catalogs Received.

One of the 1907 catalogs just off the GLEANINGS press is the seed catalog of E. C. Green & Son, Medina, O. This is surely the best catalog they have yet issued. It is enlarged, and many more of those beautiful half-tone illustrations (no other kind used). A very attractive cover design. Filled with accurate descriptions, and quotes very reasonable prices on the best grade of seeds grown. None but standard varieties of proved merit are listed, so you can make no error in placing an order. Whether you buy only a few packets or in large quantity it will pay you to see this splendid catalog. A postal will bring a copy by return mail.

Gordon, Van Tine & Co., 103 Case St., Davenport, Iowa, are running a number of season ad's in GLEANINGS this year. Have you read their latest? See page 349 for particulars.

Southern farmers need supplies specially adapted to the South. The Texas Seed and Floral Co., whose large 80-page catalog we have just received, make it their exclusive business to furnish the best plants, seeds, and poultry supplies for the South. They also handle a full line of Root's goods for Southern bee-keepers, and will be glad to send either catalog (bee supplies or seeds) to any interested party.

Gleanings as an Advertising Medium,

The A. I. Root Co., dear Sirs:—I sold my 100 colonies of bees soon after I advertised them in GLEANINGS. I received about 20 to 25 letters asking about them. I answered them nearly all, and will leave you to answer the rest through GLEANINGS. R. L. WEBB.

Warrensburg, Mo., Feb. 18.

Our discounts on **BEE-SUPPLIES** are still in effect.

WE furnish EVERY THING needed in practical bee culture, at lowest prices. We make the DOVETAILED, LANGSTROTH, and ALTERNATING HIVES. The most practical, *up-to-date* hives are the MASSIE HIVES. We make them. Have you seen them? Have you read our Catalog? Our HONEY-EXTRACTORS are not excelled for durability, fine workmanship, and practical utility. Have you seen our latest improved Champion Smoker? If not, you miss it until you get one. Satisfaction guaranteed, or money back. If you have not received our Catalog of Supplies, please write for it.

Address Kretchmer Mfg. Co., Council Bluffs, Iowa.
Muscatine Produce Co., Muscatine, Iowa. :: Trester Supply Co., 103 S. 11th St., Lincoln, Neb.
Catalogs issued in German and English.

North Texas . .

. . Bee-keepers

will find Dallas the best point from which to purchase supplies. We have a carload of **ROOT'S GOODS IN STOCK**, and sell them at the Factory Prices. Don't forget that we can furnish any thing in the way of Field or Garden Seeds, Plants, and Poultry Supplies. Our large illustrated catalog for 1907 free on application. Mention GLEANINGS when you write. . . . . .

Texas Seed and : Floral : Company
Dallas, : : : : : Texas

"LOOKING"

To our patrons! Are you "looking" forward to the fact that it is now time to send in your orders for bee-supplies?

We are "looking" to your wants in this line, and we ask you to "look" for our adv. in the March 15th issue.

W. W. CARY & SON, Lyonsville, Mass.

Root's Bee-supplies at Root's Prices

But f. o. b. Baltimore instead or Medina. Write for catalog L.

Rawlings Implement Co.
9 and 11 West Pratt St., Baltimore, Md.

1884 1907

New 64-page catalog for the New Year now ready

FOR YOU

Twenty-two successful years manufacturing bee-supplies and raising Italian bees and queens. . . . . Root's Goods in Stock.

J. M Jenkins
Wetumpka, : : Alabama

Something New in Honey-jars...

Cook's Square Jar combines a new feature that improves the package and reduces the cost, and is the best and cheapest one-pound glass package made. Send for circular and full catalog of hives, bees, and useful implements. . .

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample Jar by mail.

"If goods are wanted quick, send to Pouder."
Established 1889

Every Success Has Its Reason.

By the Bee Crank.

I have been successful in the bee-supply business, and I believe I know why.

First of all, I'm a practical bee-man—I know the business from A to Z. I'm as familiar with this subject as the worst bee crank you ever saw.

I'm pretty much of a crank on bee culture myself.

The business I've built up is the result of eighteen years of hustling—313 days of hard work every year, with close attention to detail and careful consideration of the wants of my patrons.

Some of my customers have been dealing with me all of that eighteen years—most of those who have ever bought any thing from me are on my list of permanent customers.

This, I believe, is because the man who sends me an order is never disappointed. "If Goods are Wanted Quick, Send to Pouder." That's good advice. Remember it.

Of course my location has helped me. I'm in the best shipping point in the country, and can save you not only time but MONEY on transportation charges.

I sell Root's goods at Root's prices. Can supply you quickly with the new metal-spaced Hoffman Frames, Danzenbaker Hives, Dovetailed Hives, Section Honey-boxes, Weed-process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, or any thing else that a bee-keeper might require.

Let me send you my new catalog—it tells you as much as I could on forty full pages like this—and it won't cost you a cent, except for the postal you use in writing for it.

Walter S. Pouder

513-515 Massachusetts Avenue, Indianapolis, Ind.

Bees AND Queens

COLDEN ITALIANS

The yellow-all-over kind.

Book your orders before the rush comes, and you will be sure to get your queens on time.

I rear queens from select mothers only.

I am situated on an island that is entirely Italianized, and pure mating is practically insured.

My stock originally came from the best known queen-breeders in the country.

I will begin April 1st and fill orders in rotation.

Satisfaction guaranteed.

Untested Queen	$1.00
Select Untested Queen	1.25
Tested Queen	2.00
Select Tested Queen	3.00
NUCLEI	
One-frame Nucleus, without queen	2.00
Two-frame Nucleus, without queen	3.00
Three-frame Nucleus, without queen	3 50

H. M. PARKER, Jr.

JAMES ISLAND - SOUTH CAROLINA

THE RIETSCHE PRESS

Made of artificial stone. Practically indestructible, and giving entirely satisfactory results. Comb foundation made easily and quickly at less than half the cost of buying from the dealers. Price of press for L. frame sheets, $2.00; other sizes, 25c extra. Price of the press making the foundation directly on the wired frames, $2.50, any size wanted.

Adrian Getaz, Knoxville, Tenn.

Westwood Red-clover Queens.

No better hustlers flying; will get honey where other bees fail. Try them and be convinced. Nuclei a specialty. Also full colonies of ten frames each. Safe arrival guaranteed. Price list sent on application.

HENRY SHAFFER, 2860 Harrison Ave., Station L, Cincinnati, Ohio.

QUEENS! By uniting the swarms from 1000 colonies the **NUCLEI!** coming season I will sell queens and nuclei after March 1 at following prices: Queens, 25c; $3.00 dozen. Nuclei with queen: 1-frame, $1.25; 2-fr., $1.50; 3-fr., $1.75.

R. M. Spencer, Nordhoff, Cal.

Moore's Long Tongue and Golden

Queens

Fine select untested queens, $1; 6, $5; 12, $9. Tested, $1.50; 6, $8. Breeders, $3.50. Safe arrival gar'd.

W. H. RAILS, - ORANGE, CAL.

Dittmer's . . . . . Comb Foundation

Why do thousands of bee-keepers prefer it to other makes? . Because the bees like it best, and accept it more readily.

Dittmer's Process . . . . . is Dittmer's

It stands on its OWN NAME and its OWN FOUNDATION —to which alone it owes its reputation and merits. . . We are now ready to make prices for next season for

Working Wax for Cash

and for full line of supplies. WHOLESALE and RETAIL. Free catalog and samples.

Gus Dittmer, Augusta, Wis.

2 per cent Discount During March

In order to liven up business during the dull months we will give two per cent off all supplies, in the catalog, wholesale or retail, during March for goods for this year.

Jobbers for

Central : Pennsylvania

— for —

ROOT'S GOODS

Now's the time to save money on goods for next season. Send for catalog. Best shipping facilities in the State.

Frank W. Prothero

Dubois, : : : Pennsylvania

IN THE HEART OF MICHIGAN

Did you know that within one hundred miles of me are over three-fourths of the bee-keepers of Michigan? Are you one of them? If so you will find it to your advantage to write for my new catalog. A full line of Root's Goods at Root's Factory Prices. Hilton's double-walled hives are used more than any other in my State. It has stood the test of thirty years. . . . . I ship goods promptly. Wholesale or retail. . Cash or exchange for beeswax at all times.

George E. Hilton - - Fremont, Michigan

SPECIAL BARGAINS

In dovetailed HIVES, plain and beeway SECTIONS, Hoffman BROOD-FRAMES, Section-holders, Separators, etc.

We are enlarging our FACTORY, and all of these goods have to be moved. If you want any thing in your apiary, you will do well by writing us at once, and we will make you DELIVERED PRICES that will surprise you. Our stock is all new and up-to-date. We do not keep poor or second-grade goods. Our sizes are standard. Quality and finish can not be surpassed by any one. We make any thing used in the apiary, and can save you money and delay at any time of the season. Give us a trial and be convinced. We aim to please our customers, and guarantee all our goods to give entire satisfaction or refund the money.

MINNESOTA BEE-KEEPERS SUPPLY COMPANY,
NICOLETT ISLAND NO. 20. John Doll & Son, Proprietors. **MINNEAPOLIS, MINN.**

What would be the Condition

of bee-keeping now had not some ingenious bee-keeper invented and made the Bingham Bee-smoker and Honey-knife? Bingham fills orders for thousands of them every year from the foremost distributors of bee-keepers' supplies who say that they like to sell Bingham tools because they always give satisfaction. If you want the best and can't get them near by, you can always get them direct from the original inventor and sole maker of them at regular prices per mail or hundred. It might be a pleasure to have bought so valuable and indispensable a tool directly from the original inventor of them.

Respectfully yours,

T. F. Bingham, Farwell, Mich.

BEE and POULTRY SUPPLIES

Every thing needed for the "Busy Bee" and "Industrious Hen." Prompt shipments of orders.
LEWIS' GOODS for Bees. LEE'S GOODS for Poultry.
Catalog of either, with instructions to beginners, FREE. Discount before March 1. Address at once
The C. M. SCOTT CO., 1006 E. Washington St., INDIANAPOLIS, IND.

A Four-Per-Cent Investment

WITH the money absolutely safe and always available is an ideal disposition of individual savings.

This bank accepts deposits in any amount, and pays four per cent interest —compounded every six months.

Our booklet describe our methods and management, and explains the advantage of our simple banking-by-mail system. Write for the booklet to-day.

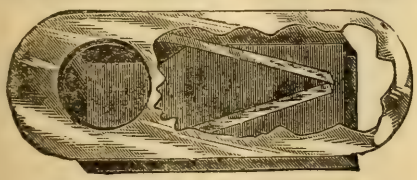
Assets over One-half Million

THE SAVINGS DEPOSIT BANK COMPANY

MEDINA, OHIO

A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.
E. B. SPITZER, Cashier.

PORTER BEE-ESCAPES



HIVE ESCAPE

When taking off surplus this is the greatest saving device. It does away with the shaking of the heavy supers, the cruelty of excessive smoking which causes the bees to uncap their honey and start robbing. You can as well afford to be without a smoker as without the Porter Bee-escape.

PRICES—Each, 20c; dozen, $2.25; postpaid. With board, 35c; 10, $3.25; by express or freight.

HOUSE ESCAPE

To be used over the doors and windows in the extracting-house, or any place you wish to clear of bees. Some bee-keepers make a practice of taking off the filled supers and stacking seven or eight in a pile. The Porter Honey-house mounted on a board makes the best kind of escape.

PRICES—Each, 25c; dozen, $2.75; postpaid.

For Sale by Dealers Everywhere!

R. & E. C. Porter, Patentees

SEND - ORDERS - TO - YOUR - DEALER

Wouldn't You Like

to have us show you the wonderful opportunities existing in the South, and how you could improve your present condition?

The

Seaboard - Magazine

Devoted to the agricultural and industrial development of the South, will point out many of the advantages of a location in our mild climate where life would be a greater pleasure as well as profit by reason of being able to carry on work throughout the entire year. Why battle against the elements? If you want a stock or grain farm, a fruit farm, truck farm, where lands are fertile and productive, in fact, any thing, and want it in Virginia, the Carolinas, Georgia, Alabama, or Florida, the magazine will assist you. Sent FREE on request, together with other handsomely illustrated literature descriptive of the South—its wonderful resources and progress.

Special low round-trip rates for home-seekers, prospectors, and investors.

J. W. White, Gen'l Indust'l Agent
Portsmouth, Va.
Seaboard Air Line Railway, Dept. "F."

How to Keep Bees

By Anna Botsford Comstock

228 pages. 32 pages of illustrations.

A charmingly written manual describing clearly and in detail the outfit, first steps, and methods. The author's well-known literary ability has combined with her enthusiasm for a subject to produce a very unusual volume. It is a handbook for those who keep bees for happiness and honey, and incidentally for money. It serves as well as an introduction to the more extended manuals already in the field. "Finally with all due deference to the authors of the excellent books on bee culture which we have already, my opinion is that this new book, 'How to Keep Bees,' is the best one for a beginner, or one who does not wish or expect to keep more than a dozen colonies, that has yet come before the world."—*A. I. Root, in Gleanings, July 1, 1906.*

Chap. 1. "Why Keep Bees," urges honey, perhaps money, recreation, love of nature study, and the need of bees in "a perfect garden," as good reasons for keeping bees. The second chapter tells "how to begin" in a small way, and we may get all the necessary detailed information for management from later chapters, arranged in order of demand for information.

Price $1.00. Postage 10 cents extra.

Money refunded to any dissatisfied purchaser.

The A. I. Root Co., Medina, O.

Northeastern and New England
BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine
MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

Central and Northern
PENNSYLVANIA

Distributor of Root's Goods from the Best Shipping-point in this State. Wholesale and Retail.

I am a firm believer in printers' ink; but the small margin on bee-keepers' supplies this year will not justify me in continuing a half-page advertisement.

If my catalog is not already in your hands, write for it to day if you wish to save money, as from now on I intend to give my patrons what it would take to run this advertisement.

Make up your list of wants for the season; deduct three per cent until April 1; send me the balance and I'll do the rest.

Full stock to select from, and the best shipping facilities in the State guarantees you prompt and cheap service.

Do not forget that I raise the choicest all-over golden and Banat Caucasian queens in full colonies, and double my honey crop instead of depleting it. I challenge the world to produce better queens than I am raising by this system. Orders enough booked now to run me to July 1.

E. E. PRESSLER, - Williamsport, Penn.

ROOT'S BEE-SUPPLIES
New Goods. Free Catalog
AT SPRINGFIELD, MASS.
F. R. DANIELS,
'PHONE. 117 FLORENCE ST.

Boston Headquarters
FOR
Bees-Queens-Supplies

H. H. Jepson, - 182 Friend St.

A NEW BEE SUPPLY HOUSE
AT LITTLE ROCK, ARK.

I am prepared to furnish you the best of bee-supplies, manufactured by The A. I. Root Co. Let me send you my catalog of bee-keepers' supplies. Also have for sale the very best strain Italian queens and nuclei or full colony. Satisfaction guaranteed. **W. J. LITTLEFIELD.**

21 CALLING CARDS with your Photo on each. Send any photo, to be returned with your order. A. B. CHRISTMAN, SPRINGFIELD, OHIO. **25c**

Fountain Pens Virtually Free

A Grand Premium Offer

Take Advantage of It while It Lasts

WE ARE in a position for the **Next 90 Days** to supply our subscribers (old and new) with a celebrated make of Fountain Pen, guaranteed by the makers

Fourteen Carat Solid Gold

Virtually Free. This elegant pen, which is beautifully chased, and **warranted** not to leak, scratch, or blot, will be sent to old and new subscribers upon receipt of a year's subscription and fifty (50) cents additional. The pen compares favorably with any $2.00 pen on the market to-day, **and every reader of this paper should secure one while the offer lasts.**

A Fountain Pen is a Necessity of the 20th Century

Steel corrodes, ink-stands become dry, but not so with a **Solid Gold** Fountain Pen. It is always ready for use, and, moreover, pointed with iridium, it is well nigh indestructible.

Remember that this is for Thirty Days Only.

Subscribe to-day and secure an article of merit and usefulness. . . . . The cut shows the exact size of the pen.

Gleanings in Bee Culture
Medina, Ohio

Biggle Farm Library!

Practical, up-to-date, concise, comprehensive. Handsomely printed, beautifully illustrated, by Jacob Biggle

No. 1—Biggle Horse Book. All about Horses—a common-sense Treatise, with more than 74 illustrations; a standard work. Price 50 cts.

No. 2—Biggle Berry Book. All about growing small fruits—read and learn how. Beautiful colored plates. Price 50 cts.

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No. 5—Biggle Swine Book. All about hogs—breeding, feeding, butchery, diseases, etc. Covers the whole ground. Price 50 cts.

No. 6—Biggle Health Book. Gives remedies and up-to-date information. A household necessity. Extremely practical. Price 50 cts.

No. 7—Biggle Pet Book. For the boys and girls particularly. Pets of all kinds and how to care for them. Price 50 cts.

No. 8—Biggle Sheep Book. Covers the whole ground. Every page full of good advice. Sheep men praise it. Price 50 cts.

Mink Trapping

A Book of Instruction Giving many Methods of Trapping. A Valuable Book for Trappers. . .

This book is edited by A. R. Harding, of the Hunter-Trader-Trapper, contains about fifty illustrations and nearly 200 pages, and is divided into twenty chapters as follows:

I. General Information.
II. Mink and Their Habits.
III. Size and Care of Skins.
IV. Good and Lasting Baits.
V. Bait and Scent.
VI. Places to Set.
VII. Indian Methods.
VIII. Mink Trapping on the Prairies.
IX. Southern Methods.
X. Northern Methods.
XI. Unusual Ways.
XII. Illinois Trapper's Methods.
XIII. Experienced Trapper's Ways.
XIV. Many Good Methods.
XV. Salt Sets.
XVI. Log and Other Sets.
XVII. Points for the Young Trapper.
XVIII. Proper Size Traps.
XIX. Deadfalls.
XX. Steel Traps.

The methods as published are those of experienced trappers from all parts of the country. There is money made in catching mink if you know how. After reading this instructive book you will surely know. If you catch only one more prime mink it will pay for the book several times.

Cloth Bound, 60c., postage included.

Fox Trapping

A book of Instructions Telling how to Trap, Snare, Poison and Shoot. A Valuable Book for Trappers. . .

This book is edited by A. R. Harding, of the Hunter-Trader-Trapper; contains about 50 illustrations, and nearly 200 pages, is divided into twenty-two chapters as follows:

I. General Information.
II. Baits and Scents.
III. Foxes and Odor.
IV. Chaff Method, Scent.
V. Traps and Hints.
VI. All Round Land Set.
VII. Snow Set.
VIII. Trapping Red Fox.
IX. Red and Gray.
X. Wire and Twine Snare.
XI. Trap, Snare, Shooting, and Poison.
XII. My First Fox.
XIII. Tennessee Trapper's Method.
XIV. Many Good Methods.
XV. Fred and the Old Trapper.
XVI. Experienced Trapper Tricks.
XVII. Reynard Outwitted.
XVIII. Fox Shooting.
XIX. A Shrewd Fox.
XX. Still Hunting the Fox.
XXI. Fox Ranches.
XXII. Steel Traps.

If all the methods as given in this book had been studied out by one man, and he began trapping when Columbus discovered America, more than four hundred years ago, he would not be half completed.

Cloth Bound, 60c., postage included.

Club Offers

We will furnish GLEANINGS IN BEE CULTURE one year to new or old subscribers and any one of the Biggle books, Fox or Mink Trapping, any one of the 50-cent poultry books mentioned on page 350, for $1.30; with any two of the above-named books for $1.60.

GLEANINGS one year and Successful Poultry Keeping, $1.60.

GLEANINGS one year and Reliable Poultry Remedies, $1.15.

The A. I. ROOT CO. MEDINA, OHIO

The Production of Fancy Comb Honey.

HONEY, A STAPLE OR LUXURY. There have always been different opinions on this subject, and the question is not likely to be settled at once. A good many believe, however, that honey is a luxury, and that, as such, it should be put up in the most attractive form. A visitor at Medina recently told us that his entire crop (not a large one, to be sure, but several thousand pounds, we believe) was all easily sold at 18 cts. per pound in one of the large city markets. At the same time, there were hundreds of bee-keepers offering their crops at from 11 to 14 cts. a pound.

What price do you prefer—the fancy price or the rate the dealer pleases to offer? Has any one ever seen *extra* fancy honey of good quality begging for a buyer? It is the experience of those bee-keepers who have used the Danzenbaker hive that the results obtained from its use are the following:

More Honey, Better Honey, and Better Prices.

The following letter speaks for itself:

WESTHOLME, B. C., Aug. 20, 1906.

I purchased ten Danzenbaker hives from your agents, E. Grainger & Co., Toronto, this season, finding it to my advantage to send there. Your goods are so well known that it is unnecessary for me to remark, but I must compliment you on the material and workmanship. It is a pleasure to put together such hives.

It is my first experience with the Danzenkaker hive, and I like it very well. Where much manipulation of frames has to be done, perhaps it is a disadvantage; still, where the frames can be moved in blocks it is not much loss. I had only five hives in use, and have about 240 pounds of fancy white sections, which is very good for this locality, and considering I had to build the colonies up after driving them out of old boxes in May.

Yours truly, FRANCIS H. JONES.

WESTHOLME, B. C., Jan. 28, 1907.

I have kept bees off and on for a number of years; but it was the nicest lot of honey I have ever seen, which was owing, in a measure, to the tall 4×5 sections and the hive arrangement. I took four first prizes at the principal shows in the Province, two being for section honey and one for the best apiarian display of an educational nature in which a Danzenbaker hive and super fitted up was the principal item.

FRANCIS H. JONES.

You will note from the above a very good yield of honey considering the circumstances under which it was stored and the extra grade which he secured, which confirms in his case two of the claims for this hive—namely, more honey and better honey.

CEEVELAND, O., Jan. 26, 1907.

Please send me by next electric-package car ——— pounds of *extra* fancy comb honey. This *must* be in Danzenbaker sections, as I *can not* use any other kind. This must look nice, as I am building up a trade for a fine grade of honey. I should like the sections filled out to the edge with seldom or never an empty cell. In the fancy honey you sent me in 4¼×4¼ sections, about half had some empty cells and hollow places around the edge.

Yours very truly, THEODORE F. ENSIGN.

The last letter above shows the feeling of dealers with reference to an *extra fancy* honey. It is all well enough to say that if honey is of good quality, and well capped over, nothing more is desired. There is, nevertheless, a difference of one to two cents per pound between an ordinary fancy and an extra fancy honey such as is usually secured with the Danzenbaker hive.

Remember the prizes offered for results obtained from the use of the Danzenbaker hive this season. For particulars see page 80, issue for Jan. 15. Send in your name, stating that you wish to try for the Danzenbaker prizes, mentioning in which classes you expect to compete. You can change at any time, up to the time the report is made, the classes in which you will compete.

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests
Illustrated : Semi-monthly : One Dollar per Year
Published by The A. I. Root Company, Medina, Ohio

Vol. XXXV. MAR. 1, 1907. No. 5.

SPEAKING of propolis, p. 262, is it not generally the resinous substance from the buds of trees? Any thing approaching that nature would naturally be used. [I believe you are right.—ED.]

IN CELLAR is where I am keeping some section honey. I've always called a cellar the worst place to keep honey, but this keeps beautifully. What has dripped, instead of being candied is thick, tough, and stringy. The secret of it is that it stands *close beside the furnace.*

"THE EXPERT bee-keeper can doubtless get along without" bottom starters, p. 232. Kind o' bars me out of the list of expert bee-keepers, doesn't it? [We are sorry to put you out in the cold, so let us try again. How will this do? "*Some* expert bee-keepers can doubtless get along without bottom starters."—ED.]

AN OBJECTION by some to divisible brood-chambers is that the space between sections interferes with the queen. I don't believe that objection is valid, for every spring I have colonies in two stories of Langstroth frames, and the queen seems to have no trouble occupying both stories. Certainly they should have no trouble with shallow frames.

THE ADVICE given in GLEANINGS, Feb. 15, as to making a business of bee-keeping, is wholesome and sound. Simmered down it's a good deal like this: If money is your god, and you are living only to get all you can of it, let bees alone. If you thoroughly enjoy working with bees, and want to get all the enjoyment out of life you can, then wade right in.

ARTHUR C. MILLER, in *American Bee-keeper*, says that a field-bee on returning with a load "does not give her load to one of the younger or nurse bees, but puts it directly into the cell. From this it is taken by other bees and ripened and redeposited elsewhere, or reconsumed." "Whether the cell be empty or partly filled, the bee enters it feet up and back down."

SOME SUCCEED with a sheet of foundation filling the entire section, and some fail, p. 265; I wonder if it isn't this way: If the sheet is fastened at the sides as well as top and bottom, it works all right; if fastened only at top and bottom, it's sure to buckle. [Yes, that is what we meant. The sheet of foundation that filled the entire section should be fastened to all four sides, and then the wax should be "thin" not "extra thin."—ED.]

DURING the calendar year 1906 the people of this country consumed 6,415,389,120 lbs. of sugar. In 1870 the per capita consumption was 35 lbs.; in 1880, 43; in 1890, 53; in 1900, 65; in 1906, 75. [You are mistaken, doctor, this wasn't all sugar. Some of it was lime, sulphuric acid, grape sugar (glucose), indigo from coal tar, salts of tin, etc. Both sugar and molasses received a terrific blow by the passage of the pure-food law.—W. K. M.]

A VIVID PICTURE of dishonest commission work is given on p. 235. Honest commission men wouldn't do that sort of thing; but I have in mind one case in which a man whom I've always regarded as square did what was hardly the square thing. He quoted a certain price in "Honey Markets," but when honey was offered him he replied that he was stocked. In that case quoting a price was misleading. [We should be glad to get

definite cases like these; for if such are published, even without the names, those responsible will be more careful in the future how they deal with the producer, whose interests we feel bound to protect.—ED.]

QUITE RIGHT you are, I think, Mr. Editor, p. 156, in believing that the direction in which the hive faces has little to do with the amount of honey produced. Yet your argument that the sun is brightest in the middle of the day, if it favors any thing, favors the northern entrance. For that northern entrance gets the benefit of the sun at the two cool ends of the day, and in the middle of the day it's hot enough anywhere. A little as the darkey said, "De moon am more useful dan de sun for it shines in de night when it's dark, and de sun shines only when it's daylight."

"HOW WOULD honey and butter frozen together answer during the winter as a food for the gods?" page 239. Why "frozen," friend Morrison? I never tried the freezing, but I've eaten a good deal of it thoroughly mixed (first warmed), and it's fine. Try anywhere from one to eight ounces of honey to a pound of butter. [Freezing the honey and butter was suggested to enable us to sell the combination at the same price as butter—in the same package as the latter is usually sold, and *by the same men*, thereby greatly widening the market for honey. Of course I would label it honey and butter—just what it is. I prefer as much honey as butter.—W. K. M.]

BAKING or roasting in fireless stoves is a thing I had studied over, and supposed it was impracticable until given by H. H. Root, p. 156. No, Huber, I'm pretty sure no one else has given any thing of the kind before. It's great. The one objection to a fireless stove was that it could be used only for boiling; and now you have done away with that. The best bread in the world is probably that baked in an out-oven. A fire is built *in* the oven, swept out, and the hot bricks do the rest. Why not have heated soap-stones or fire-bricks? Have an asbestos lining so as not to burn your hay or excelsior; put in your hot stones, and your chicken in a self-baster, and go about your business.

GERMAN PRICE LISTS offer 5 and 10 pound packages for sending honey *by mail*. Absurd that I can send a 10-pound package all the way to Germany for less than I can send it to the next town, five miles away. When we get to electing our Senators by the direct vote of the people we may have things different. [If President Roosevelt had not so positively given out that he would not again run for the presidency, we might hope that some of these needed reforms, through the action of his "big stick," would be brought about. Yes, the time is coming, and must come, when our Senators will be elected by the direct vote of the people. When that is done, and a good big brainy President with "the big stick" is in the chair, the millennium (in a political way) will be at hand. God speed the day.—ED.]

FOR A HIVE-STAND I'd like to try a pair of triangular prisms of cement or stoneware, each prism perhaps three inches longer than twice the width of a hive. Lay the prisms on the ground parallel to each other. Level them, and set on them a pair of hives. Resting on the sharp edges of the prisms, I should expect the bottom-boards to last about twice as long as when set on flat board stands. [Your scheme is not bad. Such cement prisms could be constructed very cheaply. All one would have to do would be to make a wooden V-shaped trough of suitable size, pour in the mixture, and, when it sets, carefully dump it out. To facilitate the operation the trough should be greased with crude oil; and after each "cast" it should be scraped and reoiled. During winter weather, when the bee-keeper has nothing else to do he could make up quite a number of these forms.—ED.]

MUCH INTERESTED in that 8×¼-inch winter entrance, p. 246. Would you change it for a very strong or for a very weak colony? How would a 4×¼-inch entrance do? In the 8×¼ entrance do you prefer the ¼-inch down at the floor or at the top of the ⅜ space? [The size, 8×¼ inch, is for the average-sized colony. Any thing under the average has a proportionally smaller entrance, the reduction being made in the length. Any thing over the average will have a larger entrance. But in all cases we preserve the depth ¼ so that we may more successfully resist the encroachments of meadow-moles and mice at outyards. Our experience has shown that half-inch entrances will let in some mice, and so will a ⅝-deep one that the pests have gnawed. At some of our outyards we have had some four or five colonies, the combs of which were literally riddled and the colonies destroyed.—ED.]

WE are making a strong effort to mail GLEANINGS earlier than heretofore, and we also hope to wrap each copy so that it will reach each subscriber without damage.

INDOOR WINTERING AT MEDINA.

THIS is showing up somewhat better than it did earlier in the season. Remember that the colonies are on ventilating hive-stands *a la* Hershiser. At first the conditions seemed to be unfavorable; but after providing a little more ventilation, and dividing the bees into two cellars, the conditions improved very materially. The bees are quiet, and there is no indication to show that there will be any

great loss, if any, in wintering. Bees are all shut within the bottom-board.

Perhaps we should explain that, within two or three weeks, we have inspected Mr. Hershiser's bee-cellar wherein he has his bees confined on this special bottom-board. As he reports, the conditions were decidedly favorable. There were no dead bees on the cellar-floor; and what there were, were on the individual floors of the hives. But the evidence shows that the temperature had not gone as high as had that in our cellar, where the bees had been getting uneasy early in the season — that is to say, he had been able to *control* temperature and at the same time provide ventilation.

FOUL-BROOD LEGISLATION FOR INDIANA.

THE following, received from Geo. W. Williams, President of the Indiana State Bee-keepers' Association, issuing a call for help in this matter of foul-brood legislation, should receive the prompt and hearty coöperation of all the bee-keepers of the Hoosier State:

The bee-keepers of this State met at Indianapolis on the 6th, and organized a State Association with the undersigned as President; C. M. Scott, of Indianapolis, Vice-president; Jay Smith, of Vincennes, Secretary, and Walter S. Pouder, of Indianapolis, Treasurer. A foul-brood-inspection bill was discussed and endorsed. The executive committee ask the bee-keepers of Indiana to do two things, and do them promptly. First, sit right down *now* and write to your Representative and Senator, asking them to support this bill. You can do this with very little trouble; and as the bill entails no expense whatever on the State, but asks for a tax of one cent per colony on the bees of the State to pay all expenses incurred, all that is necessary is to show the legislature that this is wanted by a considerable body of the people, and they will be free to pass it. Do not neglect this. The time is short.

The second thing the committee asks is for each bee-keeper in the State to send $1.00 to any one of the officers for enrollment in the association, which includes membership in the National Association. We have plans on foot which make it highly desirable to have a large enrollment.

I should like to have reports from each county in the State in regard to—1. Has foul brood made its appearance in your vicinity? and, 2, if so, how long has it been known to exist, and to what extent has it injured the business? You will please address answers to these last inquiries directly to me, but you can send the association fees to either of the officers, as most convenient to you. Do not delay, as the case demands immediate attention.

Redkey, Ind. GEO. W. WILLIAMS, Pres.

HOW THE NEW PURE-FOOD LAW HAS INCREASED THE DEMAND FOR HONEST GOODS.

THE *American Grocer*, an acknowledged authority on food stuffs, has this to say:

Reports from every direction are that there is a surprisingly better demand from consumers for high-grade goods. The people are discriminating against inferior food products or such as are of debatable or questionable character. They are acquiring the label-reading habit and are more inquisitive than usual as to quality. It has always been the claim of the *American Grocer* that the sale of cheap and doubtful products tended to decrease and imperil the demand for the finest goods. Until lately it has been a hard task to find a retail store that carries absolutely pure jams, jellies, preserves, or catsup. The food law has had a moral effect that is full of promise for the manufacturer and dealer in meritorious food products.

As pure honey comes under the class of "high-grade goods" we may expect an increased demand for it, and therefore better prices.

The *New York Journal of Commerce*, another authority, has this to say:

Said a broker in lard goods: "It is impossible to tell how much the pure-food law has increased the consumption of pure lard, especially leaf lard, unless one knew how much the packers used to adulterate their so-called 'pure leaf lard' sold as such. But I have known lard made without any part of lard in the composition, neither cotton oil, that was sold as pure lard under the old law. All this is now stopped, and the consumption of pure lard is much increased, or that of 'pure lard' and 'pure leaf lard' much decreased."

And, again, it observes:

The new pure-food law promises to work numerous revolutionary changes in the confectionery trade, not the least blessed of which will possibly be the elimination of the tons and tons of cheap candies which have for years tickled the palate and raised cain with the digestion of the nation.

What is true of pure lard and pure candy must necessarily be true of pure honey. We are sorry some of our honey-men can't see it the same way.

A RIDER TO WEAKEN THE EFFECT OF THE NEW NATIONAL PURE-FOOD LAW.

FOR some little time there has been organized in Washington what is known as the "People's Lobby," which has for its object the detection of ulterior motives on the part of public men. It has just called the attention of all people to a determined flank attack on the national pure-food law that has just passed the House of Representatives after a memorable fight. Here it is:

Representative Tawney, of Minnesota, succeeded in having a restriction attached to the appropriation made for the enforcement of the law as follows: "Provided, that no part of this sum shall be used for the payment of compensation or expenses of any officer or other person employed by any State, county, or municipal government." In other words, Uncle Sam must not coöperate with or get assistance from any city, town, or State in enforcing pure-food laws. Our readers will see the point. Representative Tawney was ably assisted by three other Representatives —Fitzgerald, of New York; Sullivan, of Massachusetts, and Crumpacker, of Indiana. All friends of pure food are asked to note the conduct of these men who are *supposed* to represent the people. It is hoped the Senate will cut this "joker" out. Write at once to your two United States Senators, asking them to cut out the Tawney rider in the pure-food appropritation, for the thing has passed the House.

THE ENEMIES OF THE NATIONAL PURE-FOOD LAW IN AND OUT OF CONGRESS.

As was to be expected, the national pure-food law has aroused intolerant and unscrupulous enemies whose business has been jeopardized by it The whisky, glucose, and oleo interests are seemingly the most powerful; but the people, the farmers par-

ticularly, are determined to act in their own behalf. National Representative Wadsworth, of New York, has been already retired to private life by the farmers of his district, and Washington will see him no more.

Senator Dryden, of New Jersey, who expected to occupy a seat in the Senate for the rest of his lifetime, has been relegated to the same fate by the farmers of his State, urged on by such journals as the *Rural New-Yorker* and the *Country Gentleman*. This shows that the farmers are doing their own thinking now. Both were friends of oleo and the Chicago packers, and opposed to pure-food laws.

The fate of these gentlemen seems to have been lost on Representatives Crumpacker, of Indiana, and Tawney, of Minnesota, who seem to be leading the fight against pure-food laws by cutting down or withholding the necessary money appropriations for enforcing the law as it should be. There is nothing in the nature of politics involved here, but simply a question of insuring fair dealing between man and man.

Our subscribers in Indiana and Minnesota should lose no time in letting their respective representatives know their mistake, and that, if they persist in their policy of fighting pure food, they also will be retired by the storm of votes from farmers and bee-keepers whose interests have been affected.

SIZE OF ZINC PERFORATIONS.

IN response to our request for reports on perforated zinc, as now made with holes $\frac{163}{1000}$ inch wide, quite a number have written stating that it would be better to have the perforations larger. Some aver that they would prefer to have an occasional queen go through than to have the perforations so small that none can pass, making it more difficult all the time for all the bees during the height of the honey-flow to get through the metal. In other words, they consider the slight disadvantage of having a *few* queens pass the metal is more than offset by the convenience of loaded bees; and one writer in particular feels satisfied that this larger perforation will enable more honey to go into the supers.

This same question was brought up at the Brantford convention, and, quite to the surprise of the editor, who was present, a majority of the bee-keepers expressed themselves as decidedly in favor of having the zinc its present size. Among them was that extensive extracted-honey producer, Mr. R. F. Holtermann, who uses a cross of Italian and Carniolan blood. It has been said that Carniolans are slightly larger than Italians; and even if this be true, Mr. Holtermann would object seriously to increasing the size of the perforation. He is a large producer, and expressed himself as believing that the increase in size would be a positive disadvantage to him, without any compensating gain.

The makers of the standard zinc in this country would like to get the truth, cut where it may; and whatever the majority of bee-keepers call for, *that* they are prepared to give them off from their machine, notwithstanding a new set of dies might cost some $600 or $700. The perforated metal as now sent out has been used for the last five or six years, and during all that time there has been no complaint as to the size of the hole.

Perhaps it might be advisable to make two brands of metal, having two sizes of holes. But that would make complications; and what is best for one bee-keeper ought to be better for all of us.

If top entrances are used the field bees learn not to pass through the zinc, says Mr. Morrison. Some say this is a grand preventive of swarming, and it ought to be, as the brood-chamber is deprived of a great number of bees that otherwise would crowd it to the point of swarming.

GIVE US A SQUARE DEAL; HOW OTHER INDUSTRIES HAVE SUFFERED FROM THE SLANDER OF YELLOW NEWSPAPERS.

AT the present time the New York newspapers are creating a *furore* over the condition of their milk supply, which has hitherto been considered a model. The result is, each paper is vying with its competitors in condemning the poor dairymen, who probably know a great deal more about milk and its care than city editors and reporters. For example, one paper roundly asserted that, of the cows supplying the metropolis with milk, at least 300,000 were affected with tuberculosis. As a matter of fact, this number is not needed to furnish that great city with *all* its milk, so that more than 100 per cent of New York's cows must be diseased.

This is only a sample of the statements made. This leads the *National Stockman and Farmer* to remark, "The worst feature of this or any other milk or food agitation is the complete disregard of the rights of the producer. His product is slandered regardless of its quality, and his market is injured through the fears aroused by exaggeration and falsehood. It is about time the daily press remember that the producing class has rights as well as the consuming class."

The honey-producers have much sympathy for the dairymen, as they too have been systematically slandered by the sensation-loving newspapers. It may yet be necessary to enact laws for the protection of honest goods from slanderously inclined newspapers.

IS THE PRESENT SCHEME OF HONEY QUOTATIONS ONE THAT WORKS TO THE BEST INTERESTS OF THE HONEY-PRODUCER?

FOR some time the conviction has been forcing itself on us that our present system of placing market quotations before our readers is not calculated to give bee-keepers the best figures for their product. The tendency is to keep prices down rather than to push them up. With no desire in the least to discredit any commission man or honey-merchant, there is no denying the fact that it is

always to the interest of such persons to buy at as low a price as possible, and, consequently, such persons quote the lowest prices that will bring the honey to their market. Then to be fair with these people we must admit that they can hardly afford to be in a position to "bull" the market; but they must, on the other hand, "bear" it. Why should Mr. Commissionman have such a great love for the bee-keeper that he should talk about the fact that prices ought to go higher against his own interests? and why should he ever intimate that there is any danger of their going higher? If he is seeking prospective lots of honey he will not be fool enough to "bull" the market to a point where he will get a lot of goods on hand, and then have to sell below the market. He would be dubbed a first-class fool and go into bankruptcy soon. If he buys outright he will be the loser. If he buys on commission, no amount of "explanation" as to his "good intentions" will satisfy the bee-keeper, who, having been baited by his higher quotations, shipped to that market only to find his net returns away below what he had reason to expect.

We have said that the present scheme of furnishing quotations has a tendency to "bear" the market rather than to "bull" it. When consignments come in liberally, the market begins to drop. If it drops in one market, other markets fall to a greater or less extent in sympathy.

Now having shown the difficulty, what is the remedy? If any reader or association of bee-keepers can throw any light on this intricate proposition, we shall be glad to hear from them.

But as illustrative of the very condition we have been describing, note that some commission men do not believe that the pure-food law is going to advance prices. If they did believe it, the honey market would become firmer, and then, perhaps, weaker after they bought. We must be fair to these men. They will, and you would too, endeavor to protect yourself.

BEESWAX IN THE ARTS, AGAIN.

Under the action of the pure-food law, beeswax will have a much larger use than ever before. Indeed, there is already a notable increase in the price. Druggists (and there are thousands and thousands of them in the country who formerly used paraffine, ceresin, and the like) will now be *compelled* under the new law to use nothing but pure beeswax, and the amount will run up into the hundreds of thousands of pounds. But what do druggists do with wax? They use it for making plasters, certain kinds of ointments, and for certain medicines known to the pharmacopœia.

There has always been a large use for paraffine and ceresin for making candy; but now these can be used no more, while beeswax will be permitted as before. These two industries alone will increase the demand for the product of the hive to a great extent; and while we do not expect an immediate advance in the price of wax over and above what has already taken place, the time is no far distant when bee-keepers with dark honeys will do well to consider the possibility of making wax-production a business.

Under the action of the new pure-food law, the bleached table sugars will gradually go out of market, and a cheaper and better substitute in the form of unbleached cane sugars, costing all the way from 1 cent to 1½ cents less, will take their place. These sugars are richer in sweetness; and, taking into consideration their reduced price, it would not be at all strange if the cost of feeding bees for the production of wax, or for any other legitimate purpose, will be from 30 to 50 per cent less; for it must be understood that these unrefined cane sugars will go further than the so-called refined sugars bleached with chemicals that extract some of the flavor as well as some of the sweetness out of the article, substituting therefor a deleterious residue that can't be eliminated.

The new pure-food law will have no effect one way or the other on the use of paraffine, ceresin, and the like in any compound or mixtures that do not belong either to the food or drug classes. Electrotypers can use a substitute for taking impressions, although the great majority, we understand, prefer to use pure beeswax. even at a higher price. Natural-wood finishers can still use paraffine and ceresin; but a good many will tell you that there is nothing that will compare for that purpose with pure beeswax. As we formerly pointed out in these columns, the first mentioned will give a greasy smeary finish, while our product will give a highly polished surface—one that will stand wear as nothing else will; and such a finish is cheaper than hard oil — not cheaper by the gallon, but cheaper to apply.

The Roman Catholic Church uses large quantities of beeswax in the form of candles. That organization will not tolerate paraffine, ceresin, nor any of the mineral waxes, all of which give off a nasty greasy odor in candles while burning, while one made of beeswax leaves a delightfully permeating perfume. Then, too, the burning of mineral wax leaves a deposit that injures the pictures, while beeswax mellows and preserves them.

There are certain grades of blacking, harness oils, and lubricants that require pure beeswax in their manufacture. A blacking using beeswax will stand more dampness than that made of any other substance

The electrical supply business is a consumer of our product. The windings of the wire are soaked in paraffine or beeswax — preferably the latter, because it seems to be less affected by extremes of heat and by moisture. Pattern-makers are also users of our article. The profession of dentistry takes a large quantity of pure wax every year, reference to which has already been made elsewhere.

In all the arts, paraffine, ceresin, and certain other mineral waxes can be used; but, if we are correctly informed, none of them have all the desirable qualities of the product from the hive.

BREATHING-SYSTEMS IN INSECTS.

We have it from good authority that "man can not live by bread alone." This is just as true of insects. Indeed, oxygen may be be said to be the most important food of all animals. Even the muscles that we described in our last paper, which, as we saw, are so active and efficient in insects, can not work without food, and no food is so immediately important as oxygen. I mentioned in the last article that the muscles of insects are quicker to act, and stronger in proportion to size, than those of any other animal, even than those of man himself. We should expect, then, if oxygen is so important to feed active organs, that the insect anatomy would have this fact in view, and we should expect the respiratory system to be in a very high state of development.

AIR-TUBES INSTEAD OF LUNGS.

In insects we do not find lungs, though in one of the groups of this great branch of animals, the spider class, we do find lung-like sacs for purposes of respiration. But in insects, and so in our bees, we find lungs replaced by a very intricate and extended system of air-tubes. In studying the anatomy of insects, nothing is more interesting than tracing this branching system of respiratory tubes.

There are two main tubes, one situated on each side of the body, running lengthwise from the head to the tip of the abdomen. Short tubes at right angles to these main tubes connect these with the outside of the body, and at the outer end of these short tubes are the several breathing-mouths, or spiracles, which are often seen with the naked eye. Any one who has closely noticed the large green tomato caterpillar — larva of the tomato sphinx — has noticed the large spiracles on the side of the abdomen. These are different in color from the body wall, and so are quite conspicuous. It is easy to see that they are openings to tubes.

VALVES OF THE SPIRACLES.

These spiracles are doubly guarded by valves which prevent dust, etc., from entering the sensitive air-tubes. First there is a hair valve, which acts as does the hair in our own noses, to strain the air, if we may so speak. Then there are muscular valves, by the aid of which the insects can close these tubes at will. In this respect the insects may be said to be ahead of us, though we can make our thumb and finger act as effectively in guarding our own respiratory apparatus.

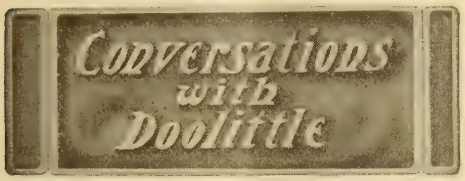
The great lateral tubes already referred to, as they pass lengthwise of the body, branch and rebranch, and thus reach intimately every part of the body. These vessels at their termination are very small, and under the microscope are exceedingly beautiful and interesting.

STRUCTURE OF THE AIR-TUBES.

What adds to the beauty of these air-tubes is their peculiar structure. If we should take a round stick and wind it closely with a fine wire, and then remove the stick without disturbing the wire, the wire would not be unlike these air-tubes. This winding thread can easily be seen when looking at the air-tubes with a microscope; and if the tubes are broken, as they always are more or less, we always notice the waving thread reaching out from the broken tube. Of course, there is an epithelial lining to this spiral thread. This epithelial lining is made up of cells, and it is the function of these cells to take the oxygen from the air in the tubes to the blood of the body of the insect, and at the same time to remove the carbon-dioxide from the blood to the air-tubes when it is passed off. This arrangement of cells and their action does not differ from that which takes place in our own lungs. It is simply osmosis, which term refers to the passing of liquids or gases through an organic membrane when such membrane separates those of a different character. In our own lungs the osmosis is very rapid, and the extent of the membrane is something tremendous. In the great spread of membrane in our lungs Nature has shown her disposition to do the best to keep us alive and well. If we would always be as careful to provide good ventilation by open doors and windows in our sleeping-rooms, or, better still, by sleeping out of doors, as we do, many of us, practically, here in California, there would be much less of ill health and trouble in this world than we find to-day. The insects have even a more remarkable spread of membrane, and nearly always sleep out of doors, and we can not wonder at their sprightly activity and apparent vigor. The work done by our bees is really stupendous, and puts in the shade the labor of the most strenuous of our kind, and so we may well rejoice at the admirable breathing apparatus of our pets of the hive. We have all noticed how admirably the bees ventilate their hives. We have our patent ventilators. The bees need no patent, for their method of ventilation, as they fan at the hive entrance, leaves little to be desired. We also have noticed how quickly the bees die if the free air is shut away from them.

One practical point is worth mentioning here. The bees ventilate so effectively, as they fan at the hive entrance, that it is found entirely unnecessary to arrange for any further ventilation. It is, without doubt, best to have only the one opening to the hive. In the bee-tree or rock cavity the bees have but this one opening, and yet from their great activity they must have great drafts of pure air, and so they have developed their ventilating habit, which is very perfect. Without doubt we serve them best when we

leave the matter of ventilation entirely with the bees, only arranging to give them an ample opening.



GETTING READY FOR THE SURPLUS.

"Say, Mr. Doolittle, I came over to have a little talk with you about getting ready for the surplus honey during the season of 1907, if we should have such surplus. Will you tell me something about this?"

"Well, Mr. Jones, the first thing to do is to fix all of your surplus arrangements, and have them all in apple-pie order when the harvest arrives; and in order that they may be thus, the best time so to fix them is right now before the rush of work comes on in the spring."

"I presume you are right in this matter; and as I have some time at my command I came over to ask you how best to do this. Will you tell me?"

"The first thing to do is to get around all your supers which you used last year and clean them of propolis or any bits of wax that may be on them, and repair any which may be out of repair from the work of last season."

"Yes; and what is the best way to clean these supers where they are badly covered with propolis?"

"My way is to take an old dull chisel and grind the edge and sides so that all have a square corner which is as sharp as a square corner can be made. Then do the work at a time when the mercury stands at from ten to twenty degrees above zero, wearing overcoat and mittens to keep warm if necessary."

"Why do you want it so cold?"

"Because the propolis is very brittle then, and will break and fly off before the chisel, as it will not do with a temperature which would be agreeable for you to do this work as to warmth."

"I see now. But how do you use the chisel?"

"On all flat surfaces where the sides of the chisel can be used, I lay the sides down flat on the material to be scraped, when with a drawing sliding motion, from side to side, I pass the chisel quickly over the smeared parts, and the corners of the chisel cause the propolis or wax to fly off in great shape, so that it takes less time to clean a super than it does to tell how it is done. Then if there are any corners where the flat sides of the chisel can not well be used, these are cleaned with the end of the chisel and the corners at the point of the same. In this way, and in a cool day, the supers can be all cleaned in a few hours. In cleaning, all that need repair are piled by themselves, and those which are in good order piled in another pile. And later on those needing repairs can be taken to a warm room for this work."

"That is all plain. After all are cleaned and repaired, what then?"

"The next thing is to make as many new supers as you expect to need, in addition to the old ones, when you are to go to work making your sections, the material for which you should order and have on hand so you can make the sections during the winter months. Having the sections made, the next work will be putting thin comb foundation in them."

"How much foundation shall I put in each one?"

"That depends somewhat on your means for procuring this. My idea is that it pays well to fill every section nearly full, using the extra thin for this purpose."

"What do you mean by filling *nearly full*?"

"Of course, you know that the foundation is fastened at the top of the section to the wood. There it touches the wood, of course; but after trying many ways I prefer that there be a space of $\frac{1}{16}$ inch between the foundation and either side of the section, and from $\frac{5}{8}$ inch to $\frac{1}{2}$ inch at the bottom."

"Why do you not fill the section entirely full?"

"Whenever I have done this the foundation would buckle and twist in all conceivable shapes while it was being worked by the bees, so that, when finished, we have the most grotesque-appearing honey ever looked at."

"But what would you do if you concluded not to fill the sections, as you have told me about?"

"Then I would use starters of foundation unless I had plenty of nice white comb to cut up for starters."

"I do not have the comb. How much foundation would you use for each starter?"

"For starters I cut the foundation into strips two inches wide; then I cut off a piece at one end, following the row of cells, this making this piece come to a point at one end and about an inch across the base at the other end. Now turn the knife so it will follow another row of cells angling across your strip, which will give you a triangular piece of about the right size to help the bees best for starting. Turn your knife so it will cut at the same angle as the first cut for the next, when you will have another triangle as before. In this way keep turning till the whole length of the strip is cut up."

"But doesn't this take lots of time in cutting?"

"It would if you were to cut only one sheet at a time; but when you have decided on the size you want, then you will pile ten, fifteen, or twenty sheets in a pile and cut all at once, so very little time is consumed in this part of the matter."

"Thank you. But how are these starters put on the sections?"

"By the use of one of the foundation fasteners, of which there are quite a number."

"Could I not put them on without a machine?"

"Yes, it can be done that way; and had you only one or two colonies I would do this. But with your 25 or 30 colonies you do not want to do the work that way. Much better cut your foundation sheet by sheet at a time, than fool away your time putting foundation in sections without a foundation-fastener."

"Very well. Having my sections all made and with foundation in them, what next?"

"Put them in your section-holders, of course, and then put the holders in the supers, when the supers are to be piled away all ready to set on the hives at a moment's notice when the honey harvest arrives next June."

"Is that all?"

"No, not if you wish the best success with your bees."

"What else is there to be done with these supers?"

"How many colonies have you?"

"I have 27."

"Then you want to fix 27 supers with bait sections in them."

"What are bait sections?"

"These are the sections which were only partly filled last season, or sections which were not filled and capped over to a sufficient extent so they were salable last fall. You had quite a few such, did you not?"

"Yes. But why do you call them baits?"

"Well, they are not bait sections, only as we use them as such. Did you ever hear of bait, and baiting a hook when going fishing?"

"Certainly. What boy of 17 years has not?"

"Well, as you use worms and what not as bait to entice the fish to come so you can catch them, so you use these partly filled sections left over from the fall before, in each super first put on the colonies at the beginning of the harvest, to entice the bees to enter the super quickly, and much sooner than they would where only the foundation starters are used entirely in any super. These sections cause the bees to enter the supers and cluster on the combs they contain, on the same principle that bees will accept and work on old comb long before they will build comb at the beginning of any honey-flow?"

"Oh! I see now. How many of these partly filled sections do you use in a super?"

"Just in accord with how many partly filled boxes I have. I count up the number I have, then divide them by the number of colonies I expect to have to work for section honey the next season, when I use as many as this gives me to each colony. If you can have from four to twelve for each colony you will be all right."

"But where in the super do you put these bait sections?"

"If I have only four I put them in the center of the super, as there is where the bees will 'draw' in the quickest. If eight, then I put four in each of two section-holders, and then put these section-holders in the super, so that two or three section-holders of sections with starters come in between them. In this way I get the bees at work, not only in the baits, but in the sections between the baits, and all goes on swimmingly from the start."

"I think I understand now, and I will go home and commence operations at once. Thank you."

QUESTIONS AND REMARKS BY VISITORS.

One day a man saw me carrying a Daisy foundation-fastener and asked: "What are you going to do with that thing—make yourself some sauer-kraut?"

"I know why his bees make so much honey. He has a large geranium-bed that his bees live on." (Will some one please quote me prices on geranium honey? I wish to sell only in car lots.)

"Say! my bees have got worms. Nearly every cell has a little white worm curled up in the bottom. Those that have not got worms in them have little worm eggs. What can I do about it?"

Almost any physician can prescribe for worms. But *you* need the dope—not the *bees*.

A lady once asked me to explain the relative merits of the cold-blast and hot-blast smokers. She bought the latter. While using it one day she burned a large blister on her arm. Then she asked me this conundrum:

"In principle of operation, what is the difference between the two smokers?"

I gave it up.

"Well, one is a cold blasted smoker, while the other is a blasted hot smoker."

"Do bees die when they sting you?"

"Yes, sir, they always die instantly. Death is caused from a knock-out spat that they get from my right hand."

"But if left to themselves do they die?"

"If, after committing this overt act, they merely uncouple from their sting, I have never known one to die from that cause. But here is a little conclusion that I should like to jump at: When a bee tears out its sting and leaves a thread attached to it, and then walks off, thereby unraveling most of his internal fabric, I believe we should be excused if we conclude with no further evidence that this is not conducive to the longlivity and general prosperity of the bee.

One day three boys came into my apiary. After making a visit of sufficient duration I asked them to go away lest they get stung.

Smart boy: "Oh! your bees don't sting."

Brave boy: "I hain't afraid."

Good boy: "I don't have to."

In order to settle all doubts in less time than it takes to tell it, I walked around with the boys following, till I brought them in front of a hive I knew I could depend upon in time of need. Stepping behind it I raised the hive about an inch and let it down with a bump. The bees responded nicely. One boy acted as if he were mad at himself and was boxing both ears at once. Another spanked himself as though he were trying to hurry himself up. The third had a hole in his stocking, and he was paying strict attention to that, using both hands. I said:

"Boys, don't be rushed off."

But they said they *must* go — they had stayed too long already.

A BUTCHER-KNIFE HIVE-TOOL.

I have seen in GLEANINGS a description of a great many hive-tools, but nothing in my estimation that is suitable for the Danzenbaker hive. I have tried several of them, but they seem to be wanting in some particular or other. I am sending you a cut of the tool that I use, and it is all that can be desired. It is simply a butcher-knife of the best quality, with a notch cut in the back of it so it can be used as a hook to pull the spring out of the hive. It is so thin that it can be forced between a super and the hive, and it is strong

enough so that, by giving it a twist, you can pry it loose, no matter how tight it is stuck. By taking hold of the handle and using the left hand on the back of the knife near the point you can easily force it between the frames and pry them apart. It is also an excellent thing for scraping propolis from the frames. Then another excellent feature about it, it is long enough so that it will reach to the bottom of the frames. Then with a twist you can force the frames together at the bottom, ready to insert the spring. I called it my butcher-knife hive-tool, but that was too long, so I just called it the "butch."

CAGES OVER ENTRANCES OF HIVES OUTDOORS.

As to shutting bees in the hive in winter, page 1559, I have had cages on hives out of doors since early in November; and from observations so far I believe tham to be a good thing. I hope others will try such a scheme and report result. GERARD KIMBRELL.

[We are not so sure that these wire-cloth cages are going to be a success. See what we have to say on page 83.—ED.]

LOAF SUGAR FOR WINTER FEEDING.

Queen cage Candy Not Suitable; Perforated Zinc Honey-boards—Are They Indispensable?

BY E. W. ALEXANDER.

It was with more than ordinary interest that I read the article of Dr. Lyon on winter feeding, in the Jan. 15th issue of GLEANINGS, with your remarks on the same subject. They recall to memory some sad experiences I had in that line many years ago. It was at the time I bought my first extractor, which I got from father Quinby, one of the first lot that was made in this country. With it I soon found that it was so easy to take honey from my bees that for two or three years I had many light colonies in the fall. I then expected they would fill up their combs with a sufficient amount to winter on, which but few did; and when I found 200 or 300 light colonies late in the season, with not more than enough honey for 30 or 40, then I resorted to all kinds of feeding imaginable. At one time I made a large amount of candy, as Dr. Lyon did, from honey and sugar, and I had the same results. It melted and daubed up nearly 100 colonies so every one died.

Oh, dear! it makes me now feel bad to think of it; but I kept on trying one way and another until at last I struck what I still think is the easiest, quickest, and best way to feed light colonies, either late in the fall or mid-winter, of any way I have ever tried or heard of. It is this:

Make some rims two inches deep, and the size of your hive on top; then take off whatever covering you have over the tops of the frames of combs, and put on one of these rims. Then fill this rim with cut-loaf sugar —the kind that is in cubes about one inch square. Moisten this sugar by sprinkling a very little warm water on it, then cover the sugar with cloth mats so as to retain all the heat from the bees below, that you can, and the bees will soon come up into this rim of sugar, every one that can, and cluster in it and eat it as they require until spring. I have fed a great many colonies in this way, and never lost one. They usually come through the winter in fine condition, even though they had only two or three pounds of honey in their hives in the fall.

One winter I fed two barrels of sugar in this way, with good results.

This is one of the subjects I intended to call the attention of my brother bee-keepers to early last fall; but it slipped my mind un-

til I read the article by Dr. Lyon in the Jan. 15th issue.

Those of you who have light colonies to feed in cold weather, please try this method of feeding; and if you are as successful as we have always been you will never again try to make any candy for winter feeding.

We used to feed some sugar in this way after they were taken from the cellar in the spring, but we now prefer feeding a thin liquid syrup in our feeders for stimulating brood-rearing.

The colonies we have fed with loaf sugar as above described have always been in the cellar. It might not work quite as well outdoors in very cold weather. Still, if they were well covered up I think it would be a safe way to feed.

Feeding in any way in cold weather is rather poor bee-keeping; but it can be done as above stated, with but little trouble and seldom any loss.

With due respect to friend Greiner I must beg to differ with him as to the value of queen-excluders in producing extracted honey. Years ago, previous to their invention, we had much trouble with brood in the extracting-supers, and the large amount of uncapped brood that was usually destroyed when extracting was a serious obstacle in the way of securing strong full colonies, which are always necessary in order to acquire a large surplus. We also lost many valuable queens, as they were frequently shaken or brushed so far from their hives that many failed to return. But with good excluders the brood is all kept out of the extracting-combs and allowed to mature. Therefore we have much stronger colonies to extract from, and, consequently, far more surplus.

Then our queens are safe from harm, which is no small matter when you expect every colony to produce its part of a large surplus.

IS THE SIZE OF THE PERFORATIONS CORRECT?

We use the wood slatted excluders with metal strips, such as are now manufactured. We have about 300 excluders with Dr. Tinker's metal, also some 700 of the Root perforation of recent make, which contain holes through the metal as near the proper size, I think, as is possible to make them. I am sure I should not want them a hair's breadth larger or smaller; and, although we have never noticed any trouble with the worker bees passing through, it is very seldom the queen goes through.

As to the different races of bees varying in size, as Editor Root speaks of, I will say our bees are Italians, and have been bred from the best honey-gathering strains we could procure for more than 20 years. I am sure we would not care to produce extracted honey again without excluders, even if they cost five times as much as they do, for we think we get enough more surplus by using them than we could without—more than to pay their cost every every season. As we manage our bees they are worth a great deal to us; but I can see that, as some manage theirs, excluders would be almost a nuisance. The real value of all these things is in the way they are used.

Delanson, N. Y.

[This loaf-sugar method for winter feeding is a very easy one to put into application. With many of our subscribers it would not be necessary to make this two-inch rim, but use instead the ordinary comb-honey super. If the space above were filled up with a chaff cushion, one would have an ideal arrangement.

When the writer was in Canada he called on Mr. F. J. Miller, of London, Ont. He had tried the queen-cage candy made by mixing powdered sugar and honey into a stiff dough, and had the unpleasant experience of killing a lot of colonies, for the candy absorbed the moisture from the cluster, and softened and ran down on to the frames, daubing the bees and finally killing the colony.

The only way that this kind of candy can be given at all would be in shallow tin pans, where, if it softened, it could not run over and kill the bees. Even then it would be better to use loaf sugar or dry hard candy.

One bee-keeper in Canada said he had been feeding liquid syrup, and he had no unpleasant experience from such syrup stirring up the bees. But in view of the reports we have had, our bee-keeping friends should avoid liquid feed, and use dry sugar or hard candy as we described.

On the subject of perforated zinc, our readers are referred to an editorial elsewhere on that subject.—ED.]

THE DEEP VS. THE SHALLOW HIVE.

Calcium Chloride in a Bee-cellar not a Success; the Spelling Reform.

BY C. P. DADANT.

I have read the article on "Horizontally Divisible Brood-chambers," written by Mr. J. A. Green, page 23, in reply to my article to you published in the September 1st issue.

I think neither Mr. Green nor others interested in this matter realize the fact that we are making our observations from a different standpoint. Those who are accustomed to the use of the Langstroth size of frame are comparing one shallow frame with another shallow frame. That is to say, in our comparisons Mr. Green and others are basing their views upon the difference in results between a nine-inch frame and a seven-inch frame, while mine are based upon the comparison between this same seven-inch frame and an 11¼-inch frame. In other words, you are comparing two shallow frames with one another. I hold that the deep frame is the only one which may fitly be used for comparison, beceuse the hive which contains this frame is the only hive with which *only one body* is sufficient for all breeding purposes, while it is well established that the average ten-frame Langstroth hive itself is not suffi-

cient for all occasions with very prolific queens.

Again, in order to ascertain whether separate compartments have any influence upon the laying of the queen, it is not absolutely necessary to use divisible brood-chambers. A simple bar through a frame will often show how bewildered a queen is by getting to a wood strip while laying regularly. Do not understand me as saying that all queens will be stopped by a cross-bar, but that often queens are stopped to such an extent that you will find brood on only one side of this bar. This was evidenced to me best in the use of divisible frames, such as we formerly used in queen-breeding, to make nuclei. Such frames have been recommended by Mr. Benton for the making of diminutive hives, and they are very efficient for the queen-rearing business, because they may be taken out of strong colonies in the beginning of the season, and returned to them afterward. In the use of these frames I have very often found brood in only one of the sections and honey in the other. The queen had found the cross-bar, and had stopped there and retraced her steps. So I think it is difficult to deny the fact that a sectional frame interrupts the breeding (or, rather, the laying) of the queen in many instances.

CALCIUM CHLORIDE IN CELLARS.

Changing the subject, I read in Stray Straws a quotation by Dr. Miller of the proposed use of calcium chloride to dry out bee-cellars. This thought occurred to my father in the early seventies, and we tried a hundred pounds of this substance in our wintering-cellar. The stuff came in large lumps, and my father went to the trouble of devising a pan with dripping-holes, placed over another vessel. The chloride was put on the upper vessel and was expected to dissolve. Well, when moisture came it bagan to gather water, and drip, but it was so slow in doing it that most of the calcium was still in lumps when the bees were taken out. It remained in lumps, though the lumps were getting smaller, for six or eight months. It was not till the opening of the next winter that the calcium was found to be all liquefied, and we were so disgusted with its slow change that we threw it away. It is probable that, if we had had it crushed and spread all over the cellar it might have been more efficient; but I venture the assertion that this means of absorbing the moisture of a cellar will never be practical.

NEW SPELLING.

And now about the spelling reform, Stray Straws, again. You say, Mr. Editor, that GLEANINGS is not big enough to blaze the way for the reform, because large publications do not adopt it. The *Literary Digest* is using it, and has even gone so far as to quote some of the opponents of it in the very spelling that these men oppose. If we are to follow the mossbacks who ridicule the new way, we might as well go back to Shakespeare's time and spell "fish" "fysshe." The greatest argument used against the new spelling is that it will make every man's orthography look "untaught." I hold it will do just the reverse, for it is quite a nice thing to remember the 300 words and use them properly. I for one can not expect to do it successfully. But I am quite willing and anxious to see this new reform accepted, to blaze the way for the younger generations who will not, I hope, be as foolish as their fathers. The fact is, the reform is now made in spite of all that the conservative public may say, for custom alone is sufficient to coin new words and reform old ones; and not twenty years will pass before everybody gets into the custom, I dare say.

Hamilton, Ill.

[We are glad to get your views on the shorter spelling as suggested by our worthy President; and it is gratifying that so influential a journal as the *Literary Digest* is one of the pioneers in this movement. The publishers, Messrs. Funk & Wagnalls, have probably done as much as or more than any other publishers in the United States to further this reform. But GLEANINGS would hardly feel that it would be wise to adopt it until some more "influential" papers will help to blaze the way.

With regard to the divisible-brood-chamber hive, there will be some further discussion in which our correspondent is invited to join. As already pointed out, there will be a series of articles from J. E Hand, of Birmingham, Ohio.—ED.]

EXTRACTING HONEY.

How to Avoid Running the Cans Over and Wasting Honey; a Device for Shutting the Gate when a Can is Full, and Ringing a Bell for an Alarm; a Simple and Satisfactory Honey-strainer.

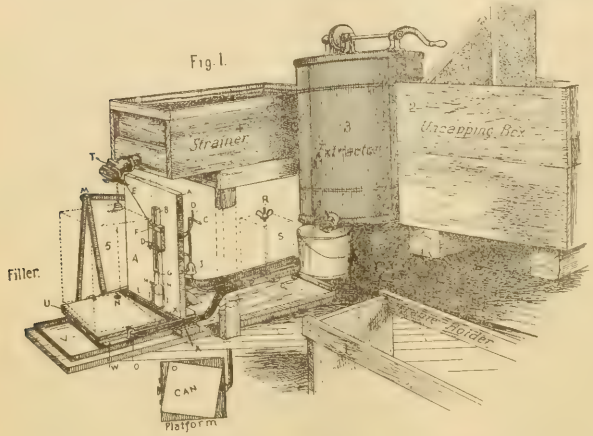
BY R. T. RHEES.

About twenty years ago, in the early days of my bee-keeping, I lost much time, honey, and temper in pouring my extracted honey into cans. I have always practiced thoroughly ripening my honey on the hives before extracting. This thick honey would run into cans very slowly; therefore I used to set the honey to running into the can, and then go on with my extracting, trying to keep watch of my can and run my extractor at the same time. This consumed considerable time, and sometimes, in spite of my supposed close attention, the can would run over and waste honey, and make a muss which had to be cleaned up. This, of course, was very trying on my temper when I was already overrun with work.

To do away with this trouble I invented a machine to look after the filling of the cans. With this machine all the operator had to do was to set the empty can on the platform, raise the honey-gate, and then take the can off when full, and put another empty can in its place, and so on. The machine would look after the filling; and when the can was full it would shut the honey-gate and ring a

bell to let the operator know that the can was full and needed to be replaced by an empty one—something he could do at any time most convenient to himself.

I have two of the automatic can-fillers, for 60-lb. cans, that have been in use about fifteen years, and are now good for many years to come. They have had from one to three cars of honey filled on them nearly every season; and so simple are they in construction, and so faithfully have they performed their duty, that many times I have sent them to outyards with hired help unacquainted with them, and no trouble has resulted. On the other hand, my hired help have often left cans running when quitting, and gone home for the night, trusting to the machine to shut the gate at the proper time and prevent many gallons of honey from running over on to the honey-house floor.



AN AUTOMATIC SQUARE-CAN FILLER.

By looking at the illustrations, the plan will be understood. The operation is simple. When the weight of the honey running into the can becomes such that the weight S is overbalanced, the platform holding the can sinks down. This movement trips the sliding stick B by means of the wire C, and it is jerked down by the rubbers, pulling the cord E and thus shutting the gate T. If it is desired, an alarm may be added by arranging the little bell as shown, to ring when the gate shuts.

Fig. 1 shows my method of arranging a honey-house for extracting. I proceed as follows: Two men work with one outfit—one out in the yard and the other in the honey-house. The outside man arms himself with a Daisy spring wheelbarrow, four or five hauling-boxes, which are made the same size as a ten-frame Langstroth body, only a little deeper, and having a metal bottom to catch the drips from the extracting-combs; two Coggshall bee-brooms; one smoker; one hive-tool to loosen the frames; one bucket of water to soak brooms in; and, if robbers are bad, two robber-cloths to keep the combs covered.

He proceeds by taking two hauling-boxes on his wheelbarrow, and wheels them into a convenient position at the back of a hive; removes the cover; blows some smoke down between the combs, and, while the bees are running down, loosens the frames with his prying-tool; then, before the bees have time to get back up again, he lifts out the frames, shaking or brushing off the remaining bees, and sets them in the box on the wheelbarrow, then proceeds to fill the other box in the same way. He then wheels them into the honey-house and sets them on to the skeleton stand, seen at 1 in Fig. 1, in exchange for two boxes of empty combs which the man at the extractor has ready for him. He then returns to the yard, exchanges the empty combs that have been extracted for full ones, and so on. When the bee-broom becomes sticky it is placed in the bucket of water in exchange for a clean one.

The man inside stands in the space between stand No. 1. Fig. 1, the large uncapping-box No. 2, and extractor No. 3. These are so set that a man can reach the combs in the hauling-boxes on stand No. 1, set them on the revolving rest on the uncapping-box, and, when uncapped, set them into the extractor by barely moving out of his tracks. He uncaps enough combs to fill the extractor; sets them in it as uncapped, then turns the machine at a good speed for a few rounds until the honey is mostly out, then leaves the machine running to finish cleaning the combs, and goes on uncapping. After uncapping one, two, or three combs, as the case may be, the reel of the extractor has lost most of its speed, and is quickly stopped and the combs reversed; the motion is again accelerated, and held for a moment, then let run of its own accord, while the operator uncaps enough more combs to fill the extractor again. He now empties a bucket of honey, which has run out of the extractor into one of the strainers in strainer-box No. 4 of Fig. 1, or sets an empty can in place of a full one on the weighing-machine at No. 5, Fig. 1.

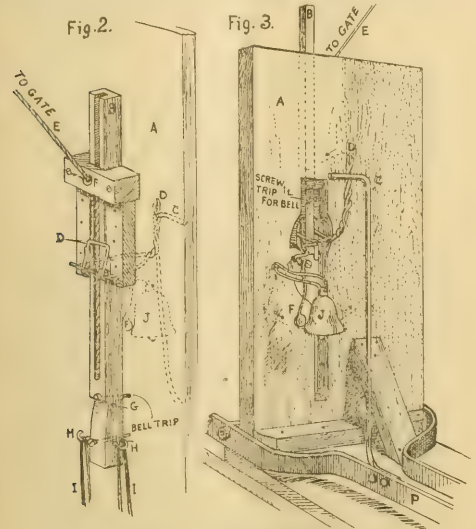
He next grasps the extractor-crank with the right hand and almost instantly stops the machine, and at the same time raises the left hand, grasping one of the empty combs as soon as he can safely do so, which is very soon after the right hand catches the crank. The left hand turns the revolving frame slightly as it raises the comb, so that the right hand can catch the next comb, bringing the two out almost simultaneously. The operation is repeated where a four or six-frame extractor is used. The empty combs are placed in the hauling-boxes from which the full combs were taken, and are then ready to go out to the hives.

The extractor is immediately filled with uncapped combs which have been set cornerwise into the end of the uncapping-box near-

est the extractor. The machine is again speeded up, and the operation repeated.

The strainer-box, No. 4, Fig. 1, is made of ⅞ lumber, 12 in. deep, 18 in. wide, and 3½ to 6 ft. long, as the case may require. A strip of half-inch stuff is nailed around the top, and allowed to come up an inch above the top of the box. This makes a large rabbet or ledge all around the top of the box for the strainers to rest in. The strainers are made of fine-mesh cheese-cloth which is fastened to rims made of ⅞×⅞-inch stuff, long enough to set across the box and rest on the rabbets at the sides of the strainer-box, and wide enough so that three to six will just fill the box lengthwise when they are set side by side. The box in the picture, Fig. 1, has three strainers.

The cheese-cloth is fastened so that it bags uniformly, and nearly reaches the bottom of the box. The strainer-box No. 4, Fig. 1, is



DETAIL OF THE CAN-FILLER.

run with the honey-gate open most of the time. It is put together with water-tight joints, well painted on the outside; and then, as an extra precaution against leaking, is waxed inside. These strainers, themselves, can be cleaned very easily after the honey has mostly drained through. The strainers, one at a time, can be lifted out, the refuse tipped out by turning the strainer inside out with an easy motion of the hands, and, if very sticky, can be scraped to hasten matters. Then it can be set into water to soak, still remaining inside out, leaving the sticky side down. The wooden rim floats on the top, effectually preventing any of the bits of wax, etc., which soak off and fill the water from getting into the strainer and sticking to the clean side when it is raised out of the water.

After soaking a short time the bits can easily be removed by raising the strainer from the water and giving it a few sharp jerks or flips; but if the bits should not all come off they will do no damage, as, in replacing the strainer, the original clean side will be placed downward, and these few bits of wax will still be prevented from going into the honey.

We generally have a few extra strainers on hand to exchange with or take the place of those that temporarily become unfit for use. When the cheese-cloth becomes worn it can cheaply be replaced with new. The honey runs directly from this box through a large molasses-gate into 60-lb. cans which rest on the automatic can-filler, and, as filled, are placed into cases and nailed up ready for market.

For the last three years I have used a machine made of four small-sized automatic fillers set side by side in a stand of convenient height, and attached to four gates set into the side of one strainer-box. With this arrangement I can fill small packages from jelly-glasses to gallon cans as fast as an operator can set on the empty and take off the full packages. In fact, I have filled pint Mason jars faster than two assistants could put on the rubbers and caps.

View, Utah.

FOUL BROOD.

A Treatment that Will Enable the Up-to-date Bee-keepers to Cope Successfully With the Disease, Without the Loss of Bees or Honey Crop.

BY W. W. CASE.

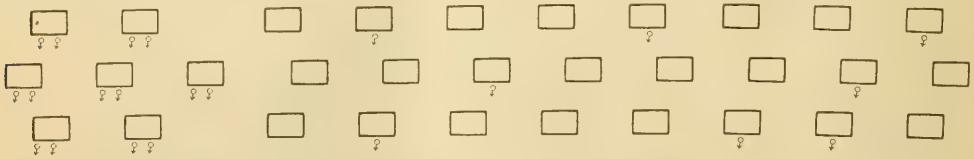
The rational treatment of an apiary infected with foul brood, like many other bee problems, depends, to a great extent, on good, sound, common sense, combined with general knowledge of the disease, and is more or less modified by the time of season. On finding bad brood in the apiary in spring or early summer no one should become unduly alarmed, or act too hastily, as it may or may not be foul brood. Examine again in a few days; and if the disease is found to be progressing, and you are sure of its being foul brood, proceed as follows:

Do not give surplus room, but keep the colony crowded as much as possible, thus inducing it to swarm early; and if it will *not* swarm naturally, compel it to do so by the "shook swarm" route just as soon as it becomes real strong. In either case, after swarming remove the old colony to a new stand and hive the swarm on the old stand in a clean hive on foundation, and leave it entirely alone for one week. Let the old stock, as usual, raise a queen; and on the evening of the 21st day after the swarm issued, the brood being then all hatched and the young queen commencing to lay, shake the bees from the combs on to foundation, after which the old combs can be rendered into wax.

If the apiary is large, and a considerable number of colonies are found to be promiscuously infected throughout the yard, it is better to remove all the infected colonies, after swarming, to one end of the yard, preferably separated from the other colonies by

at least fifteen feet. In the diagram, infected colonies are marked ♀, and their position after swarming is marked ♀ ♀. In this manner the disease is constantly removed from the midst of the apiary, and, if desired, the ♀ ♀ hives may be so placed that two can be readily united when rehived on the 21st day. The ground in front of all treated colonies should be sprinkled thickly with salt, otherwise the infection may be carried right back into the hive on the feet of the bees during wet weather, from dead brood, which is sometimes carried out by the bees in an effort to clean up.

Should the disease develop late in the season—too late to build up before winter—either of two plans can be safely used. If possible, and you *know* that the combs are free from infection (a rather difficult question to answer in an infected apiary), rehive the infected colony; after brood-rearing has ceased for the season, on a sufficient number of well-filled combs to insure safe wintering, extract the other combs and render the wax; otherwise, carefully mark every hive showing infection, and the following spring proceed as above by the swarming route if the disease reappears.



The ♀ represents infected colonies before treatment; ° ♀ represents colonies removed from ♀ after having swarmed, leaving the main lot free of the disease.

In all cases of treatment where the colonies are hived on full sheets of foundation it must be understood that they be let absolutely alone for at least five days—better one full week—as the comb-builders take all the honey when the others go to the field; and, if not disturbed so as to break the wax curtain, will consume it *all* in the production of comb before young brood can hatch. If disturbed before that time so as to cause them to fill up or exchange honey, on again going to the field they will deposit their honey in the first empty cell they can find, and are thus almost sure to retain infection and make the treatment of no effect. Should it become absolutely necessary to disturb a colony up to the fourth day, remove all comb built up to that time, *a la* McEvoy, otherwise rehiving is *not* necessary.

With the exception of the natural swarms, of course all work should be done late in the day after the bees are done flying, and the usual precautions used against robbing.

If possible, all treatment should take place during a flow of honey. In some instances during flows of certain honeys the disease will voluntarily disappear of itself *and stay cured;* but in all such cases those colonies will bear close watching the next season.

I have had to treat but one colony during the present summer to the extent of removing the combs, and that by the natural-swarm method. In one other case, quite bad at the time of swarming, the old colony cleaned up the combs thoroughly before the old brood all hatched, and it is now without a sign of disease, and has been hatching clean brood since July 1. There has been practically enough buckwheat honey for breeding purposes coming in during that time.

There being foul brood in all directions at the present time, I feel it hardly worth while to try for its total eradication; yet I allow it in no way to interfere with the production of a honey crop; and to-day a foul-brood inspector would have to have sharp eyes indeed to find a trace of it in my apiary; and to-day, after fighting the disease for more than a dozen years, and seeing it sweep thousands of colonies out of existence, in many cases entire apiaries, I at last feel master of the situation.

This method is clean, does away with the unhatched-brood nuisance, which is usually buried or burned—an operation always attended by more or less danger of spreading the infection—does not waste the life of a single bee or larva, and deprives the use of a queen for only some three days or less while the treated colony is building comb, and does not interfere with the securing of a season's normal honey crop. It also allows a fully normal increase; tends to keep combs new, while the wax rendered will fully pay for the foundation used, and makes the apiarist master of the situation, reduces the terror of the mere mention of foul brood to a minimum, and certainly is a strong contrast to when I consigned fourteen colonies—bees, hives, and combs complete—to a huge brush-heap and cremated the whole rotten mess in a single night.

Of course, this treatment is intended for use *before* the colonies have dwindled to nothing, and is intended to prevent the scourge from getting control of and ruining the apiary. Taken in time the disease is easily handled; neglected, and the result is utter ruin to both bees and owner.

NOTE.—Aug. 1, 11:30 A.M.—A close inspection this morning shows my apiary at date without a single cell of bad brood, and yet it may break out again.

[The treatment here given is much like some others that have been recommended, and they all have the merit that every bit of the good brood is saved. In some respects this one is simpler, in that it dispenses with bee-escapes and perforated zinc; but in another way the sick colony moved to another stand might be so depopulated as to put

up a poor resistance against robbers. This could be taken care of by contracting the entrance of all the weak stocks so moved.

The general scheme of isolating the sick, as shown in the diagram, would, we should say, have the effect of *spreading* the disease among the healthy more than ever. The old bees, after being moved, would go back to the old location, and, not finding their hive, go into some one near by. We have proven time and time again that bees from an affected colony carry the disease in this way very readily. In fact, you admit as much when you move the bees. If you moved the sick ones to a hospital yard three or four miles away the plan would be all right.

We should never be satisfied with partial eradication, but strive for a complete cleaning-up of the locality. This can be done if all old combs in colonies, whether apparently diseased or not, be melted up and foundation be put in its place.—Ed.]

STORM-DOORS FOR OUTDOOR-WINTERED COLONIES.

How to Keep Bees from Flying Out When it is too Cold.

BY A. J. HALTER.

On page 1559, Dec. 15, you mention a cage for retaining bees in hives for wintering. Your advice may be very good so far as you have experimented along this line in regard to indoor wintering or yards located where cages can be removed and replaced conveniently. However, you make no mention of outyards which are outdoors all the way from three to thirty miles from home. How can your cage be placed to give satisfaction for bees thus located? I believe, Mr. Editor,

outyards are the most important factors in modern bee-keeping among a great many bee-keepers, and are the very bees which most need protection.

On page 1571, same issue, you show a cut of a hive-stand used by Mr. Vernon Burt, which style I also have used for the past four seasons, mine being 12 inches in height, which I consider high enough for our location to be above ordinary snow level. If you will take a thin board about ⅜ by 4 wide, the full width of hive, cutting two holes Λ shaped, nailing it slanting against the front of the hive so the Λ-shaped parts rest flush on the outer edge of the stand so there will be a small ridge on front, I believe you will have solved the problem quite satisfactorily as to outdoor wintering, for the following reasons:

1. The sun's rays can not penetrate to the hive entrance proper.

2. When it snows enough, snow will gather on front of the cuts to cover them up, and bees can not fly out unless they crawl through the side opening.

3. The entrance does not clog up with dead bees or ice.

4. When a warm spell comes, the snow must first be melted away in front of the board, and bees will not be lured outside before it is warm enough for them to return.

5. There will be plenty of ventilation, as you can leave full width (⅜) inch of the bottom-board open, the sides affording enough ventilation during a cold period of snow and ice.

6. By placing a board slanting, about three inches of the bottom-board is clean and dry under said board; and should any bees be wanting to fly out of the hive they must either crawl out on the sides or through the cuts before they can take wing.

It being cold, they generally return to cluster when they come in contact with cold air.

I have tested this plan to my entire satisfaction, especially the past season. At times you can not find 100 bees in a yard of 50 or more colonies on any one day which get lost by flying out while the sun shines during a cold spell.

At present I am experimenting in wintering outdoors, using ground cork as packing, having an outyard of 85 colonies equipped in this manner. If successful I will advise you later.

Akron, O.

[The arrangement here shown, we believe would be excellent. It is along the line of suggestion made by G. M. Doolittle years ago, in which he recommended leaning a board up in front of the hive; but your modification has the advantage in that the bees can pass through the two Λ-shaped cuts made in front of the board. Some such arrangement should be used in many of our bee-yards during the next six weeks. There is no question at all but that many outdoor bees, healthy ones, too, lured out by an inviting sunshine, in a chilly atmosphere, come out only to die.

As we have already explained, the wire-cloth vestibules for the outdoor bees have not come up to our expectations. However, at no time did we intend to use them at outyards, for the very obvious reason that they could not be removed when it was very necessary for the bees to take a flight when such flight could be undertaken in a warm air. Taking it all in all, we are inclined to recommend your arrangement rather than the wire-cloth vestibule that actually shuts the bees in, giving them a flight only at the will of the owner. The trouble with the cage was that some badly diseased bees are shut in at times when they ought to be out of the

way. Their presence causes the combs to be more or less soiled, transmitting the trouble to other bees. Nature has provided that a diseased bee always seeks to get out of the hive. This is absolutely essential to the well-being of the colony, for such bees will probably never return.

The ground cork referred to is, perhaps, the best packing material that has thus far been suggested; but for most bee-keepers it is too expensive to use. Other and cheaper materials will give practically as good results.—ED.]

BEE-TREE HUNTING.

Why it Does Not Always Pay; a Plan for Getting Two or Three Colonies from One Colony in a Tree.

BY JOHN R. LOCKARD.

In looking over some back numbers of GLEANINGS I notice a controversy in regard to bee-hunting. One party claims that it does not pay; another, that it does. Now let me say that I believe both writers have reasons for their belief. Bee-hunting for pleasure and profit has been a pastime with me since boyhood, and I am not a young man any more. I have found and cut bee-trees in all months of the year except in the winter, when this is out of the question. The mode followed by old-time bee-hunters, and in my earlier days by myself, was to find the bees, and, if not too late in the season, cut the tree, take what honey there might be, and smoke the bees into an old box hive. If they gathered sufficient stores to tide them over the winter (which was seldom the case), the one so manipulating would think he deserved some praise. But if starvation overtook them it seemed to cause no remorse. More often the tree would be left until late in the fall, then cut, all honey taken, and the bees left to starve or freeze to death. I don't believe any one was ever benefited financially or morally by following the above methods. Nor does any one *deserve* success who has no more sympathy for the bees than to take all stores from them and leave them to freeze and starve. This system of handling bees is on a par with a man who would pen up his domestic animals and take away all means of sustaining life. Morally it is the same. I am still a bee-hunter, but do not practice the methods described. If bees are properly handled, bee-hunting pays big.

I have read Mr. Fisher's article, on how to take bees without cutting the tree, p. 998. The man deserves praise, for very few people have the nerve to climb, say, from twenty to sixty feet in order to better the condition of the bee. There are two things about the method that I do not like. I don't think it safe to climb. I have known of some sad accidents to happen in this way, and I don't like that sulphur that he uses. This is getting back to the primitive way of taking honey from the bees.

It has been my plan for a number of years to find bee-trees during the summer or autumn months, and cut them the following spring. One of the methods practiced was to have a box some two feet in length, eight inches square, wire screen fixed stationary on one end; a lid, the center being of the same material, for the other end. The tree would be cut, the bees run into this forcing-box, the brood taken home in a basket, and the pieces suitable would be placed in frames of an eight-frame hive, the kind I use. The bees would then be shaken in front of the hive, and placed on their permanent stand. I have had fair success by following this plan, yet this method has its drawbacks. Very often the brood would perish in bringing it home, while cutting the tree; and in taking out the brood thousands of bees would take flight and circle around, hunting for their lost home. These bees would be lost, and, while the financial loss might not be great, our conscience tells us that, if possible, we should not let one bee perish.

Later on I tried taking a frame hive, and, after cutting the tree, taking honey and brood out, putting the brood in frames. Then I set the hive on the log, run the bees in, put a stone on top so it would not blow over if a storm should come, then I would leave it there for a week or two and bring it home. This is, perhaps, a better plan than the former. But this plan has its drawbacks also.

I don't need to tell the bee-hunter that, to carry a hive and other necessary articles through pathless woods, is a hard job. Then we must make another trip after the hive that we left. We must have a helper; and if the ground is uneven and rocky, as is often the case, we shall do well if some of the combs are not loose by the time we get home.

We get all the bees by this method; but if we pay fair wages for the help necessary in most cases it cuts the profits away down. There is nothing new in the above methods, nor do I claim that the following plan is new; but, taking all things into consideration, I find it the most satisfactory, and I expect to follow the plan until something better bobs up.

The present year I had five bee-trees standing, found the year before. On account of other work I have cut but two of them. The others will have to wait until next spring. May 31st I cut one, and for bees, honey, and brood it was one of the best I ever saw. The side of the log was split off, and the brood-combs and honey taken out; the forcing-box was placed over the main body of bees, and in a short time the box was nearly full of bees, but they seemed to be inclined to run out on looking over some of the brood that was lying on the log. I saw the queen crawling around. In a moment she was in the box, and the bees seemed contented. (I wish to remark that she was the smallest queen I ever saw; but from the amount of bees and brood in the tree I supposed she was worth taking. Since bringing her home she has kept up her good record.)

After the box was closed up, the brood was placed back in the tree; a long strip of brood, then two or three sticks up and down, then another piece of brood, and so on until it was all back in the tree, the small sticks forming a bee-space between each comb. Don't lose sight of this: The side, not the top of the log, should be cut out. After this the pieces of log are to be split off; large flat stones, any thing that would shield them from the storms, were placed over them, forming a kind of shed roof. Next I pick up my box; but before starting for home I see hundreds—yes, thousands—of bees, tired of wandering in the air, settling down on the brood. Thus I bid them adieu.

On reaching home a hive full of combs left over from the previous year is placed on the ground, the bees shaken in front of it, and placed on their stand. The first of August I took a super of honey from this colony. Some two weeks after this I again took my forcing-box and paid them another visit. They were working strong. It did not take long to take the cover off, drive the bees into the box, and, as some bees were in the air, I repeated the performance of laying the combs back in the tree.

Bees in fair condition sell readily in the spring for $5.00. I sold some this spring at that price, and could have sold more. Nine-tenths of the bees found here are in trees that are worthless for lumber, and there is never any thing said about the cutting; but if the tree is valuable, or belongs to our neighbors, we should buy the tree or let it stand.

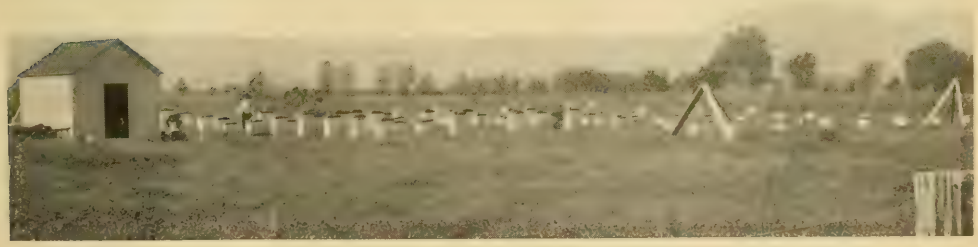
I think if the above plans are followed you will agree with me that bee-hunting pays.

Enid, Pa.

ARTIFICIAL CLUSTERING - PLACES FOR SWARMS.

BY N. L. ANDERSON.

The accompanying engraving shows my out-apiary on five acres of ground that I bought 1½ miles from Spearfish. The little house you see is for bee-supplies and for honey when it is first taken off; and then I haul it to town to my home, where I get it ready for the market. I use outer cases made to slip over the hive to protect the bees from the cold in winter, and from the sun in summer.



OUT-APIARY OF N. L. ANDERSON; THE FOUR BOARDS STANDING TOGETHER MAKE A CLUSTERING-PLACE FOR SWARMS.

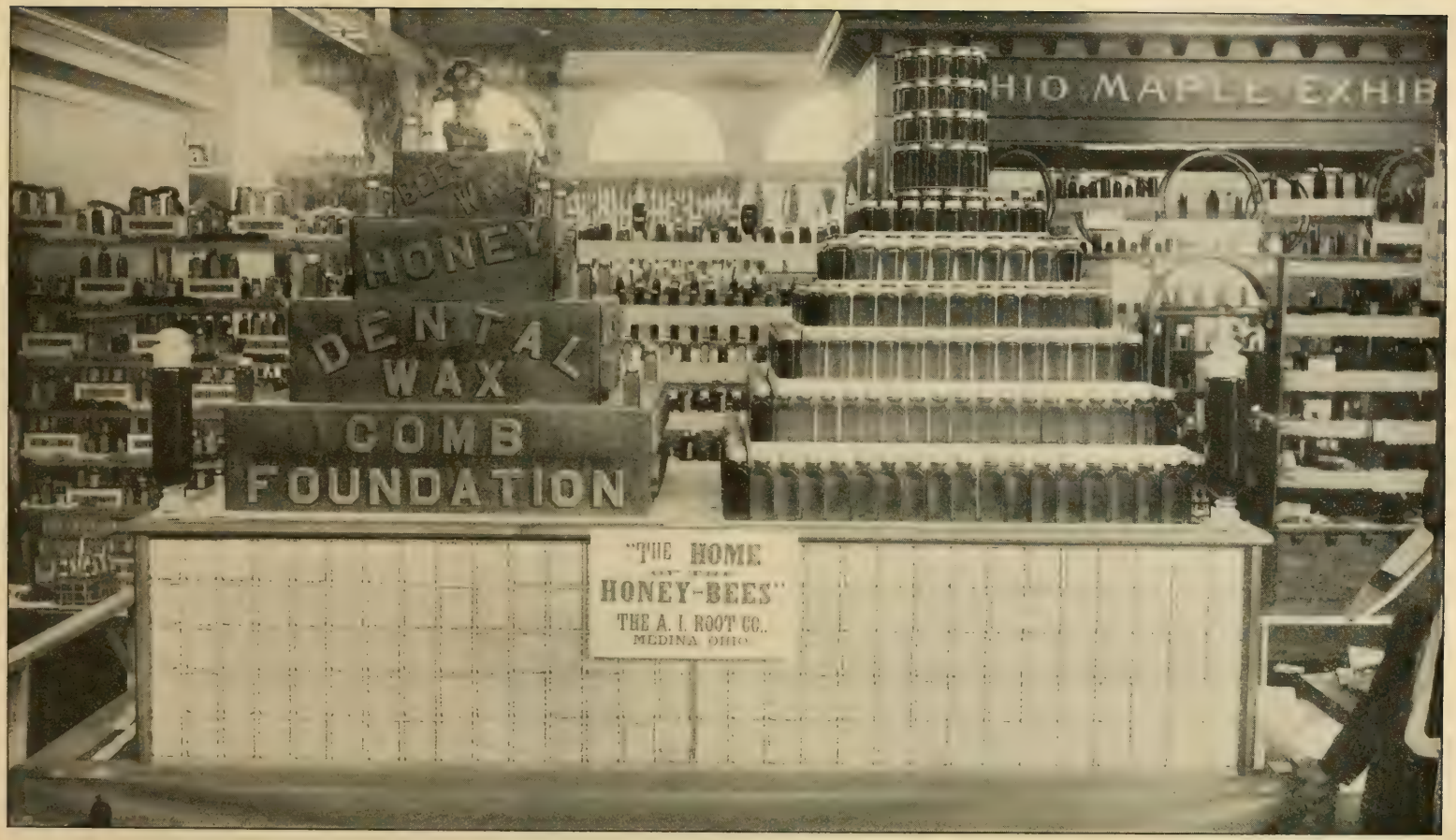
This lot of bees, which was very nearly as large as the first, was treated the same, with the exception that an entrance-guard was placed on the hive so I could be certain whether they had a queen or not. It was not long after pouring them out before I saw a nice queen trying to get through the guard. This colony is strong to-day.

A few days ago, while passing along a road not far from the tree, I thought I would walk to the tree, and, if any bees were still there, bring them home later and join them to the others. It was a surprise to me to find them working away, and the second queen must have been mated and laying, for there was every indication that they had a queen. It is possible that I can bring these home, take brood and stores from others that can spare it, and thus get three colonies from one tree.

Those four boards that are standing up together are swarm-catchers. When bees swarm they will alight inside of one of those arrangements, because the boards are slanting. In the background is a mountain named Crow Peak.

Spearfish, S. Dakota.

[We have heard of artificial trees for catching swarms, but never any thing just like the arrangement shown. Some bee-keepers cut large bushy branches from trees and nail them to long poles, which are then stuck in the ground. If no trees are near the apiary the swarms will almost always alight on one of the bushy poles. If the boards arranged as shown would work just as well, they would probably be more convenient than the branches. Of course, when plenty of low trees are near, no such device is necessary.—ED.]



A BEE AND HONEY EXHIBIT THAT ATTRACTED MUCH ATTENTION AT THE COLUMBUS STATE FAIR IN SEPTEMBER, 1906.

THE EXHIBITION OF BEES AND HONEY AT STATE FAIRS.

BY E. R. ROOT.

The subjoined illustrations show the display that we made at the Ohio State fair at Columbus, in September last. This attracted a great deal of attention through the State; and as other exhibits of a like nature are now being made at poultry shows, some hints and suggestions along these lines may prove to be helpful.

The bee and honey display was designed and prepared by our honey-man, Mr. Jesse Warren, who has made this matter a special study for a year or so back. So well did he succeed with his show at our Ohio State fair that Mr. Tusing, of the State Board of Agriculture, expressed himself as being highly pleased, and desired to have it reproduced in the Ohio exhibit at the Jamestown exposition at Norfolk this coming summer. Twice, and perhaps three times, the Board has approached us on this subject. We have not definitely promised, but the incident is here mentioned to show the interest that our exhibit created; for Mr. Tusing, of the State Board of Agriculture, said he had heard very favorable comments from every one.

The large half-tone plate shows an elevated table, the panels of which are filled in with No. 1 and fancy sections of comb honey. On top of this table is seen a pyramid on which is placed a variety of packages of honey put up in glass Just opposite is another pyramid, made of beeswax. Surmounting the whole is the bust of a goddess also of beeswax. But we shall have occasion to refer to this a little later.

Surrounding this general exhibit was a display of live bees in observatory hives, of bee-appliances, queen-rearing outfits, straw hives, and any thing and every thing connected with the bee industry in general. Two or three attendants were kept busy in explaining the use of the various articles and denying the oft-repeated comb-honey lie and distributing our $1000 reward-cards. The two interior views here taken were secured just after the crowds had rushed out of the building to see Knabenshue and his air-ship. One of the boys then snapped the camera and the results are here shown.

But how about that pyramid of beeswax? The separate steps were not made of solid blocks of wax, for they were nothing more nor less than a series of boxes of proportionate sizes piled one on top of another. These were then covered with long sheets of nice

A SUGGESTION FOR A BEESWAX EXHIBIT AT STATE FAIRS.

THE APIARIAN EXHIBIT AT THE COLUMBUS STATE FAIR IN SEPTEMBER, 1906.

yellow wax from the Weed sheeter. Wooden letters were then dipped in melted wax and secured to the several steps of the pyramid by means of nails. "But," you ask, "how did you make the goddess?" We obtained a plaster cast, for a nominal sum, and then gave her two or three plunges into some melted wax. When she came out of her bath she looked as if she were made of a solid chunk of beeswax. A separate view of the pyramid here shown will give one a little idea of the detail of the construction.

The remaining view is a snapshot of our outdoor exhibit and honey-sales stand. These

THE DEMONSTRATION WORK AT THE COLUMBUS STATE FAIR.

were entirely separate and distinct from that inside. At the former we were permitted to sell honey, honey-cakes, and the like. To draw crowds we put one of our men inside the cage with a colony of bees. The various stunts that he performed have been given before in these columns, and we will not repeat them now. But it is sufficient to state that it was a drawing card and a great success.

The view here shown is a fair average of the crowds that assembled around the cage, not of the big jams that at times were seen there.

Perhaps it would be well to explain that dental wax is now coming to be quite a commodity. It was for that reason that the article is mentioned on one of the blocks of the pyramid.

EUCALYPTUS.

BY W. K. MORRISON.

The eucalyptus family are famous honey-yielders in their native home, Australia, New Zealand, and Tasmania, and, to a certain extent, in California, where thirty or forty species have been introduced out of a total of nearly two hundred recognized species. The eucalypts are all either tropical or sub-tropical in their habitat, and to a great degree are drouth-resisters. Perhaps no tree is better entitled to be largely planted for its lumber, which is equal to the best mahogany, redwood, oak, or rosewood, in appearance, and excelled by none in tensile strength and durability; but it has a great advantage over all rivals in that it grows with wonderful rapidity, and this, too, where other trees fail for lack of water. The rate of growth in California of the blue gum of Tasmania, over a term of years, has been determined to be 19 inches per month. The blue gum grows to a great height, and is an excellent honey-bearer. It is known to botanists as *Eucalyptus globulus*. It has been extensively planted in California, Algeria, and South Europe. The Australian bee-keepers are unanimous in stating the red gum (*E. rostrata*) to be the best honey-producer, and, luckily, it is considered to be probably the best of all the eucalypts for timber purposes. It grows in the flats near the Australian rivers, and probably can not stand quite as much cold as the blue gum. It grows to be an immense tree (420 feet) and eucalyptus-trees have been noted in Queensland 500 feet in height. *Eucalyptus melidora* is also a good bee-keeper's tree. It is hardier than some others, as it grows at high elevations in Australia. It would probably do well on the Gulf Coast and in Southwest Texas, and it is quite possible it will grow where the palmetto grows on the coast of South Carolina, Georgia, and Florida. Florida, South Texas, Arizona, and California are the States most likely to benefit by the introduction of the eucalypts. To an American the leaves of the gum-tree appear to be scanty; but there are species, not so well known as yet, which have a fine umbrageous foliage of large leaves.

The seeds of eucalyptus are extremely small—almost incredibly so. Here are specimens:

Blue gums, one ounce sifted fertile seed, 10,112.

Stringy bark, unsifted, one ounce, 21,080.
Swamp gum-tree " " " 23,264.
Peppermint gum " " " 17,600.

The seeds are easily grown, and in six weeks are ready for transplanting.

The most popular plan of planting seems to be to plant them 6 feet by 6 feet till they are five years old, when they are thinned out to 200 trees per acre. This is estimated to give a net return of $100 per acre, or $20 per acre per annum. At five years the trees are of a considerable size. Mr. Elwood Cooper, of Santa Barbara, Cal., records one tree at three years of age to be 9½ inches in diameter and 42 feet high, and another 45½ feet in height, or over 14 inches per month. This is a great rate of growth for a *hard-wood* tree. In mere size the redwood-trees of California excel the gum-trees; but the former are slow growers. *Eucalyptus globulus* approaches the redwood closely, as it has been recorded in Tasmania 30 feet in diameter and 300 feet high. Eucalyptus-trees are so readily grown where the climate is suitable that it is probable a business can be done in selling young trees to neighbors. Perhaps this is the best way for a bee-keeper to do who wishes to improve the honey-bearing flora of his locality. The seeds are not hard to get, and, being so small, can be sent by mail long distances.

The Australians have another family of trees nearly as valuable as the eucalypts, and perhaps better as bee-nectar producers. These are the wattle barks of the colonists, and the acacias of botanists. The principal variety is *Acacia decurrens*, or black wattle. It is in great demand for dyeing and tanning purposes, and great forests of it have been destroyed. It blooms at a different season from the eucalyptus family.

Another Australian honey-yielder and rapid grower is the *Grevillea robusta*, or silk oak, also an excellent tree. It may be well to state that none of these trees will grow in the North. If they did it would be a great thing for the bee-keeper's industry.

It is rather difficult to get literature on these trees in this country. Only one book has appeared on the family in this country, if I am not mistaken, and this is by the United States Department of Agriculture. Baron Mueller, of Victoria, is the great authority on the genus, and where possible he mentions the honey-bearing value of the different species. It would probably be easier to send to Melbourne, Aus., for his books, though some are out of print and hard to find.

The forestry division of the United States Department of Agriculture, Washington, D. C., sells the book on the eucalyptus for $1.00, which will probably answer all requirements. It may be secured direct from the Supt. of Public Documents, Washington.

SOME YORK-STATE BEE-KEEPERS.

Hubert Hetherington, of Cherry Valley, N. Y.; a Worthy Son of a Worthy Sire.

BY D. EVERETT LYON,

Special Field Correspondent of Gleanings.

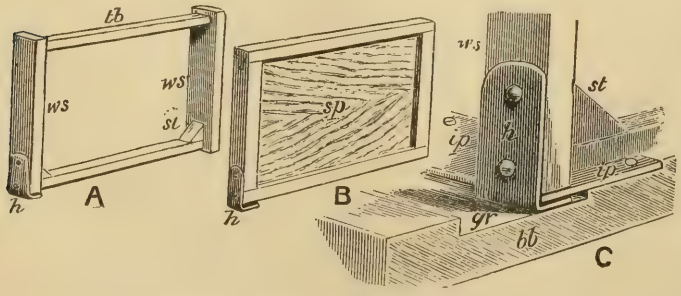
[Perhaps the reader will better understand the hive here illustrated if we say that it has a bottom-board having a square hole through the center of it. The bees, in going into the hive, pass *under* the bottom, up an incline, into the center of the brood-chamber. This latter consists of a series of closed-end frames, Quinby depth, that hook on to the bottom and stand up against each other in exact alignment, with a wood panel on each outside frame. The whole are secured in place by means of a looped string. It is surprising how quickly this can be put on and removed.

Over this brood-nest is a honey-board; and then surrounding the whole is a cap deep enough to reach clear over the frames and down to the bottom-board which projects around on all four sides. In the height of the honey-flow this cap is raised up to take in one or more supers, as shown in the several illustrations. During winter the supers are, of course, removed when the cap is fastened to the bottom-board, making what is, to all intents and purposes, a dead-air space. The closed ends of the Hetherington-Quinby frame, the two side panels, and the honey-board, make up the inner walls of the brood-nest, and the before-described cap, the outer walls. During the height of the season this inner wall is necessarily exposed to the elements. The writer saw this whole arrangement in operation at Mr. Elwood's seventeen years ago next summer, and was surprised to observe how readily it could be operated. In the finding of queens, and the contracting of the brood-nest to any size, for example, the general arrangement is unique.

The old original closed-end Quinby hive was rather difficult to handle; but Capt. Hetherington so improved it that no loose hanging frame of the Langstroth type could be handled any more readily or easily, with the further advantage that the closed-end frames make a warmer brood-nest. The illustration, taken from Cheshire, will show up the detail of the new Quinby hive.—ED.]

Perhaps no name is better known among, and no other man has done so much for, the bee-keepers of New York than the late Capt. Hetherington, of Cherry Valley, N. Y. For a period of over twenty years he was by far the most extensive bee-keeper in this or any other country, his yards comprising some 3000 colonies scattered in various places both north and south.

FIG. 1.—HUBERT HETHERINGTON BEARS A STRIKING RESEMBLANCE TO HIS FATHER, CAPTAIN HETHERINGTON.



HOW THE QUINBY FRAME HOOKS ON TO THE BOTTOM.

Though more or less interested in bees before the civil war, it was not until the close of that great struggle, in which he played a conspicuous and honorable part, that he became a bee-keeper on a large scale.

The Virginia apiaries were largely the result of that war, for it was while campaigning through that State the captain noted the great variety and abundance of honey-producing plants—notably the blue thistle; and it was the remembrance of it that led him in later years to plant a number of apiaries in the Shenandoah Valley.

FIG 2.—HUBERT HETHERINGTON AT WORK AMONG HIS BEES.

What Captain Hetherington has done for the bee-keeping world, both in his inventions and in things the fallacy of which he proved by costly experiments, can never be estimated.

Captain Hetherington was a man always interested in the welfare of his fellow bee-keepers, and a number of years ago it was my privilege to ride in the same seat with him from Washington to New York, and to be completely captivated by his descriptions of the bees.

His death, Dec. 31, 1905, removed from us a bee-keeper of whom E. W. Alexander, of Delanson, N. Y., said to the writer last summer, "As a bee-keeper, Captain Hetherington was the prince of bee-keepers."

It will be of great interest to the readers of GLEANINGS to know that Hubert Hetherington, son of the late captain, is, like his esteemed father, every inch a bee-keeper. It was to visit and write up his work that the writer went to Cherry Valley last August, and of that visit none but the most pleasant memories exist.

Hubert Hetherington bears a striking resemblance to his father, and stands over six feet tall in his stocking feet. When I called at the Hetherington homestead, where the son at present resides, I found Mr. Hubert Hetherington very much tired out after a hard day's work in one of the out-apiaries. He operates with help some 1100 colonies in 9 different yards, all run for comb honey, the furthest being 12 miles away.

The outlook for the crop was about 50,000 sections. Hubert sticks to the hive of his father, the Hetherington-Quinby, with its closed-end frames, feeling that for his methods this combination suits him best.

The bees are a cross of two races—Carniolan and Italian; and the day I was among them they proved to be quite cross. They are hustlers, however, and the dash of Carniolan blood in them results in sections that are finished in snowy whiteness.

Hubert Hetherington is the soul of modesty, and doesn't blow his own horn; but when I parted with him at the railroad depot it was with sincere regret, feeling that here was a worthy son of a worthy sire.

FIG. 3.—REMOVING THE OUTER CASE.

SWEET CLOVER AS A FORAGE PLANT.

The Experience of a Farmer who Grows it for his Stock; His Cattle will Take it in Preference to Other Clovers.

BY W. T. DAVISON.

It is a common thing to hear people say that nothing will eat sweet clover. Such people are either drawing on their imagination or their experience is limited. Now, I do not say that stock will eat sweet clover when there is plenty of grass, but my calves did that very thing this summer, and kept it eaten down all fall. To try sweet clover further as a forage-plant I turned my calves into a ten-acre field of sweet clover with two acres of English clover on one side of the field. I fully believe they liked the sweet clover as well as the English.

There is no use for any one to say that nothing will eat sweet clover, for I have seen my calves eating it; and when I turned them into that ten-acre field they quit coming up for their feed. It is now Nov. 19. My sweet clover is still green, and we have had freezing weather here. The ground had been frozen hard.

There are three times in a year when sweet clover is a good forage-plant — early spring, before grass comes on; midsummer after grass dries up, and late fall. I am not sowing sweet clover alone for bees, but am sowing for both bees and stock; and I can say from experience that they both do well on it. After this I expect to sow my thinnest land to sweet clover, as I believe it to be a great land-builder.

There is one thing more that I wish to mention about sweet clover. I fully believe that the bark on second-year's sweet clover will make the best of ropes.

Velpen, Ind., Nov. 19.

FIG. 4.—TAKING THE QUILT OFF THE SECTIONS.
See the two preceding pages.

FIG. 5.—MANIPULATION OF THE HETHERINGTON STANDING CLOSED-END FRAMES.

[The following, which tells how sweet clover behaves in Montour Co., Pa., from the *American Agriculturist*, is along the same line:]

I have been reading several articles in *American Agriculturist* on the value of sweet clover, *Melilotus alba*. Some writers say it is not eaten by stock. Others say it makes good hay when cut and stored in layers between layers of other hay. We have it growing in every by-place along the roadside, on stone piles and in cultivated fields. It will grow where no other plant can live. On poor barren land it grows 3 to 6 feet high.

I selected one stalk having 13 branches measuring 4 to 8 feet long, grown from a single seed. The root of this stalk was 3 feet 4 inches long with large nodules. It starts to grow in the spring earlier than any of the other forage plants. By April 10 to 15 it is from 4 to 8 inches high, and eaten with relish by cattle and colts. Our cattle eat it all summer; but when allowed to grow it soon becomes woody. The cattle then eat

only the blossom ends of the branches. It is not easily cured for hay. It is very sappy; and, before it cures, the leaves all drop off, leaving only the stem.

I have a piece of sweet corn and pumpkins growing now in an old peach-orchard. The ground was very poor, and for three years it has been covered with sweet clover. I removed the old stalks that grew the preceding year, and plowed it May 16. The clover was then 15 inches high, and three horses could scarcely turn it. It lay until June 21, when I marked and planted it. The sod rotted completely, and the corn proved the best I ever grew. M. S. BOND.

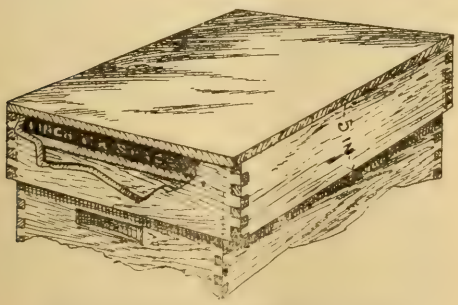
PROTECTION FOR SUPERS.

A Double Dead-air Spaced Cover; How to Get More Wax from a Swiss Extractor; Moving Bees in Hives with Open Entrances.

BY GEORGE SHIBER.

I have read with interest the discussion in regard to warm supers in raising section honey. From experiences I have had along this line I am inclined to the opinion that warm supers are the thing. A few years ago I made some covers like the cut. It was made, as you will see, to telescope over the top of an eight-frame hive or super, telescoping over the top of the hive and projecting down the sides and all around about five inches. It was covered over with cheese-cloth, and then painted several coats of white lead. A warm cover, or protection of this kind for super, would, of course, be more noticeable during a poor season. Such a season we had here this past summer. The few hives on which I used this cover were a surprise over those with single-board covers. At first I thought the queens were out of the ordinary; but I gave this theory up, as I had a number of queens just as well reared in other hives, and of the same blood; so I am satisfied that it was the warmer supers, caused by the better protection provided by the covers.

Now, the question comes up, "Would it not be better to have this dead-air-space filled with chaff or sawdust, making the same 1½ inches, or perhaps 2 inches deep?" I consider, however, that the projecting rim of 5 inches below the hive is of prime importance. Mainly, of course, the most protection should be on the top of the hive.

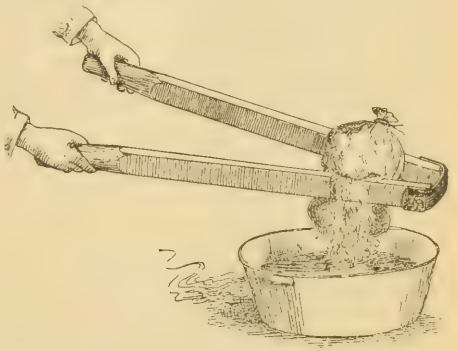


SHIBER'S DEAD-AIR-SPACKD COVER.

Mr. Pettit, of Canada, has long been an advocate of a chaff cushion over the super of sections; and when the sections are taken off, the cushion goes on top of the frames—in short, as I understand him, the cushion is left at the top of the hive the year round, and that is where most of the heat radiates from a colony of bees—by way of the cover, if it is of one thickness of board. I wonder who and how many are using chaff cushions over the super, or other protection. It seems we might all profit by hearing of the different plans.

A SIMPLE WAX-PRESS.

There is a little kink I practice in rendering old and black combs. I used the Swiss extractor; and after all the wax had run out possible from the extractor the refuse was dumped, steaming hot, into a burlap sack, the sack being tied up close to the slumgum.



The bag was then held by one person, and another applied the pressure. While under pressure, just about as much wax was squeezed out as came from the extractor, and the pressure was obtained very cheaply. Two sticks were nailed together at one end by a leather hinge, the other ends used as handles, when a mighty pressure could be brought to bear on the hot refuse. The one who held the sack kept twisting, and the squeezer kept squeezing, so to speak.

MOVING BEES IN HIVES WITH OPEN ENTRANCES.

I note what is said editorially in Sept. 1st GLEANINGS about moving bees with the entrance open. Last spring I bought four colonies of hybrids in big barn-like chaff hives, and they filled the wagon-box. The bees were very cross, so I subdued them with a large quantity of smoke. You would think that they would not offer an attack, but they did—the most savage kind of assault. One hive sprang open a crack large enough for bees to get out. Probably 25 got into the air before I plugged the hole up. The majority of bees, though, I think, could be hauled with open entrances, but not all. In moving bees, have a can of soft mud (very soft), and if a crack or other opening is seen, a handful is thrown in, and it is sealed up tight and very quickly. If you have never tried mud for this purpose, try it and you will be pleased. Have it fairly thin, about like common mortar.

Randolph, N. Y.

[Your method of rendering wax is an old one; and while it is infinitely better than no press at all, it will lose quite a percentage of wax which will necessarily be left in the slumgum, because the outfit is too light to give pressure sufficient to remove the wax still left in the residue. The leather hinge on the end is too weak. A strong iron hinge with wide boards would give better results. The device might extract *all* the wax; providing one would take time enough to heat alternately the slumgum and then squeeze it. The operation would have to be repeated a good many times before all the wax would be removed.

Your warm cover with dead-air space is along the lines of the best modern practice. Our readers will remember, perhaps, that we have been advising making our comb-honey supers warmer by putting on an extra cap. Mr. R. F. Holtermann, of Brantford, Ont., makes a sort of double cover, something along the line here shown; but he uses in addition a felt covering for greater protection. Mr. Grant Stanley, in the article which follows, has discovered that it is quite an advantage to give the supers extra protection. See what he has to say.—ED.]

RUBBER BANDS FOR HOLDING TRANSFERRED COMBS; SUPER-COVERS.

Mention was made at the Jenkintown meeting that rubber bands for holding combs in position in transferring were not as good as splints, for the reason the bees hollow out the comb under the bands. In transferring with the rubber bands, or with any other fastening, for that matter, the colonies should be examined in two or three days after being transferred; and if the bees have fastened the combs to the frames the bands should be removed. If properly used, rubber bands are far ahead of any thing else.

In removing a super of filled sections recently, I left the bee-escape board on top of the next super under the cover. This super remaining on the hive was just nicely started by the bees, and I did not look at the colony again for about a week, when, to my surprise, I found these sections all filled and sealed ready to come off. Such a nice super of clean sections filled out right on top of the hive as they were gave me no small thought. Now, with still more experimenting on this line I am of the opinion that more honey, and of neater appearance, can be secured by the use of super-covers on top of supers under the roof. This board rests flat on the super with just a bee-space between the board and the sections. The bees will not build comb in this space, nor will they daub the tops of the sections with glue, which they surely will when a cloth cover or mat of any kind is used. Another thing, the bees will seal this board down tight to the super on all sides, keeping out light and currents of air. This makes the super warmer than it otherwise would be.

Nisbet, Penn. GRANT STANLEY.

THE PURE-FOOD LAW.

A Honey-buyer's Opinion Concerning Its Effect on Prices.

BY FRED W. MUTH.

Complying with your request relative to the new pure-food law, asking our opinion as to its effect upon the price of honey, future prospects, etc., we wish to say, in the first place, the new law will compel those to display honesty who have not done so heretofore. On the other hand, our opinion and prediction differ widely from the sentiment generally voiced regarding the advance in prices. We deem it foolish even to think that prices will steadily advance on account of the pure-food law. We are aware that prices have advanced some in the past several months; but this is in sympathy with the prosperity that prevailed in the past year in all lines of business.

You will agree with us that these *are* prosperous times when you take into consideration the present fearfully congested condition of the transportation companies for the past year. They find themselves almost helpless on account of not having sufficient rolling stock nor power to move their freight.

It is this prosperity that has instigated an increase in the consumption of honey, and consequently higher prices. Just as soon as conditions have become settled, and business has fallen into its regular channel, the honey market will find itself in its usual place.

Furthermore, in our opinion, it is wrong to inflate the mind of the bee-keeper (which will be the result of the publications in the bee journals) so that he will expect to obtain exorbitant prices for his product in the future.

Within the past few weeks several of our good customers have concluded to discontinue the use of honey on account of the advanced prices that we were compelled to ask. Naturally, there will be more honey than is needed for those who have heretofore used little or none, and it stands to reason there will be an accumulation, or "choke-up," and down goes the price; for, strictly speaking, honey is not a necessity, which fact has been proven by our customers, who have discontinued its use on account of the high price.

Cincinnati, O.

ANOTHER BUYER'S VIEW.

It is somewhat premature to give any opinion as to the workings of the new law, with reference to the sale of extracted honey; but in our opinion it will curtail the consumption of adulterated honey; and while, perhaps, the first few months the public may not use much honey on account of the higher price of the pure article, it eventually will come to it, especially after it has ascertained the difference between adulterated honey and the pure article. In our opinion, the new law will be a benefit to the honey trade.

Chicago, Ill. S. T. FISH & CO.

[See editorials elsewhere.—ED.]

EATING HONEY.

180 Pounds of Honey Consumed by One Man in 180 Days; Canning Fruit, Using Honey Instead of Sugar; a Suggestion for Those who have Indigestion; an Interesting and Valuable Article.

BY C. W. DAYTON.

To read of families of five or six persons using a five-gallon can of honey a month, or such a matter, is causing some smiles in this quarter of the globe. I have worked for several bee-men, and none of them "made free" with honey on the dining-table. Families who eat much meat do not care much for honey, or, for that matter, any kind of sweets. I have always been a great meat-eater; but several years ago I began to have an almost constant headache, backache, neuralgia, rheumatism, paralysis, etc. These diseases affected me by turns, lasting from a week to months. I began to study health, and soon left off meat and sweets and fermentation foods. This did some good, but there was nothing of very decided benefit until I went down to one meal a day. From a life of almost constant misery I began to feel "like a boy," with no pains or ill feeling, and could work all day and not be tired at the end of the day. But it required an awful effort to master the artificial appetite which had been gaining a foothold in my system for many years, and I could then realize the kind of a "fight" the liquor-drinker must "put up." I had had a headache from twice to three times a week for years and consulted fifteen of the best physicians I could hear of, but only temporary relief came. But my headaches went and have not returned from that day to the present. My folks looked for me to lose flesh and become weak; but I gained 16 pounds the first month, and I was handling the pick and shovel and a ten-pound sledgehammer, and a constant gain in muscular development resulted.

Well, after I got my system and digestion corrected I found that I could return to my old diet of foods, but I had to control my appetite to the needs of my system.

On August 31 I brought into the house and set down by the dining-table a five-gallon can of black-sage honey having the top cut out. I set it on another five-gallon can so that the top came just even with the level of the table so as to be handy to dip my spoon into it, just about four inches from my elbow. When I got GLEANINGS from the postoffice, Sept. 23, and sat down to read, and came across the picture and Mr. Gilstrap's letter on page 1186, I simply reached for the ruler and measured my honey-can, and it has been lowered 8¼ inches in the 24 days—36 to 40 lbs. No one has been here to eat besides my individual self, and the marks on the can show where the honey was when I began. Besides, I have been eating more or less by chunks when working about the honey-house. The first five months of this year I ate exactly three five-gallon cans. But I ate also a quantity of canned fruit—blackberries, strawberries, plums, apricots, figs, grapes, peaches, pears, apples, etc.—perhaps four or five dozen jars. All of these were canned with honey. We always put up from 100 to 200 Mason jars of fruit every year. Fruits possess tart, which honey lacks. I bought 50 cents' worth of sugar in 1898 and nearly half of it is in the honey-house yet. It was carried there to be put in bee feed, but it has been neglected. I never knew a jar of fruit to spoil with honey. But any canned fruit will spoil if not properly attended to. My neighbors often spoil a half, and that in using sugar. Sugar is somewhat safer than honey. But I found that sugar would make my back ache (kidney trouble) in four or five days, but honey took two weeks. I tested both many times. One spoonful of vinegar took me seven months to cure the effects of. I almost despaired. Sugar was nearly as bad. When we find *the remedy* it requires *time* to make reparation of the injured organs which bad diet and habits cause. Nature does the repairing or rebuilding, but not instantly. Now, since I have allowed my digestive organs to repair themselves I can see that even vinegar with such foods as cabbage and meat is necessary. It aids digestion if not used to excess; dissolves uric acid; prevents crystallization of uric acid, I suppose.

Now I come to the canning of fruit with honey. I can not remember when we lost a can. First the can must be hot before the fruit is put in. Then the fruit must be thoroughly heated through before it is put into the cans. These particular points must not be slighted, but they often are. Better boil the fruit more than necessary rather than too little. Boiling extracts the color from the fruit more or less, but that is only "looks." Put the honey in at the last, and fairly heat it through. Suit the taste as to the amount of honey to use. Put the caps on the jars while the fruit is hot. Have the caps hot, right out of hot water. Screw them on with a cloth to prevent the hand from being burned, then the air within the cap will be hot. Set the jars aside to cool, caps down, on the table. Examine them every hour as they cool, and turn the caps on tighter. As the fruit gets cooled it occupies less and less space within. It must draw air in in order to fill the vacancy which would occur. This must be prevented. If no air can get in, the cap will be drawn into a concave shape on the outside. This may indicate the perfectness of the work; but not always, because the caps may have been concave before being put on. Watch this so as not to be misled by it. By the following morning the fruit will be cold, the jars standing on their caps. Examine for small air-bubbles passing upward next to the glass. If there is, it gets in between the cap and rubber and will spoil the fruit. Do not wait until the day gets warm, nor take the jars to a warm room to make this examination. Do it in the coolest part of the morning. That is when the con-

tents would be the most contracted, and would be drawing the hardest to bring air in. When the fruit warms up a little the draw would be in the other direction—from inside outward. It is impossible to can fruit and not leave a small space to be filled with air. But air is no injury if it is hot. If the cans are set right end up, the air-space would be situated at the top of the jar next to the cap where the air would be admitted. If the caps leaked air, the air which came in would join with the air already in the jar, at once, and there would be no chance to observe its entrance or progress. But with the jar standing upside down, the admitted air will traverse the whole length of the jar before becoming settled at the uppermost portion. If you see small air-bubbles following one another upward, just get the "old man's" beeswax and rosin-dish and brush which he uses to fasten foundation in brood-frames (⅔ beeswax and ⅓ rosin melted together), and put a good coating all around over the rubber, covering the edge of the cap. After this, keep the jars standing upside down for a week or more. Watch for bubbles on cool mornings; and when the day warms up, look the jars over to find juice sizzling out from under the edge of the caps. They can not drive air out, because the fruit is next to the cap, but fruit juice will be forced out instead. Put on more wax. Finally the fruit juice will become thickened also, and thus all openings will be closed.

It is preferable to keep jars of fruit in an even temperature.

Do not say you followed the above directions and fruit spoiled. Under my table, against the mop-board, is a row of Mason jars of tomatoes and beans that have been there two years, and they are in perfect condition, and tomatoes are the most difficult of all things to can.

Chatsworth, Cal.

[We shall have to award the palm to our correspondent as a honey-eater; and the fact that the quantity consumed had no unpleasant results speaks eloquently of honey as a food, especially when we take into consideration the fact that Mr. Dayton had previously been suffering from indigestion before he went on to his simple diet of fruit and honey.

In this connection perhaps the editor had better let out a little secret. For many months back he has been living on two meals a day—a substantial breakfast in the morning, a little fruit or nothing at all at mid-day, and a dinner in the evening. Food tastes better, and he never enjoyed better health. But when traveling we eat three meals a day so as to be "like other folks;" but on returning home we skip the mid-day meal.

The suggestions in regard to putting up canned fruits in honey are excellent, and we would suggest that our bee-keeping friends lay this article aside and put it into application during the canning season next summer and fall.—ED.]

LIQUEFYING HONEY IN 60-LB. CANS.

Two Useful Devices for Making the Work Easier; a Little Good Advice.

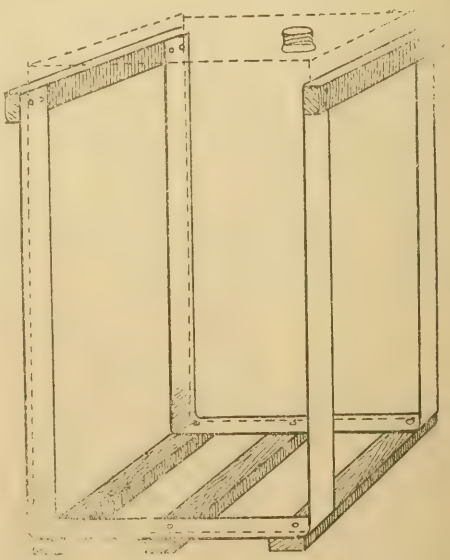
BY E. F. ATWATER.

Many have been the complaints of the small screw caps usually furnished on the regular five-gallon honey-cans.

Those who read the article by "Common-sense Bee-keeping," in the Nov. 19th, 1903, *American Bee Journal*, will remember how that writer tells of putting four to six such cans of honey in a tank, and boiling water around them until the honey was liquefied; how the honey expands until the cans will not hold it, and how he was "compelled to fritter away with a teaspoon to save some of the honey, while the cans are running over and some of the honey wasting." He also insisted on the necessity of two handles on each can, owing to the fact that the present handles are so weak that they pull off or out, sooner or later.

I admit that larger screw caps and two handles would be desirable improvements; but as the next best thing, the two implements now to be described will save "Common-sense Bee-keeping" (and others) all or most of his hard work and loss of honey.

The first is a tin tube of such diameter that it will easily pass through the usual screw cap. In and out at the lower end of this tube is soldered a disk of tin, with a $\frac{3}{16}$-inch hole in the middle. The disk would completely close the lower end of the tube, except for the $\frac{3}{16}$ hole.



When your honey begins to expand, and the liquid to appear at the screw cap, push this tube down into the hot honey; let it fill as far as it will; clap your hand tightly over the large opening at the top of the tube; lift

out the tube, and hold it quickly over a pail and allow the honey to run out by removing your hand from the upper end of the tube. Or a long stick may be whittled at one end so you can plug the $\frac{3}{16}$ hole at the bottom of the tube, say a stick $\frac{5}{8}\times\frac{5}{8}\times 15$ inches. The process can soon be repeated, until you have removed enough honey so you know that the honey in the cans can not run over.

Now, if you are impatient we have a quicker plan of doing this work; but don't tell any one. Apply your mouth to the top of the tube and draw the hot honey up two-thirds of the height of the tube—that's quicker! An old bicycle foot-pump could be remodeled so as to do this much better and easier. Make such a tube, use it, and you will be surprised at the amount of honey saved.

The other device is to use in lifting cans of honey in or out of the liquefying tank without danger of pulling off the handles. Get two pieces of sheet iron or galvanized iron, about 2×40 inches, and bend as shown. Nail three or four strips of wood 1×2×10 across the bottom to hold the strips of sheet iron in place, and to support the weight of the honey, allowing water to circulate under the can when in the tank. At the upper ends of the strips of sheet iron nail cleats 1×1½×10, as shown. Clinch all nails well. Tip or lift your can of honey; place the "lifter" under; seize the upper cleats, and lower all into the liquefying-tank. When liquefied, lift it out in the same manner.

Have as many of these lifters as you can use in the tank at one time.

Mr. E. D. Townsend recommends leaving the screw caps on tight when liquefying, to retain the aroma. I should be afraid that occasionally a can might burst. But if you do follow his advice, don't open the cans until the honey is cool again, or it may fairly *explode* as you unscrew the cap, and burn you, besides daubing your clothes. Twice I have had this happen.

Meridian, Idaho.

CONFINED AIR.

Its Importance in Hives in Bee-cellars.

BY T. F. BINGHAM.

The prevalent plan of arranging hives without their bottom-boards alternately, instead of above each other, of course precludes the possibility of accumulating one by one the bees that just naturally die, and perhaps would remain, many of them, on a bottom-board were one there, may have objections far more weighty than the supposed gain in not having a bottom-board. I am aware that open-bottom hives in cellars are the popular fad, and may be for once the plan has more than popularity to recommend it. However, in my cellar, which is special and dry, some experiments were tried with small entrances and the summer bottom-boards. They wintered as well, and I thought perhaps better. So well pleased was I that I remodeled my stands or cleated bottoms by closing them on three sides — that is, the bottom, or stand, is composed of a board the size of the hive; on this thin board are two two-inch-square strips or cleats, one on each side, on which the hive rests. To the rear end is a board nailed to the square pieces so no bees can escape at the back side or end. This makes a three-sided stand on which the hive stands.

To close partially the fourth side or front I roll up a roll of excelsior in paper, two inches in diameter, and tie with twine. I then cut off each end square so as to be ¼ inch shorter than the open side of the stand and crowd it in. You will note that the ¼ inch shorter than the opening would leave an opening at one corner, from which bees wishing to could escape, at the same time admitting sufficient air. Of course, this arrangement enables the bees to raise the temperature of their hive readily if they wish so to do.

The fact that bees cluster below their combs is not evidence that it is their normal condition, nor that it is favorable to their welfare. It is, rather, an effort to keep out the air and thus conserve heat, which is no less essential in a cellar than elsewhere. The plan I have adopted allows a reasonable death-rate accumulation in the bottom-box, as I will for distinction call it. While it secures a sufficiently closed hive to enable the bees at any and all times to raise or maintain a higher degree of temperature, and more vitalized air than the average air of a bee-cellar, I presume a higher temperature throughout the hive will exist or prevail, and that the death-rate will be less, and that the consumption of honey will be less, and the bees more comfortable.

In my experiment with the box bottom-board, 21 colonies were left without the excelsior entrance, leaving the bottom closed on the two sides and back; but the front had an opening 9×2 inches. Finding that the bees in many hives having the closed entrances extended their cluster down to the thin board, two inches below the frames and against the excelsior roll, the 21 previously left open were provided with the same excelsior entrance. These entrances were put in carefully so as not to disturb the bees, and left a week for further observation.

The previous change in the cluster above noted took place in the later 21 similarly treated. This plan may have a very important bearing upon the wintering problem in depositories or on summer stands. I have four colonies in a large crockery-tierce out in the yard, sitting close together in a square. Under each hive is a box bottom-board as above described. Underneath these four bottom-boards a six-inch space is packed with dry leaves, while above and around the four hives fine hay is packed closely. The same room for the falling of the normal waste, you will note, is provided for out in the tierce that is provided in the cellar. Thus far, Jan. 19, no bees have come out of the four hives in the tierce, as the cold has been steady, and nothing to induce them to fly. I

expect to find the four colonies strong in the spring.

There is one feature in the cellar, not existing in the tierce, though the hives are the same, and bottom-boards also; namely, the accumulated warmth of the lower hives contributes to the modification of the air in the hives immediately above them, and so on without loss to as many hives as may be above them. The expanding of the clusters downward, and also the broadening of the cluster, at once apparent and continually existing, seems to justify the conclusion that, by this plan, colonies of bees become more independent of the average temperature of a depository, and, as a consequence, approximate more closely to their normal condition.

I need not state that this accumulated heat is of great value; in fact, even though the hives are covered with one ⅞ pine board and the ¼-inch box bottom-board, some warmth or heat pervades them, as is apparent by the expanding cluster when as above confined and utilized.

It is well known that bees wintered in box hives, however well protected, if moisture is found in the hives it is at the upper corners or edges of the hives. Especially is this true of long-framed hives. That part of the top against which the bees cluster keeps dry, while the ends of the frames do not.

My experiment may be verified even this winter by other bee-keepers if they at once make a start and put a few hives in similar positions. In one respect, not many will be able to demonstrate to satisfaction, for the reason that most bees have large empty combs between which to cluster, so they do not occupy the lower edges of the combs, while no spare empty combs are left with my colonies on which to cluster, which fact necessitates the lower clustering.

Farwell, Mich.

[Our correspondent, as he says, has departed somewhat from the path of accepted orthodoxy in this matter of ventilation of cellar-wintered colonies. He does not say what is the temperature of his cellar, although in an article on page 367, April 1, 1905, he speaks of the temperature in this same cellar going as low as "about freezing during the last two weeks of Jauuary and the first three in February, and I'm not worried about them."

With such a low temperature even a part of the time, and a low temperature (though higher) at other times, it would no doubt be advantageous to have the entrances all but closed. But in a cellar where the temperature prevailed around 45 and going as high as 50 or even higher, such an arrangement would, we should fear, bring on disaster with the average bee-keeper. The problem in most cellars is not to keep the bees warm enough, but cool enough to prevent too much activity. It has been our experience that, with the open bottoms, the bees hang down in a large baggy cluster, not to close up the opening, but to get more and better air. A warm cellar with the mercury at 50 degrees will pull the bees down at the openings, and it is *then* that the open space reduces the temperature *in the hive* to a point where quiet is induced. In discussing this question we need to take in all the surrounding conditions; and one of these conditions is temperature and humidity. Mr. Bingham, by the way, has a dry cellar. We should be glad to hear from others on this point.—ED.]

PRICE OF HONEY IN GREAT BRITAIN.

BY H. J. O. WALKER, LT. COL.

As one who for many years has taken a personal and to some extent a commercial interest in bee-keeping, and has striven to advance it in his own country, I can assure you that your estimate of the price of honey in London and the provincial towns of England, p. 1556, 1906, is quite above the mark. Excellent bottled honey, either from pure clover or from mixed sources—and between these the buying public is not quick to discriminate or make a preference—can be bought in the best shops at from 9 *d.* to 1/. Comb honey is hardly ever offered except in the form of 1-lb. sections, and it can also generally be bought retail at the above prices. A poor season may raise the price a little, but in any case 1/6 would very seldom be reached. I must make an exception in the case of honey that has taken prizes at well-known shows, especially sections which may be bought on their special merits or to show again where the rules of other shows permit it. The ordinary price in bulk obtained by a skillful bee-keeper is 6 to 8 *d.* in bottle, and 7 to 10 *d.* in sections glazed or otherwise cased. There are men here and there who have managed to make a name and who get higher prices, generally in a local market or to special customers, but the above prices are almost universal for English honey.

Genuine heather honey from Scotland or the north of England is on a different footing, and commands fancy prices—partly on its merits, partly from sentimental associations, and partly because the season in the north for such late-blooming bee-forage is short and precarious, and supply often falls short of demand. Eighteen pence is not very unusual for section honey gathered from ling (*Calluna vulgaris*), the heather of the grouse moors: two shillings would be a fancy price. This honey, although varying according to localities, is generally of a deep reddish-golden color and almost jellylike consistency, so that, when ripened in frames, it can not be extracted mechanically, and the combwork must be sacrificed, and when pressed out and bottled it remains full of bubbles, which spoil its appearance, hence it is usually sold in sections. Earlier in the season, honey is gathered in the south of England from the more showy bell heathers, *Erica cinerea* and *E. tetralix*. It is darker and more fluid, with a less pronounced heather flavor; and, though sometimes sold at north-country prices, it can seldom be gathered pure enough to rank as heather honey.

The popularity of Scottish heather honey is very great, yet there are people who dislike it, and more, among whom I myself take rank, who like it at first, but soon tire of the flavor. To enable you to judge for yourself, or to renew your acquaintance with it, I have the pleasure to send you a sample section of the real thing from over the border. If your bee-keepers can match it from any source, they may succeed in obtaining something like the high price you seem inclined to expect; otherwise I feel sure that the expectation of finding so good a market, even in the prevailing absence of tariff obstacles, will meet with disappointment.

The section of honey was posted this day, Jan. 19 — parcel post — in a tin box, and I hope it will travel safely and not granulate, although it may do so, as the season is advanced. I do not send it to you as a pattern section. It was the last I had of some that a friend had sent me—a good bee-keeper. The quality of the others was very good, and this should be the same.

Leeford, Budleigh Salterton, England.

[Perhaps the impression that we conveyed in regard to the price of heather honey was a little high; but we based our information on a controversy that appeared from time to time on this subject in the *British Bee Journal*, in which it was shown that the best lots of heather honey were selling all the way from 1 shilling 6 pence (36 cents) to 2 shillings (48 cents).

The sample of honey came duly to hand and in remarkably good order. This may be accounted for by the fact that the honey itself is very thick and the comb well filled. Before sampling it we had a photo taken, and the same will be reproduced at another time. It appears to be put up a good deal like much of the so-called British honey—that is, in cartons. If glassed in this shape, of course it will bring more money. On holding the section up to the light it seems to be of a light purple color. The flavor, while a little peculiar, is very pleasant. It is like some other honeys, which, when their flavors are well known, no other honey will be taken. —ED.]

CAUCASIAN BEES.

Bad Propolizers; Very Irritable when Crossed with Italians; a Laughable Case in Point.

BY J. G. BAUMGAERTNER.

Seeing your account of Mr. Frank Rauchfuss' experience with Caucasians, in GLEANINGS for Dec. 15, I am prompted to say something about these bees again. I sang their praise in one of the issues of GLEANINGS in 1906, after having had one colony of them during the summer of 1905, headed by a queen from the United States Department. I handled a number of Caucasian queens the past season, reared from imported mothers by a Southern breeder, selling some and keeping the rest for my own use. Several of these queens produced bees quite as gentle as those from the queen mentioned above; but there were a few which, I think, had mated with Italian drones, as the majority of their bees had three yellow bands, which were worse stingers than any hybrids I ever came in contact with. The fact is, several times they came very near driving me out of the yard, to the amusement of a deaf-and-dumb man standing at a safe distance enjoying the sport. It was this way: I took it for granted that Caucasians don't sting; and up to that time they had never stung me; but one day, while working over a colony of them I pinched a bee, and it gave that peculiar sound bees always give when in agony, and that seemed to have been the signal for a general onslaught upon the intruder. There I learned that Caucasians were not stingless—at least not the first cross of Caucasians and Italians, which I think these were. They crawled all over me, got under my veil, crawled under my vest and up my back, and even up my shirt-sleeves. Well, we "had it out" together a few minutes, when I pulled my veil-string tighter, resumed my former dignity, started up my smoker, and proceeded to impress upon their little minds that I still considered myself master of the situation, and demanded submission. But, not they. I smoked and they—*peppered*. It was something like a little Russian-Japanese war, judging from the gesticulations of the deaf-and-dumb man when he related the incident to his father. The same welcome I repeatedly received from them, and there were three more colonies nearly as bad. I noticed that the cry from a maimed bee infuriated them instantly. It was so noticeable that I once remarked to Mrs. Baumgaertner that, if the size of ears were determined by the manifested degree of the development of the sense of hearing in bees, I should be inclined to brand those Caucasians the mules in beedom.

From these experiences I conclude that the introduction of Caucasian blood will not always tend to quiet the temper of other races of bees, as some suppose, and my experience is substantiated by that of others. For instance, Mr. J. J. Wilder states in the *American Bee Journal*, "Their cross with the Italians is spiteful; but with the blacks their temper remains about the same."

I find them good workers, but better propolizers. In the fall they are equal to the task of closing an entrance one inch deep by the width of the hive. That, by the way, seems to be their favorite place for depositing their glue. They also like to build bridges from the bottom-board to the bottom-bars of the frame, even if that space be a full inch, as with some of my hives.

New Memphis, Ill.

[That is right, friend B. Let us have the truth come out about the Caucasians. As the country has been pretty well Italianized it will necessarily follow that Caucasians in-

troduced into a new locality will result in crosses between Italians and that blood. We shall be pleased to know if any one else has had a similar experience with Caucasian hybrids. There is one thing wherein they excel all other races, and that is in propolizing.

In a talk with Mr. J. B. Hall, of Woodstock, Ont., at his home recently, he reiterated what he had previously said in public; namely, that, in his estimation, the Caucasians were a very undesirable race. They were gentle, according to his experience, but inferior to other bees as honey-gatherers.—ED.]

[This department did not reach us until it was too late for its regular place in these columns, and so we accordingly placed it here. We are making an effort to get our journal out earlier, and not all of our correspondents have been advised in time of the change. Mr. Green was one of them.—ED.]

MICE AND HONEY.

There has been quite a discussion lately in the *American Bee Journal* between Dr. Miller and E. E. Hasty as to why mice eat honey. Mr. Hasty claimed that mice do not eat honey as an article of food, but out of mischief, or only as a sort of relish, and was inclined to the belief that mice would never eat honey if water were accessible, unless possibly they were starved to it. The theory that mice eat honey for the sake of relieving thirst is not new, as it has often been advanced before. I think it is hardly tenable. I have known mice to do a great deal of damage by gnawing the cappings off of comb honey in a building on the ground floor with a stream of running water within twenty feet on one side and within eight feet of the other side of the building. This in the summer time, with nothing to prevent the mice from getting all the water they wanted by simply going a few feet. It has often looked to me as though mice gnawed the capping off of comb honey out of pure mischief; they did so much damage without appearing to do much with the caps gnawed off. But I think the fact of the matter is that mice are fond of honey, or at least readily acquire a taste for it, but they rather prefer it somewhat diluted. The caps they gnaw off, with a slight flavor of honey on them are to them what chewing-gum is to a schoolgirl. But if other honey is kept out of their reach they will gnaw deeper and deeper until I have known them almost to finish a comb of honey. They do not always confine themselves to comb honey either, nor is the starvation theory a good one. I have frequently known them to gnaw candied extracted honey, and only lately I saw a piece of candied honey that had been considerably gnawed by mice in a pantry where plenty of other good things to eat were accessible.

THE BACTERIA OF THE APIARY.

I have just been reading "The Bacteria of the Apiary." While much of it is to a large degree technical, and of little interest except to the bacteriologist, the careful gleaner can extract many things of interest to the ordinary bee-keeper. One of these is the number of bacteria that ordinarily infest healthy bees and combs, over a dozen species having been isolated and studied. One of these, which occurs quite constantly, is believed by the author to have been mistaken by many investigators for *Bacillus alvei*, the cause of European foul brood. All these have been found on only a comparatively few specimens of bees and combs. If bees and combs from a larger territory were studied, it is possible that this list might be greatly increased. It is somewhat difficult to isolate and positively identify these minute organisms. The author states, for instance, that it is impossible to distinguish by the microscope alone between the bacilli causing European and American foul brood. Most of us will agree to the probability that some of the earlier investigators may have mistaken some of these innocent or comparatively harmless bacteria for those that produce disease.

HOT-WATER HEATERS FOR HONEY-TANKS.

Some one told us a year or so ago how to make a hot-water heater for a large honey-tank. I made one last spring, using an ordinary two-burner gasoline-stove as a source of heat. It worked like a charm, raising 2000 pounds of honey from 65 to 100 degrees in 48 hours. This winter it performed the still more difficult task of melting about 800 lbs. of honey that had become candied hard in the tank. Wouldn't I have had a job if I had been obliged to dig that honey out? Only those can appreciate what it would have been who know how hard and tough Colorado honey can become when a well-ripened article is thoroughly candied.

This heating arrangement consists of a rectangular tank or box as large as the bottom of the honey-tank, and 1½ inches high, closed on all sides, made of heavy galvanized iron. In the front, near one corner, is the pipe supplying the hot water, 1¼ inches in diameter. From the back corner comes another pipe of the same size, which returns the cool water to the tank, in which it is heated. Between these inlet and outlet pipes the water is made to circulate back and forth by strips of wood 1×1½ inches, three inches apart. Besides forming the divisions in the heating-tank, these strips of wood support the weight of the honey-tank. From one of the back corners of the heating-tank rises a perpendicular pipe which allows for the expansion of the water, and provides a place for filling. The tank in which the water is heated is made like the other, but only large

enough to cover the top of the gasoline-stove and three inches deep. Its bottom, as it rests on the stove, is six inches below the bottom of the large heating-tank. From its top at one corner rises the supply-pipe, while at the bottom of the other corner is connected the return pipe, running on a long slant from the back end of the large heating-tank. The pipes connecting these two tanks are slightly separated where they come together, the actual connection being made by short pieces of rubber tubing (old single-tube bicycle tire), which permits considerable shifting without danger of breaking the connections. I should, perhaps, have said that the tank on the stove is not divided off inside like the other, only a single partition running most of the way through the center. This supports the top of the heater, which is an excellent place to warm cans of honey.

Experience has shown me that, with our thick honey and cool nights, some method of heating the honey in the large tanks is an absolute necessity if we would have the honey free from specks of comb. Unless the tank is filled with honey while it is all warm, the small specks of wax carried down into the cold honey never rise again until the honey is warmed to a proper degree. Honey should not be considered marketable until all these specks have been removed.

DOUBLE BOILER FOR BOTTLING HONEY.

It is a familiar fact that, to bottle honey so that it will remain liquid for any length of time, it should be sealed up while somewhere in the neighborhood of 160 degrees. For most bee-keepers it is more practical to heat it to the right temperature before it is put into the jars or bottles. It is likewise advisable to keep it at this temperature for some time. With ordinary appliances it is not easy to heat honey, and especially to keep it at any definite temperature without considerable danger of scorching it. A double boiler of some kind is almost a necessity. Those who make a business of bottling honey have elaborate appliances of this kind, some of them costing a hundred dollars or more. The ordinary honey-producer, who can not afford such an outfit, is apt to conclude that he must do without any thing of the kind. A very satisfactory outfit, when only a moderate amount of honey is to be bottled, may be made out of two galvanized wash-boilers, a No. 8 and a No. 9. The smaller size will go into the larger one nicely. Wash-boilers vary considerably in size as made by different manufacturers, and you may have to hunt some to find a pair that will go together with a sufficient amount of room between. If you can not find a pair that go well together, you may have to have one made, though you can buy them much cheaper ready made. Solder V-shaped strips of heavy galvanized iron to the bottom of the inner boiler to keep it at least half an inch above the bottom of the other; brace and fasten the sides well together, and solder in a molasses-gate, extending into the inner boiler. A small cock to draw the water off from the space between the two is a convenience, though not absolutely necessary. The complete outfit can be made for about $3.00, and it will do as good work as any.

HOW MUCH ARE BEES HINDERED BY QUEEN-EXCLUDERS?

The point brought up by G. C. Greiner, on p. 107, would be exceedingly important if it should prove that he is correct in his claim that queen-excluding zinc as lately manufactured is the cause of a greatly reduced honey yield in every apiary where it is used. I have been using queen-excluding zinc for a number of years, practically ever since it has been on the market, and have bought a number of different lots of it at different times since then, besides making considerable of it myself. I probably have in use more or less of all the different sizes of perforations that have been made, though I have sold off most of the earlier makes and replaced them with the later patterns. I have now in use nearly two hundred of the latest make of queen-excluders, with material for making up as many more; and if I have been making a mistake, I should like to know it.

My system of managing bees is such that I find queen-excluders a practical necessity during a large part of the season, and I do not look as complacently as Mr. Greiner does on the queen that finds her way up through the excluder. I have not been as successful in keeping the queens down as he appears to have been. Nearly every season I have had from one to a dozen cases where the queen has started brood in the supers, and I consider it a very undesirable nuisance. Nor is it always as easy as he would have us believe to restore matters to a normal condition. I remember distinctly putting one queen downstairs on three separate occasions last summer, and she would probably have continued to go up through the excluder as often as I put her down if I had not exchanged the old excluder for one with smaller perforations. Annoying and time-wasting as such things are, I could easily put up with them if I thought it would make any perceptible increase in the honey crop to use the larger perforations.

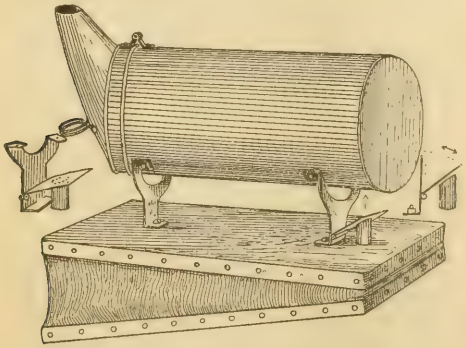
While my attention has not been specially directed to this point, I have not noticed any difference whatever, although I had over a hundred of each size in use the past season, and I think I should have noticed it if there had been any. There have always been those who have claimed that any queen-excluder lessened the crop by hindering the bees in their work. After my bees are well at work in the sections, there is no longer any need of the queen-excluding honey-board, except as it prevents brace-combs. Accordingly I have often removed the excluders from part of the hives at such times.

It seemed only reasonable to suppose that they would do at least a little better if they were out of their way. But I have never been able to discover that such colonies did

any better work whatever in comparison with those on which the excluder was retained; and I have been forced to the conclusion that, in a good yield at least, it is no hindrance whatever to the bees.

HOW TO PREVENT SMOKE FROM ENTERING THE BELLOWS.

I had one of the Corneil smokers, and had not used it very long before I noticed the smoke that is drawn back when the smoker was standing or hanging on the hive, which it often does, caused the bellows-board around the blast-hole to become blackened and charred by the heat and smoke. I tried an experiment to see if I could not prevent the heat and smoke from entering the bellows by tacking a light strip of leather a distance from the small hole and letting it cover the hole, acting as a flap valve. It was not very successful, as I had to work the bellows with more force to get enough of a blast to do the work, and in a few days the heat and smoke had it charred and crisp so that I had to take it off.



I figured that, if such things continued, I should soon have my bellows ruined, as the life of the old Corneil or Bingham was one season with me, while I used one of your Crane smokers with check valve for three seasons, and the bellows was fairly good at the end of that time. The fire-box had burned out. I set about to invent some kind of device to help matters, and I solved it by making a device as you will notice by the enclosed drawing. I get just as strong a blast as I did before I put it on, and it prevents the heat and smoke from entering the bellows, and is impossible to foul or clog.

Tempe, Ariz. L. E. REDDEN.

[With the older smokers, that is, those with a valve in the bellows to let in the air, this device ought to work satisfactorily, and would be of much value, especially if fine fuel were used. But with the new valveless smokers, in which the air passes back through the blast-hole, such an arrangement would not work, for the reason that it would prevent the bellows from filling with air. And with the new blast-tubes there is almost no complaint, for the reason that the tube extends so far up into the fire-box that practically no sparks can be drawn back into the bellows.—ED.]

THE NORTHERN CALIFORNIA BEE-KEEPERS' ASSOCIATION.

It may be of interest to some of your readers, especially for those of this coast and the State of California, to know or to learn that there exists a Northern California Bee-keepers' Association whose object it is to promote the welfare of the bee-industry in the whole of northern California. This association held its second annual convention in Sacramento on Jan. 28 and 29, which was attended by about 20 members coming from a good many counties north of the Stanislaus River. Prof. J. M. Rankin, of the Government Experiment Station, at Chico, addressed the assembly on various subjects which were discussed at some length.

The supervisors of Sacramento County were petitioned to appoint a foul-brood inspector for the county, and the members from other counties were advised to follow that example in their respective home counties. The members present agreed to sign a contract not to sell any honey for less than the figures fixed by the executive board of the association. They indorsed and approved the work done for our industry by the experiment station at Chico under its present manager, Prof. Rankin.

After receiving the reports of its officers, and approving the work done by them, the election of officers for the ensuing year took place, whereupon the convention adjourned, to meet again in a one-day session on June 24, 1907.

Any one interested in our association, which is a branch of the National Bee-keepers' Association, can get further information from our Secretary, Mr. B. B. Hogaboom, Elk Grove, Sacramento Co., Cal.

Stockton, Cal. SEBASTIAN ESELIN.

A CASE WHERE IT PAID TO FEED.

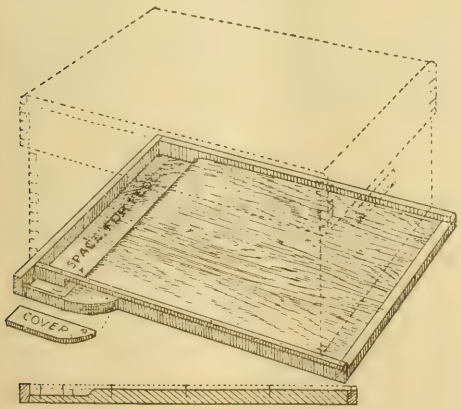
In July and August, as we have very little yellow and white sweet clover here, there is no honey coming in—not enough, in fact, to keep up brood-rearing fast enough to have strong colonies for the fall honey-flow, which commences about August 10. Well, I fed those colonies every evening, about dusk, just enough syrup to stimulate them sufficiently to rear brood pretty fast; then when the honey-flow opened I had colonies just boiling over with bees. I got over 1700 lbs. of honey from 30 colonies this fall, and put them away heavy with honey for winter. Those that we did not feed got very little if

any honey. Every one knows this was a poor year for honey, there being only two weeks all told when the bees got any surplus; and when the asters came in bloom sufficiently to give any surplus the rains set in and cut us out entirely of any flow from them. I have also scattered white sweet-clover seed over about 80 acres of waste land. I see it blooms during our honey dearth; and if I can cut out feeding, and also get a surplus from it, it will be just like killing two birds with one stone, and the stone can be used year after year, without getting smaller or broken, but will be getting harder and harder every year. Yes, if it yields only enough to keep up brood-rearing it will pay all the trouble for sowing.

Evansville, Ind. JULIUS HAFFEL.

A BOTTOM-BOARD AND FEEDER COMBINED.

The illustration shows one of my bottom-boards with self-feeding attachment. It has the advantage of permanency, which enables one to feed at any time without disturbing the bees, making it so easy that one would feed when, if he had to go to work and get



a feeder placed, he would be likely not to do so. To use it, the hive-body is slipped forward sufficiently to admit of pouring the feed in from the back, after which a strip is laid over to close the opening.

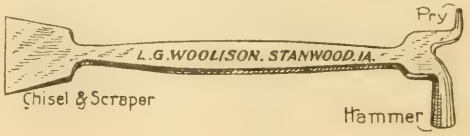
Staunton, Va. W. O. SYDNOR.

[This arrangement here shown will probably give good results. One objection is that it will be difficult to make a bottom-board along these lines that will be syrup-tight year in and year out, and another is that it would be limited in capacity. The Alexander feeders are made of one piece of wood; and any shrinking that may take place does not affect their holding quality.

The cut shows what appears to be an improvement on it since the letter here written by our correspondent was prepared. We refer to the side lip with a cover. This arrangement would make it unnecessary to shove the hive forward on the bottom-board as explained in the text.—ED.]

A HIVE-TOOL FORGED FROM A FILE.

The illustration shows my hive-tool which I have made. For the past two seasons a number of bee-keepers in this vicinity have tried it and think the tool is all right. The little hook on the other side of the hammer



is intended to hook under the end of the brood-frame between the tin rabbet and the outside of the hive end, using a hammer on the remaining frames as a pry to raise and loosen the brood-frames. The bit is $1\frac{15}{16}$ in. wide, which will scrape a $1\frac{7}{8}$ section at one stroke, and is very useful for prying off and scraping covers. It is forged from one piece of steel, and highly tempered.

Stanwood, Ia. L. G. WOOLISON.

[We tested this hive-tool in our apiary during the past summer. As a general pry for loosening the cover from the hive-body, it is excellent; but we found it rather heavy and large for the purpose of prying the frames apart. A much smallor tool we consider preferable.—ED.]

THE WAY ANTS ATTACK BEES.

In a sample copy of GLEANINGS received some time ago I saw an article regarding the death of bees caused by ants, etc. We have some flies and ants here that destroy bees at times. You will notice the bee I send you was caught by an ant. The head still hanging to the bee shows the bull-dog tenacity of the ant, and also shows that the bee can defend itself to some extent. The head of the ant did not interfere with the bee's natural labor, as it had been doing its duty in food-gathering some time before I chloroformed it to forward you. E. N. FRANCIS.

Uvalde, Texas.

[We examined the bee sent by our correspondent, and were interested in noticing the head of the ant still clinging to one of the bee's legs. It evidently would not let go, even when pulled to pieces by that bee or some other one.—ED.]

SOFT CANDY SAVES ELEVEN STARVING COLONIES.

January 1, being so warm that the bees were flying freely, I looked into the hives and found them almost without feed. I ordered honey from a dealer, and it was lost by the railroad company. I ordered again, and it came by the same route. I became frantic, and, being a railroad agent myself, I kept the wires hot tracing that honey. I couldn't sleep nights, for I knew my pets were starving. I tried soft syrup feed, and it was not good, for the bees would fill their combs and then cluster some place else. The dampness from such feed made the bees wet, and it was only luck they did not freeze.

Finally I began to search GLEANINGS, and found your instructions how to make candy, and how to put it in. I followed instructions, and placed good warm quilts over each chink, and was surprised at the result. Eleven colonies starving to death in January came out good and strong in April, and while working on the willows they struck the alighting-board from 68 to 132 per minute. I took 1576 pounds of comb honey from 11 colonies, and received 20 cents per pound for all I sold. F. E. STARKEY.

Boelus, Neb., Nov. 20.

CANDY FOR WINTER FOOD MADE IN A DIFFERENT WAY.

I read in GLEANINGS, Jan. 15, about Dr. Lyon and yourself experimenting with winter feeding. I am surprised to find no writer who makes candy as I do. I use granulated sugar and water, just as others do (but I do not stir it) and run it into greased pans when it is just right for making good taffy. In a few days it granulates and is as solid a wax cake as yours, but they are full of thick syrup. I lay it over the cluster, and the bees soon take the syrup all out. When I examine again I pour some water on it. Those cakes are so porous that they readily absorb water, and that saves the bees from hunting water every time they take a flight. I use these cakes on all colonies, whether short of stores or not. Sometimes there are streaks of taffy in them when I put them on the hive, but it granulates there, and is all right.

Royal, Ill. B. D. HALL.

CANDY FOR BEES; MORE INFORMATION WANTED.

I am much interested in your discussion of candy for winter feeding, pp. 83 and 98. I wish you would say how much water you use per pound of sugar, how long you boil it, and the temperature of the mass when you stop the boiling and turn it out to cool.

I am guessing that the result depends on the three factors named. The more water you use, and the longer time you take to boil it, the more of the sugar will be inverted, and the more of the sugar that is inverted the more hygroscopic it becomes, and the harder it will have to be to stand up in the humid atmosphere of the hive. The temperature determines the hardness.

When you tell us to cook it till it grains readily when stirred, you leave the final result quite indefinite. I think sugar can be made to grain when it contains so much water that it would not remain firm in the hive. The result from any given boiling temperature of specified quantities of sugar and water would be quite exact, and could be duplicated by any one.

The same ideas apply to making syrup for feeding late in the fall. It should be easy to determine the proportions of sugar, water, and tartaric acid, that, boiled to a certain temperature, would not candy, although made to weigh 11 pounds per gallon, if one would make the needed experiments.

Solon, Maine. TURNER BUSWELL.

[As to the quantity of water to the sugar, that depends very largely upon the state of the atmosphere and the intensity of the fire on which the syrup is to be "cooked." Roughly speaking, four dipperfuls of sugar to one of water will give the right proportion. Just enough water should be used so that all the sugar will be dissolved when the mixture has just come to a boil. If it is still cloudy when it is boiling, add a little more water. While it is being dissolved it should be stirred.

The next question is, How long should it boil? Well, as the candy-makers would say, until it comes to a "crack;" that is to say, dip your finger into cold water, then into the hot syrup, and then *immediately* back into the water. If the mixture has cooked long enough, the film of hard cold syrup will "crack" upon the fingers. If it has not cooked long enough it will be soft. It may be necessary to make two or three tests before the cracking-point is reached. The syrup should then be taken off the stove.

We omitted to state that about half a teaspoonful of cream tartar dissolved in a little water, or, if preferred, one pound of honey to ten pounds of sugar, should be put in when the sugar and water are first put on the stove. The purpose is to keep the candy in a hard state so that it will not go back to the granular form, rattling down between the frames when the bees start to eat it.—ED.]

NO BEES ON ALFALFA.

I watched two alfalfa-fields the past season, one close to North Manchester, Ind., and one in Whitley County, Ind. Not a bee could I see working on either of them.

North Manchester, Ind. S. F. MILLER.

GOOD FOR WASHINGTON, D. C.

We take unusual pleasure in submitting the following clipping from *The Woman's National Daily*, because Congressman Webber was a Medina boy, born and educated in Medina Co., Ohio.—A. I. R.

WILL STORM CONGRESS.

A most determined effort is being made to do away with the selling of liquor in the District of Columbia. As previously stated in these dispatches, Congressman Webber, of Ohio, introduced a bill last year to wipe out the saloons in the city of Washington, which is practically all of the District of Columbia—the seat of the national government. There are upward of 800 places in which drinks can be bought during the hours the licensed concerns are allowed to keep open.

Congress has been slow to act on the various bills that have been introduced for the suppression of the liquor-traffic here. The members of the large number of anti-drink associations are, however, organizing a sensation. They have been unusually active during the winter. They have been promised that they will get a hearing on the 14th of the present month. That is St. Valentine's day. They are preparing to invade in great numbers the big white capitol building. A combination of the different societies is now called the "Prohibition Crusaders of the District of Columbia." Their plan is to have no less than 10,000 men, women, and children gather in and around the capitol building on the 14th, and demand of the legislators that the liquor business at the seat of government shall be wiped out of existence.

Behold the fowls of the air; for they sow not, neither do they reap, nor gather into barns; yet your heavenly Father feedeth them.—MATT. 6:26.

Create in me a clean heart, O God, and renew a right spirit within me.—PSALM 51:10.

So far in my experiments with poultry reared entirely without shelter, nature's way, or, as I prefer to put it, *God's* way, it seems far ahead of man-made incubators and brooders. The chicks hatched under the hen were more robust than those hatched in my 10-lb. incubator; yet in justice to the latter I will say that the most of them now, at about six weeks of age, are very much alike. It was pretty tough for a while for the incubator chicks, especially those hatched a few days later, to keep up with the mother hen in her rambles about the island, especially cool mornings; but in answer to their plaintive peep she rested and brooded them; and with plenty of wheat where they could always find it they soon became strong and robust. There was one chick (from the first egg laid by the White Leghorn pullet) that was almost a week younger than the rest. He had such a hard time keeping up with "the procession" that I used to pick him up and warm his little toes in my hands. I soon found, however, this would not do, for he followed *me* instead of the hen, and he got to be quite a nuisance, for none of us wanted to step on the little bit of down. Sometimes I would think I could get away from him by walking very fast or running; then I would look back, and, not seeing any thing of him, conclude he had gone back to the hen; but again and again I would find him just between my feet. It is truly wonderful how they can make those tiny legs spin. For a week or more it seemed as if he would hardly make a live of it, especially after I had stopped "cuddling" him; but yesterday I picked him up and was pleasantly surprised to find him a vigorous, strong-limbed, handsome fellow, equal to any of them, only a little younger.

Now, friends, I know I am treading on ground gone over and over by thousands of experts, yet I give it as my opinion that it will be very hard to invent any plan whereby we can by artificial means give the chicks from an incubator any outdoor exercise *fully equal* to what they get in following a hen. She, under God's direction, gives them all the exercise they will bear; and when she knows by their plaintive notes they are tired or chilly she gives them the very best *rest* and *warmth* the world has ever invented. I know there are great establishments that grow the finest poultry by the thousands, at least they claim they are equal to any, and that without hens at all; but I am so incredulous that I have planned soon to visit some of the best in the world, and then I will tell you about it. Just now it seems to me the mother hen will, here in this Florida climate, not only do the work *better* but *cheaper*, and I have seen chicks reared in brooders at the same time ours here on this island were running wild, or under God's care, as we have it in the first of our texts. I have proved that a hen can take charge of 30 nicely, and I opine she would manage 40 or even more just about as well. Of course, she can not cover so many; but there are always tough ones in every flock that prefer to stand outside or run about and not be brooded. As I have said, not a chick was lost that went from the incubator to the hen mother; but when I undertook to make the brooder take the place of the hen I had many disappointments. At one time I had eleven beautiful chicks, some of them over a week old, when one morning the whole lot seemed only sickly ghosts of what they had been the day before. Worse still, when the poor little chaps tried to walk several of them seemed, in spite of all they could do, to run backward instead of forward. Mrs. Shumard said, as soon as she saw them, that they smelled of coal oil. Sure enough, during a cool night they had pressed up against the lamp until every chick was pretty well "anointed," and then had tumbled in the dirt and black dust. You may ask what kind of brooder I had. Well, the combined brooder and incubator cost only $6.50, and I was foolish enough to think it might do for my experiments here in this Florida climate. The printed directions said, "Don't be afraid of the chicks interfering with the lamp nor the lamp with them." The lamp was carefully wiped clean the night before when filled, but enough oil got out in some way to kill 8 of the 11 chicks. Let me say, however, to the credit of the 10-lb. incubator, that it did hatch the nineteen nice chicks given the hen, although it required a good deal of supervision when the weather changed suddenly. Since I have tried one of the *cheapest*, I am now daily expecting one of the *best* small incubators that can be bought, with brooder to match.

The lamb has, through all ages, been selected as a symbol of innocence and inoffensiveness; but I should place a little chicken at the head of all animated nature as a type of all that is good, pure, and lovable. Not only is there confiding innocence, but there is strength of muscle for such a little body, and life and animation, and, we might almost say, *enthusiasm* as well. Watch a strong vigorous chick as it starts out in the morning. If he doesn't enjoy life and thank God for existence I don't know of any animated nature that does. I have frightened a chick, not yet out of his shell, almost out of his little senses, and yet he is the easiest animal in the world to give you his confidence. In one brief day you can win that little confidence, and hear his plaintive little thanks for warming his little self, or for giving him food and drink when he is a little

older. They have quite a little vocabulary (the one God gave them), and I do not know any sweeter music than to listen to their baby language. In a very little time they can be taught to let you pick them up; and if you are not very careful you can almost hear them say, "Be gentle, please; remember I am so very little." I once hit with my foot the one that *would* run after me, and tumbled him over and over in the dirt. His exclamation of surprise and astonishment was ludicrous. It seemed to say, "Oh! oh! oh! how is it possible that *you*, who claim to be such a friend of poor little me, should knock me about in that style?"

When it comes to expressing thanks for any service rendered, a little chicken is ahead of the world. They are full of jokes and pleasantries. At a very early age they will pretend to want to fight with their comrades. Who told *them* about fighting? They will ape their busy mother, and try to do every thing they see her do, in a way that is truly comical. We have read that flowers have sometimes turned wicked men from their evil ways. It seems to me that any one who gets really closely acquainted with a little chick, learns that beautifully expressive little talk, and what it means, must be a better man or woman ever afterward.

This opens the way for the second of my two texts. I purchased a pretty good grade of White Leghorn rooster to put with my five pullets; and when the eggs of *his* parentage began to hatch out I was on the watch you may be sure, The chicks, sure enough, were of a golden yellow, brighter than the yellowest Italian bees. I petted them and loved them; and when, a few hours later, the shining silvery wing feathers began to shoot out (faster than plants grow in my cloth-covered greenhouse) I admired them almost every hour. Then the coal-oil episode came, and one after another I was compelled to see the little lives go out in spite of thorough washings and all that I could do. I got homesick. I don't know but I almost got the blues. I reasoned with myself, and said:

"Old fellow! you are overlooking all your many great blessings, and getting cross about the loss of a few cents' worth of chickens. While the great cities are rejoicing and thanking God for the wonderful work of Torrey and Gypsey Smith, to say nothing of the great crusade for temperance, you are narrowing your life down to this latest hobby of yours, and losing your peace of mind when, more than likely, it is God's plan, and what you need, to have a little disappointment right here.

Yes, friends, I *prayed* over it. It was, of course, not the value of the chickens, but facing the probability that they would likely *keep* on dying. I was, however, contrary and stubborn. I ordered one of the best fifty-egg incubators by express, and, to get over the stubbornness, I used David's prayer—"Create in me a clean heart, O God, and renew a right spirit within me."

I am still in favor of hens for mothers. My five pullets are one-fourth Brazilian games, and three-fourths White Leghorns. The following extract from a letter will tell you why I want some game blood in my sitting hens:

> A well-bred game hen *will* keep hawks away from her brood. She will fight away cats, dogs, or almost any thing. Not even a man can take one without a fight. I have a little game hen of only 3½ lbs. weight that fought and whipped a large-sized chicken-hawk that on two occasions had tried to catch one of her little ones. The second hawk had succeeded in catching one of the chicks, but she caught him on the fly, at least ten feet above the ground, brought him to the ground with her, and whipped him off. Some time ago I threw a good-sized hawk with a broken wing in with a pen of three hens and a cock to see the result. The cock killed the hawk in about three minutes. WILSON WRIGHT.
>
> Braidentown, Fla., Feb. 9.

Well, there was one *full-blood* game chick among the "oiled ones." He was a big strong lusty fellow, and he and I were *particular* friends. He told me his troubles, and I came pretty near telling him mine. He held on and pulled manfully for life, but I had to see him draw his last breath.

"FIGHTING MOTHERS."

While we are about it I am not sure but that it is the fighting mothers that are going to redeem the world. Our recent and great victories over the rum traffic are, no doubt, the work largely of fighting mothers.

An incubator weighing only 10 lbs., if a really good one could be made so light, would be a great boon because it could be sent by express, as, many times, it is very inconvenient to wait for the slow motions of freight shipments. But another consideration comes in here. I notice many of the testimonials in regard to the more expensive machines say, "No cripples in hatches from this machine." Are we to infer from this that cheap machines, or, perhaps, *poor* machines, rather, are likely to produce crippled chickens? and this reminds me that I have had half a dozen or more crippled chickens. Perhaps the Humane Society should have a word to say in regard to any traffic that tends to bring crippled animals into the world. God grant that our United States of America may have like jurisdiction over *any* traffic that shall be the means of bringing crippled (or imbecile) *humanity* into the world.

AN ARGUMENT IN FAVOR OF THE STAINLESS FLAG.

> I still remain a bee-enthusiast, and the pleasure I have in bee-literature is added to by seeing the fearless fights you wage against the drink and other evils. In reading them and the record of the triumphs of good against evil, I myself have often been cheered, and, thanking God, have myself taken courage. Drink, however, is not our bane here. With a population of 200,000 I have not seen a case of drunkenness for some years, and the highest number of arrests I have ever seen for three months was 22. I have seen it as low as 3. W. G. HUTCHINSON.
>
> Boscobel, Barbados, Dec. 19, 1906.

The above gives us a most astounding fact and argument in favor of the "Stainless Flag." Just think of it! a city of 200,000 people, and no visible drunkenness! The explanation and reason for this is that there is no tax or license on liquors. The government is *not* in partnership with the saloon business.

"NEW CREATIONS" IN BUSH LIMAS!

Nature has surely surpassed herself! In a single season she has outstripped all efforts of man. In fact, such distinct new types have never even been dreamed of before!

To learn just what they really are and how they were discovered, kindly study *pages 10 to 15 of* THE FARM ANNUAL FOR 1907. They are undoubtedly the "*Greatest Novelties of the Age.*"

The Burpee-Improved is an entirely **"New Creation."** The pods are truly enormous in size, borne in great abundance upon bushes two and one-half feet high by two feet across. The beans are both larger and thicker than those of the popular *Burpee's Bush Lima* or any strain of the large White Pole Lima.

Fordhook Bush Lima This is altogether *unique*. Nothing like it has ever been seen before. It is the first and *only* stiffly erect Bush form of the fat "Potato Lima." Both pods and beans are twice the size of *Dreer's*, *Thorburn's* or *Kumerle Bush Lima* and more than half again as large as the *Challenger Pole Lima*.

$1115 in Cash Prizes

With one prize of **$150**, and several of **$50** each, we will pay a total of **$1115** on these **Two New Bush Limas**, —*see* BURPEE'S FARM ANNUAL.

These Bush Limas are sold only in sealed packets. Each packet contains twelve perfect hand-picked beans. **Per pkt. 25 cents; 5 pkts. for $1.00** postpaid.

Burpee Improved Bush-Lima.—Life-Size Pod

"Five Finest" New Flowers For 25 cts.

We will mail—as a special advertising offer—one regular fifteen-cent packet each of the charming Variegated Queen Tall Nasturtium, the first of Burpee's New "Royal Race" of Variegated-leaved Tall Nasturtiums, Burbank's New Crimson-flowering Eschscholtzia, Burpee's Hercules Giant Pansies, the gigantic orchid flowered new pink, Florence Spencer (see illustration), and the richly colored Evelyn Byatt Sweet Pea. Purchased separately these five packets would cost seventy-five cents. **All five packets mailed for 25 cts.; or five assortments** (in all 25 packets) **1.00**—to separate addresses if requested.

Four 1908 Novelties FREE!

To every one who orders direct from this advertisement, we will send FREE—if asked for—any one with a 50c order, any two with a dollar order, or all four with an order for $2.00. These Novelties, not yet cataloged by us, but on which we offer Cash Prizes for advance trials, are: New American Dwarf Bush Nasturtium, "Ashes of Roses;" The New English "Beacon" Sweet Pea; New American Thick-leaved Gigantic Mustard, and a New Early Hard-head Butter Lettuce from Germany.

Burpee's 1907 Farm : Annual

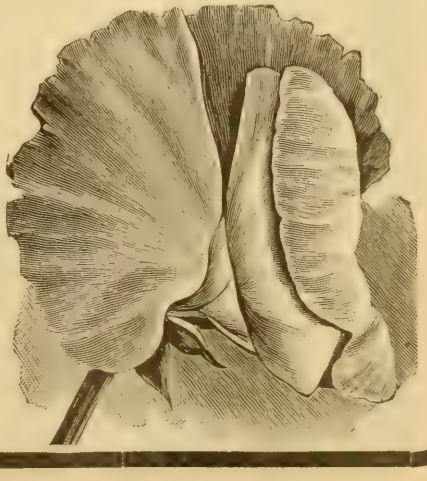
"Leading American Seed Catalog."

The "Silent Salesman" of the world's largest mail-order seed trade. An elegant new book of **200 PAGES** with hundreds of illustrations from photographs. It tells only plain truth about the very best

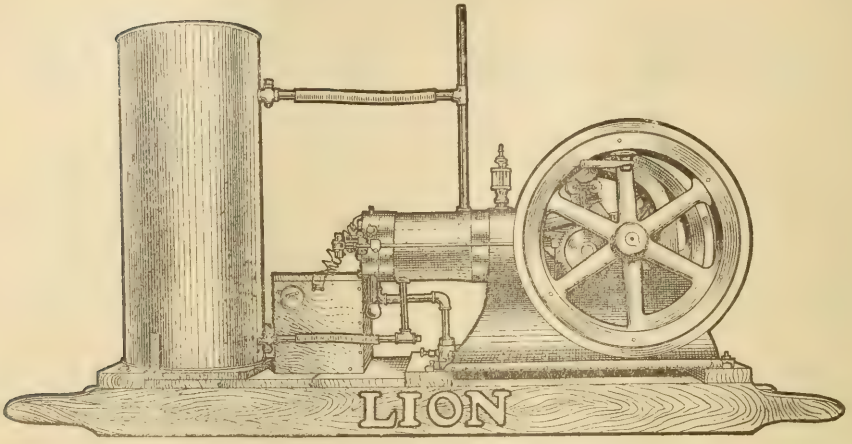
Seeds that Grow.

It describes Grand Novelties in Flowers and Vegetables of unusual importance, which can not be obtained elsewhere. If interested, write to-day — mention GLEANINGS IN BEE CULTURE and the book is yours.

REGISTERED W B TRADE MARK "The seal of quality."



W. Atlee Burpee & Co., Philadelphia
Burpee Building



IT'S READY TO OPERATE

There's no firing-up—no waiting for steam with a **Lion** Gasoline Engine. It is **always ready to operate.** Easily started—no engineer necessary—a boy can operate it. Can be used with perfect safety in any building and is very **economical** in the use of fuel. If you want a reliable, practical, durable and powerful power producer get

The Lion Engine

It is **not** an experiment but an engine that has **made good** wherever used. On the farm it proves especially valuable for operating feed grinders, wood saws, cream separators, corn shellers, pump, etc. It furnishes ideal power for operating machinery used in mills, shops, printing offices, private electric-light plants and water-works. Speed can be changed from 100 to 600 revolutions per minute while engine is running—a very desirable feature.

We sell direct from factory to buyer, thus saving you all middlemen's profit. Lion engines are so simple and practical in construction that with the explicit directions which we send with each engine, it is unnecessary to have an expert come to your place to set it up and start it for you. Get a **Lion** engine and increase your profits with much less labor and time devoted to the work. Write now for catalog giving full information and illustrations of the **Lion** engine. It is free if you mention this paper when you write.

Ballou Manufacturing Co.,
Successors to Lyons Engine Co.
Belding, Mich.

Big Saving to You

On the Best Manure Spreader Made

FIGURED from any point of the compass—taking the question of the **first cost**—the question of quality—the question of capacity—the question of finish—the question of strength—the question of correct principles—the question of right working.

We, the makers of this celebrated **American Manure Spreader,** will save you money every time on one of our high-grade machines. We not only save you money on the *first* cost—but we save you money per year's wear—because—the **American** is made of the highest quality, best material possible to secure—and made on correct principles by skilled workmen.

If every purchaser of a Manure Spreader would first compare the **American** with all other makes, *we* would sell all the Manure Spreaders that are sold.

We know that's pretty strong talk—but the **American** will make good every claim we make for it. It is positively BEST BY COMPARISON—and we want to prove to you all the claims we make. We will sell you

Direct from the factory and pay all the freight to you

at our low factory price, which leaves out the jobbers' and dealers' dividends.

Set it up and use it, in your own way, on your own farm, for a full month—to *prove* every claim we make for it. If the machine *isn't* exactly as we claim it is—and *doesn't* do the work exactly as we say it will, and isn't perfectly satisfactory to you, all you have to do is to send it back to us—*and the month's trial won't cost you a penny.* In this way you may have

Free Use of an American Manure Spreader for a Month.

Now we are the only manufacturers of a complete line of Manure Spreaders selling direct from factory to user. We are the only manufacturers of Manure Spreaders selling on **30 Days' Free Trial**—and the **American** is

Sold on Time or For Cash

The American is made in 10 styles and 5 sizes—a size for every purpose, and it's the greatest money-making implement you can have on your farm. It's a time-saver, a labor-saver, a profit-maker. Take care of your land—*and your land will take care of you.*

The question of fertilizing has too long been overlooked by many farmers. Are *you* guilty? Our Big Spreader Book tells the rest of our story; it fully describes and gives pictures of our full line of American Spreaders. We want to send you this Book, **FREE**—the handsomest Spreader Book ever issued by anybody.

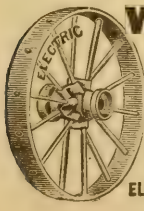
We keep a full stock of **American Spreaders** in all leading trade centers, and also carry a full line of repairs at these points, thus insuring quick delivery of parts in case of breakage.

Now, why not get your order in at once for an **American Spreader?** We are now giving Spring dating on early orders, and you might just as well have your Spreader at once. It doesn't cost you any more to buy now instead of later.

Write for our Big Book of full particulars and let us quote you a price direct to you—delivered at your station—all freight allowed. No matter what Spreader you have been thinking of buying—no matter what Spreader you have been looking at—send for our Book and Special-Delivery-to-You-Price—before you finally decide. Better write to-day, NOW.

American Harrow Company,

4650 Hastings Street, DETROIT, MICH.



WAGON SENSE

Don't break your back and kill your horses with a high wheel wagon. For comfort's sake get an

Electric Handy Wagon.

It will save you time and money. A set of Electric Steel Wheels will make your old wagon new at small cost. Write for catalogue. It is free.

ELECTRIC WHEEL CO., Box 95, Quincy, Ill.

THE "KANT-KLOG" SPRAYERS

Something New. Gets twice the results with same labor and fluid. Flat or round, fine or coarse sprays from same Nozzle. Ten styles. For trees, vines, vegetables, whitewashing, etc.

Agents Wanted.

Booklets free.

Rochester Spray Pump Co., 32 East Ave., Rochester, N. Y.

Get Your Order In Early

For a Detroit Tongueless Disc Harrow Sold On Time—or For Cash

ON 30 DAYS' FREE TRIAL

Last year 1463 people waited *too* long before ordering. We were all sold out—factory couldn't keep up and we had to disappoint these 1463 people by returning their orders. Just *couldn't* make Disc Harrows enough to go round—that's all. Why?

Well, if you are at all familiar with Disc Harrows, and will look at the picture in this advertisement, you will see some of the reasons why we could not make enough to meet our demands.

There is no tongue to pound up horses—whipping back and forth. No pushing or crowding of the team on corners. No tongue weight to gall up the horses' necks. No one horse pushing—and one pulling, on turns—just straight, even pulling ahead all the time. Perfect balance of frame makes Disc roll smoothly. Lightest draft Disc made.

These are a *few* of the reasons why we sold so many Detroit Tongueless Disc Harrows last year. There are *other* reasons explained in our book—too many of them to give here.

Now here's a big patent feature for 1907—an additional feature over last year.

OUR TRANSPORT TRUCK ATTACHMENT

Notice the truck wheels just back of the Disc blades? You can attach them in a minute's time to the Detroit Tongueless Disc Harrow—and Discs are raised from the ground—elevated on light running front and back trucks.

This puts your Disc on wheels and you can drive anywhere—over rough roads—sand—gravel—stones—or bridges—without dulling the Discs or cutting up the surface. Strong brake makes driving down the steepest hill perfectly safe.

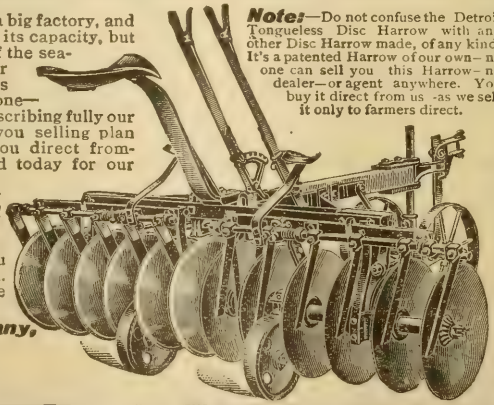
It's a great convenience—that patent TRANSPORT TRUCK of ours! *And it's found on no other Harrow* on the market.

Important. Now we have a big factory, and are running it to the very limit of its capacity, but Right now—'way in advance of the season—half of our factory output for Spring is sold—and a flood of orders are coming every day. If you want one—and you will if you get our Book describing fully our various sizes and our direct-to-you selling plan (time or cash) and prices quoted you direct from-factory-to-station—you should send today for our Book, Plan and Price.

Just write us on a postal—say "Send me full particulars of Detroit Tongueless Disc Harrows"—and we'll send you our Book and other printed matter and quote you a direct price, at your station. Freight guaranteed—on our Free Trial Plan.

American Harrow Company,
W. W. Collier, Gen'l. Mgr.,
4647 Hastings St.,
Detroit, Mich.

Note!—Do not confuse the Detroit Tongueless Disc Harrow with any other Disc Harrow made, of any kind. It's a patented Harrow of our own—no one can sell you this Harrow—no dealer—or agent anywhere. You buy it direct from us—as we sell it only to farmers direct.



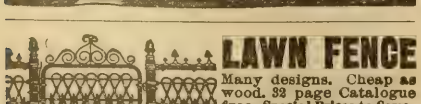
MORE POTATOES

and better ones, earlier to mature and using less seed, when you plant with our

Acme Hand Planter

Deposits seed at just the right depth in moist soil. Neither seed nor soil can dry out. Seed grows at once. Cheapest and easiest way to plant. Works well in any soil, sod or new land. If your dealer can't furnish it, send $1 and his name; we will ship charges paid. Write for Booklet, "The Acme of Potato Profit," Free

Potato Implement Co.,
Box 520,
Traverse City,
Mich.



LAWN FENCE

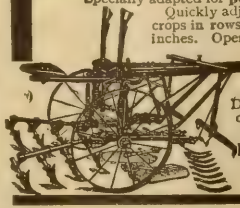
Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address

COILED SPRING FENCE CO.
Box 448 Winchester, Ind.

IRON AGE

No. 80 Pivot Wheel Riding Cultivator

Specially adapted for **potato culture.** Quickly adjusted to cultivate any crops in rows of any width—28 to 48 inches. Operated in any soil.



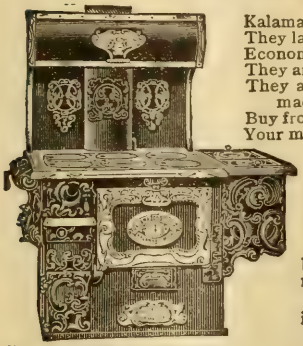
Our **new 1907 Iron Age Book** describes Potato Planter, Sprayers, Digger and complete line of Farm and Garden Tools.

Bateman Mfg. Co.
Box
Grenloch, N. J.

850,000 GRAPE VINES

69 Varieties. Also **Small Fruits, Trees, &c.** Best rooted stock. Genuine, cheap. 2 sample vines mailed for 10c. Descriptive price-list free. **Lewis Roesch, Fredonia, N.Y.**

"A Kalamazoo Direct to You"



ROYAL STEEL RANGE
For All Kinds of fuel.

Kalamazoos are fuel savers,—
They last a lifetime—
Economical in all respects—
They are low in price and high in quality,—
They are easily operated and quickly set up and made ready for business,—
Buy from the actual manufacturer,—
Your money returned if everything is not exactly as represented—
You keep in your own pocket the dealers' and jobbers' profits when you buy a Kalamazoo.

WE PAY THE FREIGHT.

We want to prove to you that you cannot buy a better stove or range than the Kalamazoo, at any price.

OAK STOVE HEATER,
For All Kinds of Fuel.

We want to show you *how* and *why* you save from 20% to 40% in buying direct from our factory at factory prices.
If you think $5, or $10, or $40, worth saving

Send Postal for Catalogue No. 416

Examine our complete line of stoves and ranges for all kinds of fuel. Note the high quality; compare our prices with others, and then decide to buy from actual manufacturers and save all middlemen's profits. Catalog shows 267 styles and sizes for all kinds of fuel. Write now. Sold on 360 Days Approval Test.

Kalamazoo Stove Co., Manufacturers, Kalamazoo, Mich.

All Kalamazoo Cook Stoves and Ranges are fitted with patent oven thermometer which makes baking and roasting easy. All stoves blacked, polished and ready for immediate use when you receive them.

Oven Thermometer

Hot-Bed SASH $1.60

DEALER'S PRICE $3.50

Including Glass Without Glass 92c

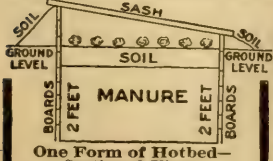
NOW is the time to buy sash for your hotbeds or chicken houses and brooders. Hotbeds are easy to make like illustration below. Cost little. Pay big. You get our sash direct—

ALL READY TO USE

SAFE Delivery Guaranteed Anywhere

from the Largest Mill in America. No come apart to it. Best workmanship. Glass laps over to **prevent leaks.** Bars screwed on bottom rail. Sash glazed **with putty and points.** 3x6 feet. **Higher Grade in all ways than dealers sell for double our prices.**

Grand Millwork Catalog FREE



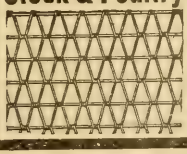
One Form of Hotbed—Sectional View.

Don't fail to write us a postal for our Grand **Free Millwork Catalog.** Illustrates Hot-Bed Sash, and 5,000 Bargains in all **Woodwork, Doors, Windows, Screens,** etc., and Flint-Coated Rubber Roofing—**ALL HALF** Dealer's Prices, freight included. Write today.

Guaranteed to SAVE YOU

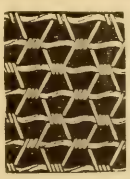
CORDON, VAN TINE & CO.
103 Case Street, Davenport, Iowa

Stock & Poultry FENCE



Many styles and heights; Diamond or Square Mesh; prices low. **Sold direct on 30 days free trial,** freight prepaid. Catalogue free.

KITSELMAN BROS.
Box 21, Muncie, Ind.



FENCE *Strongest Made*

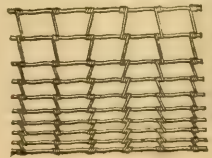
Made of **High Carbon** coiled wire. We have no **agents.** Sell direct to user at **factory prices on 30 days free trial.** We pay **all freight.** Catalog shows 37 styles and heights of farm and poultry fence. **It's free.** Buy direct. Write today

COILED SPRING FENCE CO.
Box 101, WINCHESTER, INDIANA.

BROWN PAYS THE FREIGHT

HEAVIEST FENCE MADE

All No. 9 Steel Wire. Well galvanized. Weighs ⅛ more than most fences. **15 to 85c per rod delivered.** We send **free sample** for inspection and test. Write for fence book of 133 styles. **The Brown Fence & Wire Co., Cleveland, Ohio.**



WIRE FENCE 29c

48-in. stock fence per rod only

Best high carbon coiled steel spring wire. Catalogue of fences, tools and supplies **FREE.** Buy direct at wholesale. Write to-day.

MASON FENCE CO.,
Box 89, Leesburg, O.

THE "BEST" LIGHT

The only light that **makes** and **burns** its own gas at the extremely low cost of 2c per week and gives perfect service with **NO GREASE, DIRT, SMOKE OR ODOR.** Every burner equal to 100 candles burning at one time. Think of it—brighter than electricity or acetylene and cheaper than kerosene. You cannot afford to be without it. Over 100 styles. Every lamp warranted. **Agents Wanted Everywhere.**
THE BEST LIGHT CO., 306 E. 5th St., Canton, O.

Crofts & Reed

SOAPS, PURE FOODS ETC. FACTORY TO HOME

All middlemen's profits done away with. You get this saving in choice of 1000 premiums with $2 orders and up. This **CHAIR GIVEN** with $10 order. Everything guaranteed. **No money in advance.** *Send for catalog and free sample of soap.*
Crofts & Reed Dept. 690, Austin Avenue, CHICAGO, ILL.

JOSEPH HORNE CO.

Penn and Fifth | Pittsburgh, Pa.

More Kioto Silk

at 35c Yd.

Several weeks ago we advertised a lot of Kioto Silk at the special price of 35c a yard. The response to this advertisement was so unanimous that we feel justified in repeating the particulars about this silk fabric.

Kioto Silk is a soft and lustrous fabric, combined of Japanese Silk and finest Sea Island Cotton.

It is light weight and clinging in texture, a summer fabric par excellence. We can imagine nothing prettier or more inexpensive for dressy frocks for young girls.

THE REGULAR PRICE IS 50 CTS. PER YD.

but we were fortunate in our purchase and are thus enabled to offer it for a full 15c below the rightful value.

Shown in delicate evening colors, in rich black, and in small tasteful designs.

Your Name Will Get $2 Eggs

For 50 Cents Per Sitting

The White and Brown Leghorns are the greatest layers in the world. I keep 2000 of the celebrated Chamberlain laying strain on my Experimental Farm, and to increase the sale of my Perfect Chick Feed, I will send to any one who will send me their name so I can send them my Perfect Chick Feed Catalogue, 2 sittings of Single Comb Brown or White Leghorn Eggs for $1 for the 2 sittings. Only 3 sittings sold to one person. White or Barred Plymouth Rock, or White or Silver Laced Wyandotte Eggs $1 per sitting. This is a rare chance to get a start of extra fine stock. Send money and have your orders booked at once.
W. F. CHAMBERLAIN, (*The Perfect Chick Feed Man*)
KIRKWOOD, MO.

40 BREEDS Fine pure-bred chickens, ducks, geese, and turkeys. Northern raised; hardy and very beautiful. Largest poultry-farm in the Northwest. Fowls, eggs, and incubators at lowest prices. Send 4 c. for fine 76-page 13th annual catalog.
R. F. NEUBERT, Box 778, MANKATO, MINN.

R. I. Reds

White and Barred Rocks, Wyandottes, Lt. Brahmas

Hardy, prolific, farm-bred, pure stock. For birds, moderate prices. EGGS TO HATCH at 10 cts. each.

Walter Sherman
100 Boulevard, Newport, R. I.

Make Good Money

in Poultry business. Others do it. You can too. Our big book **Profitable Poultry** tells how to breed, hatch, feed and market to make big money. Describes most wonderful Poultry Farm in the world. 32 kinds of fowls. Quotes low prices on fowls, eggs, incubators and supplies. Mailed for 4c. postage.
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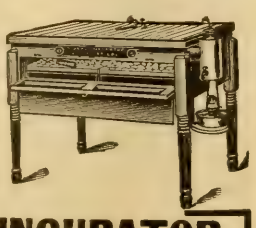

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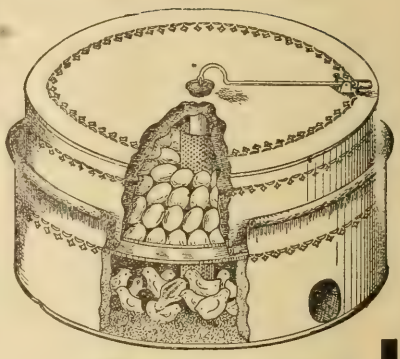

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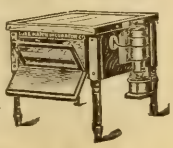

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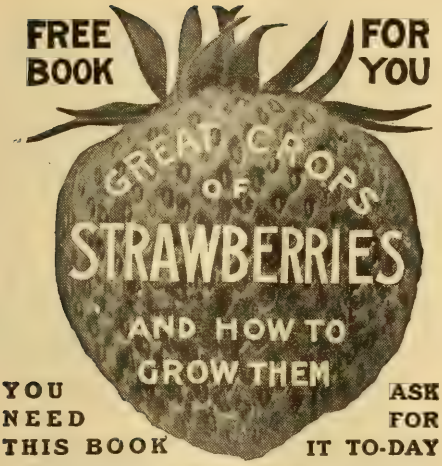

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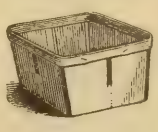

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ITALIAN QUEENS and BEES
I can supply select untested Queens at 75 cts. each; $7.50 per dozen. Orders for early delivery will receive careful attention.
David S. Hurst, Box 102, Letohatchee, Ala.

Classified Advertisements.

Notices will be inserted in these classified columns at 20 cents per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Help Wanted.

WANTED.—Hustling helper in the bee and honey business. A steady job for the right man
B. WALKER, Clyde, Illinois.

WANTED.—An apiarist accustomed to large apiaries. State age, experience, and wages.
DR. GEO. D. MITCHELL & Co., Ogden, Utah.

WANTED.—A good man to work at the bee business. Must like horses.
H. B. HETHERINGTON, Cherry Valley, N. Y.

WANTED.—A hustler to represent us in every county; $10.00 per week and expenses or commission. Permanent work. NORTH JERSEY NURSERIES, Newark, N.J.

WANTED.—An industrious man who knows how to handle bees. To a man of the right stamp a good opening is offered. Very healthy location.
G. W. ROBERTS, Menardville, Texas.

WANTED—Representatives to sell our teas, coffees, and olive oil, direct from importer to consumer. Mail orders solicited. Price list free.
RIO VISTA TRADING CO., 670 Main St., Buffalo, N. Y.

WANTED.—Young man to work in large apiary in Southern California: after honey season can work for me on ranch or vineyard. Good board and wages.
Address L. L., care of A. I. Root Co.

WANTED.—An experienced man with wife to work bees on shares or for wages; good house furnished; location best in the United States; sure of good honey crop every year; no failures. Write at once.
GARFIELD BOOMHOWER, Schoharie, N. Y.

WANTED.—An active single man, who is handy with carpenter tools, to make himself generally useful on a 30-acre farm when not working with the bees. Will pay $300 a year, good board, bed, and washing to the man who is willing to try to earn it.
H. C. AHLERS, West Bend, Wis.

WANTED.—A No. 1 man to take care of 200 to 500 stands of bees. When not working with bees to work on the ranch. Don't apply unless you thoroughly understand bees and putting their products up for market. State terms wanted, and give references.
BLALOCK FRUIT CO., Walla Walla, Wash.

WANTED.—A man competent to manage my home apiary of 150 colonies when I am away inspecting apiaries. An opportunity for the right man to learn the management of out-apiaries and get a start in life. State age, experience, wages, etc.
CHARLES STEWART, Sammonsville, N. Y.

NAVY offers excellent opportunities to young men of good character to receive instruction fitting them for promotion; good pay at start, advancement as soon as qualified. Apply to Navy Recruiting Station, Commercial Bank Building, Cleveland, O., or Postoffice Building, Cincinnati, O.

Situation Wanted.

WANTED.—Situation as apiarist by married man 35 years of age, 15 years' experience.
F. M. POLAND, Thorndike, Me.

WANTED.—Situation by a practical apiarist, or a large apiary to run on shares for extracted honey.
W. W. MCNEAL, Wheelersburg, O.

WANTED.—A position with reliable bee-man; almost a life-long experience. Give wages paid and local conditions in first letter; age 44. References.
W. GENSEN, "God's" Bible School, Cincinnati, O.

For Sale.

FOR SALE.—250 Heddon hives.
W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—Pair thoroughbred Beagle pups at a bargain. For information write Box 311, Medina, O.

FOR SALE.—Fine job-printing outfit.
C. A. STEBBINS, Broad Creek, Va.

FOR SALE.—4000 ferrets; some trained. Prices and book mailed free. N. A. KNAPP, Rochester, Ohio.

FOR SALE.—Dahlias, 20 kinds, $1. Catalog. St. Louis Grand Prize. H. F. BURT, Taunton, Mass.

FOR SALE.—Two bicycles, one tandem, shotgun, revolver; bargains if sold soon. Box 95, Medina, O.

FOR SALE.—Paragon Chestnut. I can furnish Paragon Chestnut grafts for spring grafting, 25 fine grafts for $1.00. J. H. BUPP, Loganville, Pa.

FOR SALE—at a bargain, 10-inch Rider compression hot-air pumping engine, in good condition.
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FOR SALE.—Yellow-sweet-clover seed at 12 and 15 cts. per lb.; white, at 8 and 10.
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FOR SALE.—A Vermont farm, 85 acres, good buildings; orchard, wood, smooth fields, ¼ mile to station. Price $2200. H. A. JOSLYN, East Hardwick, Vt.

FOR SALE.—At 8 cts. each, 125 ten frame and 40 eight-frame wood-zinc excluders, or exchange for any thing useful. W. M. JANES,
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FOR SALE.—$5000 will buy good farm. 76 acres (15 acres alfalfa, one acre vineyard), 15 cows, 50 colonies Italian bees. Fine location. Easy terms.
O. LUHDORFF, Visalia, Cal.

FOUND.—After thirty years' experimenting, a comb-frame that is practical and bids defiance to propolis. All about them; write the inventor.
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FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1907 send your name and address to FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE.—Have just lost house by fire and want to sell land—seven acres adjoining city of Auburn. For particulars address
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FOR SALE.—A superior strain of ensilage corn. If you grow for silo or fodder it will pay you well to write. Samples and circular free.
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FOR SALE.—One-piece sections, of all the standard sizes, 1000, $4.00; No. 2, $3.50; plain, 25 cts. less. These sections are strictly first-class. Also other supplies very cheap. JAS E. MORGAN,
Dansville, Ingham Co., Mich.

FOR SALE.—Ninety second-hand chaff hives (forty 10-frame Quinbys, and fifty 13-frame Gallup); three 4-frame Cowan extractors, used but two years; 900 lbs. buckwheat comb honey.
E. D. TOWNSEND, Remus, Mich.

FOR SALE.—In lots to suit, several hundred eight and ten frame size comb-honey supers for 4¼x4¼x1⅞ sections, all made up and painted, used but little. Special low price if ordered at once. For particulars address THE ROCKY MOUNTAIN BEE CO.,
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FOR SALE.—A complete steam-laundry outfit. Two washers, ironing-machines, extractor, starchers—everything you need but boiler. Why not start a laundry in your home town? it will pay you good returns. Write me about it. Box 414, Medina, O.

FOR SALE.—Thirty acres of land in Pennsylvania; modern house and barn; 100 fruit-trees; good bee pasture, and fine opportunity for out-apiaries. Price $1200. If you mean business, write at once; good reason for selling.
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FOR SALE.—One 400-egg Star incubator; used for 3 hatches; cost $38; $12 takes it. One 200-egg New Peerless; cost $18; sell for $10. One home-made 225-egg, in good condition; cost $13; sell for $5. One new comb-foundation mill, ten-inch, Root's make; $12 takes it. The incubators are good hatchers.
G. ROUTZAHN, Biglerville, Pa.

FOR SALE.—The highest type of Angora and Persian cats, from imported ancestors. Don't confound these cats with the coon cats or mongrels kept in bird-stores and sold at $3.00, when so many people will pay $25 to $75 for a fine-bred specimen. Any ambitious woman can make money raising them. Kittens, pure white, some with blue eyes and other colors; very reasonable. Kindly do not write out of mere curiosity; but every business letter will be promptly answered.
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Mill No. 1—14-in., old-style high frame, in perfect order, price $18.00.
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Mill No. 5—6-in. mill, new style, in perfect order, used but little; price $12.00.
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FOR SALE.—Bees, 25 stands. Address
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FOR SALE.—From March 15th to May 15th, shook swarms of bees, at $1.50. A. D. DUNCAN, Argyle, Ga.

FOR SALE.—Direct imported Italian queens and Chicago 1st prize red Belgian hares. For particulars write A. ZIEGLER, Bippus, Ind.

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FOR SALE.—100 eight-frame hives of hybrids, single story, and will sell lot cheap. G. P. HOWELL,
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FOR SALE.— Eighty colonies Italian bees in fine condition, 64 in Danzenbaker hives, 16 in Gallup hives; selling on account of ill health. Write for prices.
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FOR SALE.—Italian queens, red-clover and golden-bred for business; order now for June delivery. Satisfaction guaranteed and safe arrival warranted. Untested, $1.00; tested, $1.25; select tested, $1.50.
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FOR SALE — 500 colonies of bees located in several apiaries; will sell whole or part with fixtures; sheds, extracting-houses, etc.; no foul brood; no bad winter results. Also land for sale. Get a start under the Tonto Basin Reservoir. H. F. DOLSON,
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FOR SALE.—White Wyandottes; 15 eggs, 75 cts.; 30 eggs, $1.25. J. F. MICHAEL, Winchester, Ind.

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FOR SALE.—Choice poultry. Ten leading varieties for the farmer or the fancier. Circulars free.
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FOR SALE.— Single-comb Buff Leghorn eggs, Arnold strain, 1906 egg record, 177½ eggs per hen; per setting of 15 eggs, $1.50. FRANK RAUCHFUSS,
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WANTED.—Mr. Bee-keeper, your order *now*. Let us quote you prices on goods before busy season. Root's Goods for Western bee-keepers.
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WANTED.—To let, apiary of over 300 colonies on five years' time. Produced $6.00 per colony this year. Great opportunity in Colorado.
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WANTED.—To buy 200 colonies of Italian bees for spot cash, L. frame preferred.
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WANTED.—Every Western bee-keeper to send for our new illustrated catalog. We can save you money. Write to-day.
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WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.
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WANTED.—20,000 pounds pure clover honey. Send average sample and state best price.
J. E. CRANE & SON, Middlebury, Vt.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here. GRIGGS BROS., Toledo, O.

WANTED.—Beeswax. We will pay 30 cts. per pound for fancy pure yellow beeswax delivered in New York until further notice. CHAS. ISRAEL & BROS.,
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WANTED.—In large or small lots, No. 1 white and amber extracted honey in 60-pound cans or barrels. Send sample and quote lowest cash price delivered in Preston. M. V. FACEY,
Preston, Fillmore Co., Minn.

WANTED.—Beeswax, any quantity; will make remittance the day wax arrives.
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Denver, Colorado.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

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FOR SALE.—50 cases of comb honey in no-drip cases.
LOUIS WERNER, Edwardsville, Ill.

FOR SALE.—Buckwheat honey in 60-lb. cans, at 6c per lb. C. J. BALDRIDGE,
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FOR SALE.—1000 lbs. extracted buckwheat honey at 6 cts. Purity and quality guaranteed.
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FOR SALE.—50,000 pounds California water-white extracted honey by the case or car.
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FOR SALE.—Fancy basswood and clover honey in barrels or 60-lb. cans; sample 10 cts., which may be deducted when ordering. ROBT. A. HOLEKAMP & SON,
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FOR SALE.—600 lbs. of the finest clover extracted honey, in 60-lb. cans. This honey was left on the hive clear through the season, is rich in flavor, and heavy in body. Money can not buy better. I am offering this superior honey at 9 cts. a lb., F. O. B. Remus. Sample free, E. D. TOWNSEND,
Remus, Mich.

Bee-keepers' Directory

This department is for the exclusive use of all-year-round advertisers. If you have any thing the bee-keeper needs, your card in this department keeps your name always before your prospective customers at half our flat rates. We reserve the right to reject or modify any ad. not eligible to these special rates.

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FINEST Golden and red-clover queens, Caucasian and Carniolan. DANIEL WURTH & GRANT, Pitkin, Ark.

ITALIAN AND CAUCASIAN bees and queens of best quality; price list free. A. E. TITOFF, Ioamosa, Cal.

MAPLEWOOD APIARY.—Choice comb honey, Italian bees and queens. GEO. H. REA, Reynoldsville, Pa. R. 2.

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H. H. JEPSON, 182 Friend St., Boston, Mass.

ITALIAN BEES, queens, beeswax, honey, and bee-keepers' supplies. M. E. TRIBBLE, Marshall, Mo.

FOR SALE.—Bee-keepers' Supplies. Write for catalog. Lengst & Koenig, 127 S. 13th St,. Saginaw, Mich.

FOR SALE.—Golden and red-clover Italian queens. WM. A. SHUFF, 4426 Osage Ave., Philadelphia, Pa.

ITALIAN BEES and queens—red-clover and golden strains. E. E. MOTT, Glenwood, Cass Co., Mich.

ITALIAN BEES, queens, honey, and bee-keepers' supplies. A. T. DOCKHAM, Box 95, Rt. 1, Eagle Bend, Minn.

SWARTHMORE Golden-all-over, Caucasian, Banat, Carniolan, Cyprian queens. E. L. Pratt, Swarthmore, Pa.

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FOR SALE.—Root's bee-supplies, wholesale and retail; factory prices; catalog free. Beeswax wanted.
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GOLDEN-ALL-OVER Caucasian Banat bees and queens. We book orders for early queens from our best imported breeding stock for honey, with 600 twin mating-boxes. THE SNYDER APIARIES, Lebanon, Pa.

QUEENS.—Improved Red-clover Italians bred for business; June 1 to Nov. 15, untested queens, 60c; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

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Improved Carniolans always winter best, breed up strongest early in the spring; the finest comb-honey builders. (Italians for those preferring them.) Catalog free, W. W. CRIM, Pekin, Ind.

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Both Races.						
UNTESTED.	$ .75	$4.25	$8.00	$ .60	$3.35	$6.50
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Full rates on application. Send all your orders to

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Same Old Place

is where you get the best of queens; untested, $1.00; $4.25 per 6; $8.00 per dozen. Tested, $1.50; best breeders, $5. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy-Lands, Italians.

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Golden, Three-banded, or Leather-colored. Write for circular to-day. . Prices right. . Queens all right.

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Bright, Plump and Vigorous Young Untested QUEENS

Root red-clover strain.

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Incubators and Brooders. Lice-killer and Poultry-powders. Also eggs for hatching. Free circulars.

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Tested queens, $1.50; select tested queens, $2.00; fair breeding queens, $3.00; extra select breeders, $5.00—ready to go promptly. Untested 1907 queens, $1.00; select untested queens, $1.25—ready early in March. Yours for a prosperous 1907.

W. O. VICTOR,
Queen Specialist, HONDO, TEXAS.

TAYLOR'S STRAIN OF ITALIANS IS THE BEST.

Long tongues and goldens are the best of honey-gatherers; 18 years a specialty, breeding for the best honey-gatherers. Untested, 75 cts. each, or $8.00 a dozen; tested, $1.00 each, or $10.00 a dozen; select tested, $1.50 each. Breeders, the very best, from $3.00 to $5.00 each. Carniolans same price as Italians. Try them. We also sell nuclei and full colonies of bees. Bees in separate yards. Safe arrival guaranteed.

Send all orders to
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Queens from 50 Cents Up!
Bred from Root's Imported Italians. Write for prices, stating wants. . .

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Alsike Clover Seed.

Alsike is fine for land, pasture, and hay. It is hardy also. Present price of seed, f. o. b., per bushel, $8.00. Six bushels or more include sacks; less than six-bushel orders, sacks 20 cents extra.

Medium and mammoth red-clover seed, if desired, is the same price as alsike. Seed advancing. Please order early.

F. A. SNELL,
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FARMS, lots, factory site, coal, oil; ¼ cash. Add. Rev. Williams, DeHaven, Pa.

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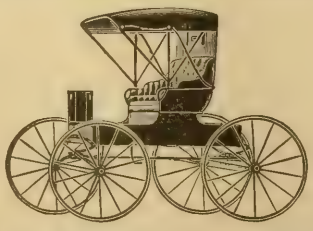

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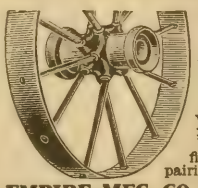


STEEL WHEELS

with wide tires double the usefulness of the farm wagon. We furnish them any size to fit any axle. Cheaper than repairing old wheels. Catalogue *free.*

EMPIRE MFG. CO., Box 91A Quincy, Ill.

DOUBLE QUICK **WASHING**

Half the time, half the work.

100 Pieces an Hour

with the

"Busy Bee" Washer

The machine with a record. No rubbing No dirt left. **AGENTS WANTED.**

Exclusive territory. Busy Bee Washer Co., Box 103, Erie, Pa.

A New Factory

and also a new firm name, but in the same place with the same management. We have just put in a complete

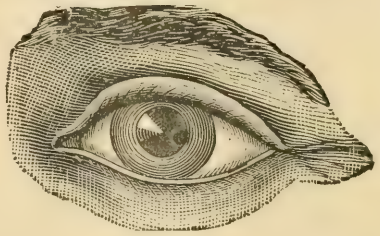
Weed Process Comb Foundation Factory

of the very latest type, and we are now ready to work up wax for western bee-keepers at low prices. . . We want several thousand pounds of beeswax at once, and will pay top market price for same. Let us hear from any one having wax to offer. .· .· .·

Buck & Wilson, Augusta, Kan.

Butler County

Keep Your



Open!

THERE will be need for many "B" Supplies this season. The past two years have been poor ones. Prospects are good for a honey crop this year. Bees are wintering well. If you are in need of hives, sections, etc., better order soon. Railroad companies are crowded. Freight moves slow these days. Don't wait until the last moment. Send for our 40-page catalog of A. I. Root Co.'s goods, which we can furnish you from here on short notice at a low price. . . . . .

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.

Mr. Texas Bee-keeper:

I should like to talk to you *personally.*

First, I want you to know about my supplies. I handle Root's Goods, of course; for I believe in giving my customers complete satisfaction—for that's better in the long run than low prices. My place of business is on the S. A. & A. P. Ry., just opposite the passenger depot, where I have built a warehouse 40×250 feet, and I have filled it full to the brim, for I handle Root's goods by the carload. This means I can furnish you with supplies with the utmost promptness.

Then, too, I have installed a complete Weed-process Foundation factory. I can turn out 500 lbs. a day. I can work your wax into foundation. In fact, my facilities in this line are not surpassed in Texas.

My can business is increasing by leaps and bounds. That is because of the quality of the goods. It will save you dollars to get my prices. Better write for them to-day.

Nothing pleases me better than for bee-keepers to make their headquarters at my office when in San Antonio. You are always welcome. I have fitted up my office with plenty of desks and chairs, with writing-material, a reading-table, and all the bee journals on hand. Consider yourself invited.

If you haven't my catalog just drop a postal.

I can supply Red-clover and Golden Italian queens promptly.

I am now paying 23c cash and 26c in trade for average clean beeswax delivered here. Save your slumgum. I will buy it. Let me know how much you have, in what condition the slumgum is, and in what kind of an extractor it was rendered, and I will make you price I am paying.

Call or Address

Udo Toepperwein, - San Antonio, Texas

1322 South Flores Street

We are Not in a Trust!

Bee-hives, Sections, Brood-frames, Extractors

Every thing that bee-keepers use at LOWEST PRICES.
Quality the Highest. We've been making them 25 years.

American Bee-keeper

A profusely illustrated practical bee-journal which we have published for 17 years. 50c year. Sample copy and our 1907 illustrated catalog and price list free. Address

The W. T. Falconer Mfg. Co., Dept. C, Jamestown, N. Y.

New Goods - Big Stock

New Warehouse : Root's Goods : Prompt Shipment : Low Freight

Everything for the Bee-keeper at Savannah, Georgia

We are prepared to furnish promptly a full line of supplies; choice new stock just from the factory. BEES and QUEENS. We have large apiaries of fine stock. Book your orders at once, as there will be a heavy demand this season. Catalog sent free. Correspondence solicited.

Howkins & Rush, 124 West Liberty St., Savannah, Ga.

Dadant's..... ..Foundation

We guarantee it absolutely satisfactory every way.

Ask any dealer who handles our make along with any other, and he will say, "Of course, Dadant's is the best." Ask a bee-keeper who has used our make and he will tell you the same thing. WHY? Because we make the manufacture of foundation our SPECIALTY. We devote our time and energies to making THE VERY BEST COMB FOUNDATION that CAN BE MADE.

It will cost you no more than any other make. Send for free catalog and prices. Early-order discounts on all kinds of goods for the bee-keeper now.

We work beeswax into foundation.
We buy beeswax at all times.
Prices sent on application.

Dadant & Sons, Hamilton, Ills.

Root Goods

for the West

Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS.

My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

Write for estimate with liberal discount for orders sent in now.

Jos. Nysewander, Des Moines, Iowa

565, 567 West Seventh Street

Gleanings in Bee Culture

VOL. XXXV MARCH 15, 1907. NO. 6

THE A. I. ROOT CO.
MEDINA — OHIO.

The Swarming Season

will soon be here. Are you prepared? Why not order your supplies now, and take advantage of

The Large Discounts

which we offer this month on Bee-supplies? Only remember the

Low Freight Rates

from TOLEDO places our goods in your door cheaper than you can get them elsewhere. We afford you every advantage in both Poultry and Bee Supplies. We sell The A. I. Root Co.'s bee-supplies, Model Incubators and Brooders, Prairie State Incubators and Brooders, Poultry Supplies of all kinds.

Our Large Illustrated Catalog

illustrates and describes our complete line; tells how to raise bees and chickens successfully. . Free upon request.

The Griggs Bros. & Nichols Co.

523 Monroe St., Toledo, Ohio.

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von Deutschland, Schweiz, Osterreich, u. s. w., schreiben Sie uns um unsere 1907 Preisliste für

Bienenwohnungen,
Walzwerke,
Honigschleüder,
Rauchapparat,
Bienenschleier,
Handschuhe,
Futterkasten,
Bienenflucht "PORTER,"
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Wabenentdecklungsapparat, und alle anderen Artikel von.

The A. I. ROOT Company,

Der grösste Fabrik der Welt.

EMILE BONDONNEAU,

General Vertreter für Europa und Kolonien.

142 Faubourg Saint Denis, Paris, 10me.

Root's . . . . . Goods

Stand for

Reliability

Uniform excellence . . . . . always maintained.

Popularity

Everywhere in high favor.

Quality

Material and workman- . . . . . ship unexcelled.

In Other Words-----It's Root Quality

We Sell the Root Quality Goods in

MICHIGAN

Write for prices and discount on your list of goods for the coming season.

"Where Quality Counts, We Win."

M. H. HUNT & SON

Redford, Wayne County, Michigan

C. H. W. WEBER

Headquarters for . . .

BEE-SUPPLIES

Distributor of Root's Goods Exclusively at Root's Factory Prices

GIVE ME your orders for the **Best Goods Made.** You will be pleased on receipt of them. You will **save money** by ordering from me. My stock is complete; in fact, I keep **every thing** the **bee-keeper** needs. **Cincinnati** is one of the best **shipping-points** in the Union, **particularly in the South,** as all freight now **goes through Cincinnati.** Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly **free.**

A SPECIAL DISCOUNT ON EARLY ORDERS

I will buy your Honey and Beeswax

I pay **cash on delivery;** or, if you are in **need of honey,** write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of **extracted** or **comb honey.** I guarantee its purity.

Queens and Nuclei

Let me book your orders for queens. I breed the finest **Golden Italians, Red-clovers, Carniolans, and Caucasians.** Can furnish **Nuclei** beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White Sweet-scented Clover, Alfalfa, and Alsike.

C. H. W. WEBER

Office and Salesroom, 2146-48 Central Ave.
Warehouse, Freeman and Central Avenues.

CINCINNATI, OHIO, U. S. A.

Honey Markets.

GRADING RULES.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

The prices here quoted are wholesale, or what the honey brings on arrival.

ST. LOUIS.—There is no change in our honey market, except the receipts of comb honey have been more free, and there is no scarcity at present. We quote: Fancy white comb honey at 17; No. 1, 15 to 16; light amber, 15; broken and inferior, less. Extracted light amber, California, 7½ to 8; Spanish needle, 8 (all in 5-gallon cans). Southern in barrels is quotable at 5½ to 6; same quality in 5-gallon cans, 6½ to 7. There is no stock of the latter description on the market. Beeswax firm at 31 for choice pure. All impure and inferior, less.

R. HARTMANN PRODUCE CO.,
Mar. 9. St. Louis, Mo.

PHILADELPHIA.—Honey has been moving more freely in the last ten days, but large quantities have been shipped in by bee-keepers, fearing they might not be able to sell it before warm weather, which has weakened the price some. We quote: Fancy comb honey, 15 to 16; No. 1, 14 to 15; amber, 12 to 13. Beeswax very firm at 31 for best yellow.

W. A. SELSER,
Feb. 25. Philadelphia, Pa.

INDIANAPOLIS.—Market on comb honey is very quiet, regardless of the short crop. Fancy white comb brings 16 to 17; No. 1 white, 14; amber, 12 to 13. Best grades of extracted honey bring 9 to 9½; amber, 6 to 7. Good average beeswax sells here at $35 per 100 pounds.

WALTER S. POUDER,
Mar. 5. 513 Mass. Ave., Indianapolis, Ind.

KANSAS CITY.—The demand for comb honey is only fair at present; the market is almost bare of extracted, with quite a little inquiry. We quote No. 1 white comb, 24-sec. cases, $3.10 to $3.25; No. 2, $2.50 to $2.75; white extracted, per lb., 8 to 10; amber, 8. Beeswax, per lb., 25 to 27.

C. C. CLEMONS & CO.
Mar. 4.

CINCINNATI.—There is very little demand for extracted honey at this writing, which is only natural, owing to the unsettled weather at this time of the year. However, we are looking forward with interest to a revival of trade as soon as the warm spring days are here. We sell amber extracted honey, in barrels, at 6¼ to 7½, the price depending upon the quantity purchased. Fancy table honey in crates of two 60-lb. cans each, at 8 to 9. There is little demand for comb honey, owing to the lateness of the season. We are now paying 32 cash or 35 in trade for choice yellow beeswax delivered here.

THE FRED W. MUTH CO.,
Mar. 11. 51 Walnut St., Cincinnati, O.

NEW YORK.—There is a fair demand for white comb honey, with supply practically exhausted. Buckwheat, dark, and amber honeys are in very light demand, with quite some stock on the market We quote fancy white at 15; No. 1, 13 to 14; amber at 12; buckwheat at 10. Extracted in good demand for nearly all grades. California white sage at 8 to 8½; light amber, 7 to 7½; dark, 6 to 6½ Beeswax is steady at 30 to 31.

HILDRETH & SEGELKEN,
Mar. 9. New York.

TOLEDO.—The market on comb honey has practically no changes to speak of. Strictly fancy white comb brings in a small way from 17 to 18, with a small demand and no new honey being offered. No. 1 brings 16 to 17, with no demand for lower grades. Extracted would bring 7 to 7½ in barrels and cans. Beeswax is firm at 28 to 30.

THE GRIGGS BROS. & NICHOLS CO.,
Mar. 9. Toledo, Ohio.

CINCINNATI.—The market on comb honey has been quite brisk the past week—entirely sold out of fancy white. No. 2 is selling for 12½ to 13; white-clover extracted in cans, 9; amber in barrels, 6. For beeswax we are paying 30 cts. delivered in Cincinnati.

C. H. W. WEBER,
Mar. 9. 2146-2148 Central Ave., Cincinnati, O.

CHICAGO.—The market is steady, with few if any changes. The supply of choice white comb honey is light, and fancy grades bring 16; extracted white, 7½ to 8. Beeswax, 30.

R. A. BURNETT & CO.,
Mar. 9. 199 So. Water St., Chicago, Ill.

LONDON.—The following quotations are from the *English Public Ledger*—a reliable authority: Chilian honey, 4 to 6½c per lb.; California, 4¼ to 8; Jamaica, 4 to 5. Beeswax, Jamaica, 31 to 34; Madagascar, 28 to 29; Mogador, 20 to 24; East India, yellow, 24 to 27; East India, white, 33 to 34; Australian, 28 to 32.

HAVRE, France (from the *Journal d'Agriculture Tropicale*). Beeswax from Sierra Leone, 29 cts.; Madagascar, 30 cts.; Tonkin, 30 cts.

Honey and Wax Wanted and for Sale. See Classified Ads. on pages 484–486.

BEE SUPPLIES.

We handle the finest bee supplies, made by the W. T. FALCONER MFG. CO., Jamestown, N. Y. Big Discounts on early orders, let us figure with you on your wants.

MUTH SPECIAL DOVE TAIL HIVES, have a honey board, warp-proof cover, and bottom board, think of it, same price as the regular styles. Send for Catalog.

THE FRED. W. MUTH CO.,

51 WALNUT ST., CINCINNATI, OHIO.

WE WILL BUY AND SELL

HONEY

of the different grades and kinds.

If you have any to dispose of, or if you intend to buy, correspond with us.

We are always in the market for WAX at highest market prices.

HILDRETH & SEGELKEN,

265-267 Greenwich St. 82-86 Murray St.

NEW YORK.

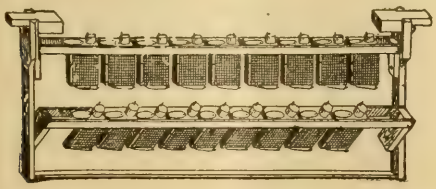
BEESWAX ADVANCED.

From this date until further notice we will pay 31 cents cash, 33 trade, for average wax delivered here or at our branch offices. This is a higher price than we have ever paid before at this season of the year. If any of our readers have any wax to dispose of we shall be pleased to hear from them. Be sure to mark your shipment with your name so that it may be identified on arrival, and mail us shipping receipt with gross and net weight of shipment.

The A. I. ROOT COMPANY, Medina, Ohio.

THE ROOT QUEEN-REARING OUTFIT.

In this outfit are embraced the best points of the best systems in use. It will give satisfaction to the amateur as well as the expert. The cell-cups are made of wood, wax-coated. No melted wax is used in their manipulation, as they are attached to the cell-stick by means of a small nail-point.



The nursery cage combines the features of nursery and introducing cages. By their use a queen can be released on the candy plan or caged in the hive as desired.

In connection with the outfit goes a booklet on queen-rearing—one which ought to put the veriest amateur on the high road to success. Outfit comprises three cell-bars with fifty waxed wooden cells, 1 frame cages (20); one cell-forming stick; one set grafting-tools, and a book on queen-rearing, $4.50. Postage 55c.

Tools for Queen-breeders.

Root cell-cup, with point for attaching to bar, 50c per 100; $4.00 per 1000. Postage 10c per 100.

Same, waxed ready for use, 75c per 100; $6.00 per 1000. Postage 10c per 100.

Titoff wire nursery-cages, 15c each; $1.35 for 10; $12.50 per 100. Postage 1c each.

Frame for holding 20 cages, including cages, $3 00. Postage 22c.

Cell-stick, each 10c; $1.00 per dozen. Postage 1c each.

Transferring-needle, double-ended and nickel-plated, 15 cents. Postage 1c each.

Jelly-spoon, nickel-plated, 15 cents. Postage 1c each.

We can supply, also, fine-pointed lace-scissors with extra large bows, for clumsy fingers, at 35 cents each. Postage 1c each.

The A. I. Root Co., Medina, O.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize

A GOLD MEDAL

at the World's Fair, St. Louis, 1904.

IS THE BEST, CLEANEST, COOLEST, STRONGEST, CHEAPEST, AND LARGEST SMOKER SOLD FOR A DOLLAR.

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to clog.

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

N. E. FRANCE, Platteville, Wis.

GRANT STANLEY, Nisbet, Pa., July 24, 1905, writes: "After giving the Danzenbaker Twentieth Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until the fuel is all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker."

Price $1.00; three for $2.50; by mail, 25 cts. extra.

F. DANZENBAKER, MIAMI, FLORIDA

TO THE

BEE-KEEPERS

OF CANADA.

WE are pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we do not offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian boe-keepers.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

E. GRAINGER & COMPANY,

Deer Park,

Toronto, Ontario, Canada.

CANADIAN AGENTS FOR
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

Established 1873
Circulation 32,000

72 pages, semi-monthly
$1.00 per year

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

Published by
THE A. I. ROOT CO., Medina, Ohio

J. T. CALVERT, Business Manager

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HOW TO REMIT. Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of The A. I. Root Company, Medina, Ohio. Currency should be sent by Registered Letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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Any class A may be substituted.			
Recreation or Appleton's	1 yr.	$1 50	
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Or any class A magazine.			
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Any class 8 may be substituted.			
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Or any Class B Magazine.			

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American Boy	1 yr.	$1 00	
Pearson's Magazine	"	1 50	
Pictorial Review	"	1 00	$3 30
Or any class A magazine.			
American Inventor	1 yr.	$1 00	
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Or any class 4 magazine.			
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Or any class 4 magazine.			
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Or any class A magazine.			
Children's Magazine	1 yr.	$1 00	
Etude (for music lovers)	"	1 50	
Appleton's or Pearson's	"	1 50	$3 65
Or any class 4 magazine.			
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Or any class 6 magazine.			

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A Veritable Gold Mine.

I wish there were some way by which I could impress on the minds of the great mass of bee-keepers the true value of the Bee-keepers' Review and the book Advanced Bee Culture, as helps to those who are trying to make a living out of bee-keeping. If those who have not read them knew of their value as well as those know who have read them, subscriptions would come in by the hundreds—yes, the thousands. To illustrate, here is a letter that came in this morning from a man who recently subscribed, and secured the back numbers and Advanced Bee Culture.

Falconer, N. Y., March 4, 1907.

Editor Review:—Just a word about the Review and the book Advanced Bee Culture. I am highly pleased with them both. To me they have proved veritable gold-mines. I don't see how I could, for so long a time, have missed such helpful facts about bee-keeping.

Very truly,
J. B. HOLLOPETER.

Kind reader, send me $2.00 and I'll send you the book Advanced Bee Culture and the Review for 1906 and 1907, and I know that they will prove as valuable to you as they have to so many others. If you don't accept this offer I know it will be because you *don't know*.

W. Z. Hutchinson, Flint, Mich.

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You can save freight by ordering from this branch. A complete line of bee-keepers' supplies always in stock.

Secure a catalog at once.

BEES and QUEENS.—Your orders will be attended to.

The A. I. Root Company
H. G. ACKLIN, MANAGER
1024 Mississippi Street, St. Paul, Minn.

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On a Line

to all points in the South and Middle West.

Send for our free illustrated catalog of

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We sell at factory prices.
Send us a trial order.

Beeswax Wanted.

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DEPT. B.
202-204 Market St., **St. Louis, Mo.**

Manufacturers and Jobbers of Dairy, Creamery, Ice-cream, and Poultry Supplies.

Gleanings in Bee Culture

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Catalogs Received.

Fourth annual circular and price list of bee-keepers' supplies, Arthur Rattray, Almont, Mich.

Four-page list of Ideal W. P. Rocks (Fishel strain) from Dr. C. L. Van Osdol, Dillsboro, Ind.

Since our last issue we have received the catalogs of two well-known houses, W. T. Falconer Mfg. Co., Jamestown, N. Y., and the G. B. Lewis Co., Watertown, Wis.

We call attention to the incubator book offered free by the Racine Hatcher Co., box 114, Racine, Wis We have a copy before us as we write, and urge every poultry-man to get a copy and read it—48 pages.

A 52-page catalog, well illustrated, many of the cuts in color, from the Electric Wheel Co., Box 95, Quincy, Ill., is before us. It is rich in descriptions of wagons and parts suitable for all kinds of farm-work. Write for one of these catalogs.

MODEL POULTRY FARM.

If interested in descriptions of different breeds of poultry, and views and descriptions of a model poultry-farm, send 10 cts. to B. H. Greider, Rheems, Pa., mentioning GLEANINGS.

The attention of our readers who are fond of fine teas and coffees is directed to the advertisement of the Rio Vista Trading Trading Co., Buffalo, N. Y. See the classified columns, pages 434-436. This company solicits especially club orders direct from consumers. It is worth your while to get their circulars. We ourselves have tried a large variety of both tea and coffee from them, and find them very nice and of most excellent flavor.

Among catalogs received is one from Gordon, Van Tine Co., 101 Case St., Davenport, Iowa, containing illustrations and prices of a very complete line of doors, windows, columns, moldings, millwork, and general house-finishing material. The prices are reasonable, and we believe those planning to build will do well to correspond with this house, which makes a specialty of selling direct by correspondence instead of through the trade. They are responsible, and, we believe, reliable.

We have received from the Empire Manufacturing Co., of Quincy, Ill., a book, "The Farmer's Handy Wagon," giving pointers of greatest value to any one who uses a farm wagon. They will be glad to send you a copy if you will write them to-day. Address Empire Manufacturing Co., Box 91-V, Quincy, Ill. It will be worth your while.

There is no end of information about newspapers in the American Newspaper Annual (published by N. W. Ayer & Son, Philadelphia, $5.00 net), the 1907 edition of which is just out. Catalogued in simple tabulated form are the facts one needs in dealing with newspapers, with particular attention to circulations, which are all given in plain figures.

There are supplementary lists of daily newspapers, magazines, and class publications. A colored map of each State is bound in the book. It also contains for the first time the Advertisers' Telegraph Code, compiled especially for the use of the publishing interests and filling a long-felt want in this direction

New Advertisements.

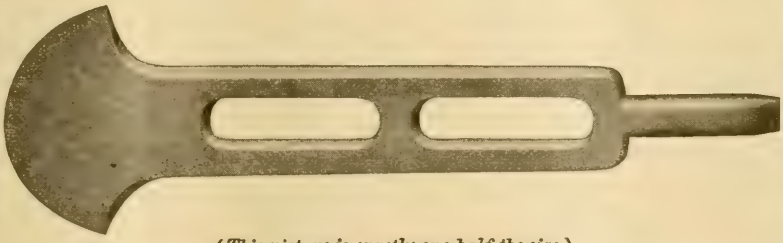
The attention of our readers is directed to the quarter-page announcement of the frame-lifter and hive-opener illustrated on page 380. A good many bee-keepers find use for an implement of this character, and to those who are interested in such a tool a consideration of the merits of the Dow frame-lifter is recommended.

The Weekly American Bee Journal is in its 47th Year

Something New=The Ideal Hive-Tool

Bee-keepers have long needed a Tool with which to work among the hives during the bee-season. The Tool shown here was invented by Wm. Muench, a Minnesota bee-keeper, some years ago, but it was not on the market before. We have lately bought this Tool, and all rights, from Mr. Muench's widow, and have had the first lot made. They are ready for delivery now.

Best Hive-Tool



Only 30c, by mail

(This picture is exactly one-half the size.)

DESCRIPTION.—The Ideal Hive-Tool is made of high-grade malleable iron, much like wrought iron, 8½ inches long. The middle part is 1 1-16 inches wide and 7-32 thick. The smaller end is 1⅞ inches long, ½ inch wide, and 7-32 thick, ending like a screw-driver. The larger end is wedge-shaped, having a sharp semi-circular edge, making it almost perfect for prying up covers, supers, etc., as it does not mar the wood.

What Dr. Miller and Miss Wilson Say of It:

In the first edition (1903) of Dr. Miller's "Forty Years Among the Bees," page 58, he says: "Of all the hive-tools I have tried, I like best the Muench tool." On Jan. 7, 1907, he wrote us saying he thought "just as much of the tool as ever."

Miss Wilson, Dr. Miller's assistant, says this of the Ideal Hive-Tool: "It is an ideal tool. In fact, I don't see how it could be improved upon. I am sure we would feel utterly lost in the apiary without it.....You will have to try one yourself if you want to know its worth."

The Ideal Hive-Tool Free to a New Subscriber.

To a **new** subscriber to the **Weekly Bee Journal** for one year (at $1.00), we will mail an Ideal Hive-Tool **free**; or we will mail the Hive-Tool alone for 30 cents (stamps or silver, if more convenient). Sample copy of the Weekly American Bee Journal sent on request; **or a 3 months' "trial trip" for only 20 cents.** Address,

GEORGE W. YORK & CO., 334 Dearborn Street, CHICAGO, ILL.

The Oldest and Only WEEKLY Bee-Paper in America

AT THE CLOSE OF THE SEASON FOR 1907

ROOT'S HIVES WILL OUTWEIGH NEARLY ALL OTHER STYLES.

SEND IN YOUR ORDER NOW.

The A. I. ROOT COMPANY

Syracuse New York

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Our Advertising Rates.

Twenty cents per agate line, flat.
Fourteen lines to inch.

SPACE RATES (To be used in one issue)

One-fourth page $11.00
One-half page 21.00
One page..... 40.00

Preferred position, inside pages, 30 per cent additional.
Preferred position, inside cover pages, 50 per cent additional.
Outside cover page, double price.
Reading notices, 50 per cent additional.
Cash-in-advance discount, 5 per cent.
Cash discount, if paid in 10 days, 2 per cent.
Bills payable monthly.
No medical or objectionable advertising accepted.

"A Square Deal."

We believe that every advertisement in this paper is backed by a responsible person. But to make doubly sure we will make good any loss to paid subscribers sustained by trusting any deliberate swindler advertising in our columns, and any such swindler will be publicly exposed. We protect subscribers against rogues, but we do not guarantee to adjust trifling differences between subscribers and honest responsible advertisers. Neither will we be responsible for the debts of honest bankrupts sanctioned by the courts. Notice of the complaint must be sent to us within one month of the time of the transaction, and you must have mentioned GLEANINGS IN BEE CULTURE when writing the advertiser.

Catalogs Received.

A 28-page price current of bee-keepers' supplies, including local and Eastern supplies. California bee-keepers should send for it at once. Address Madary's Planing Mill, Fresno, Cal.

"Hatching Facts," a 24-page book sent out by the Belle City Incubator Co., Racine, Wis., is filled with facts for the poultry-man. These people make some very original claims for their machines, and their prices seem to very reasonable.

We have just received the four-hundred-page catalog and price list of the Chicago House-Wrecking Co. for 1907. We notice that this catalog is revised very frequently as their stock changes so rapidly. Several pages are given in the introduction, explaining their organization in 1892 when they purchased the buildings of the World's Columbian Exposition, and mentioning some of their other purchases such as the buildings of the Trans-Mississippi Exposition at Omaha, the Pan-American buildings at Buffalo, the Louisiana Purchase buildings at St. Louis. A more assorted lot of goods it would be hard to find; indeed, they say of their plant, "It is Dickens' 'Old Curiosity Shop' on a tremendous scale," and yet they have some very fine things at exceedingly low prices. Hundreds of our readers will find some article in their catalog of great use at a very low price. Read their advertisement on page 379 and send for their catalog, being sure to mention GLEANINGS IN BEE CULTURE. A few days ago we had a letter from a subscriber who had been disappointed with a purchase he made there. We referred the matter to them and they explained at once that it had been fully adjusted and it was only due to a misunderstanding on the part of our subscriber when he placed the order. We are sure any one sending orders there will be well taken care of.

Our discounts on **BEE-SUPPLIES** are still in effect.

WE furnish EVERY THING needed in practical bee culture, at lowest prices. We make the DOVETAILED, LANGSTROTH, and ALTERNATING HIVES. The most practical, *up-to-date* hives are the MASSIE HIVES. We make them. Have you seen them? Have you received our new 1907 catalog? It is surely the easiest catalog to order from you ever saw. It is so easy that you can not make a mistake in your orders; a child can order from it as well as an adult. It is something new and entirely different from any you have ever seen. Write us a postal card for it to-day. It is free.

Address Kretchmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa. :: Trester Supply Co., 103 S. 11th St., Lincoln, Neb.

Catalogs issued in German and English.

North Texas . .

. . Bee-keepers

will find Dallas the best point from which to purchase supplies. We have a carload of ROOT'S GOODS IN STOCK, and sell them at the Factory Prices. Don't forget that we can furnish any thing in the way of Field or Garden Seeds, Plants, and Poultry Supplies. Our large illustrated catalog for 1907 free on application. Mention GLEANINGS when you write. . . . . .

Texas Seed and : Floral : Company

Dallas, : : : : : Texas

A Full Carload

of hives, supers, and sections now on the way from ROOT'S FACTORY. When these goods arrive we shall be able to supply your wants promptly and with ALL NEW GOODS. We will carry a larger stock than ever before, of DANZENBAKER hives and supers, and, if you are interested in producing FANCY COMB HONEY, you should write for the pamphlet, "Facts About Bees and the Danz. Hive."

W. W. CARY & SON, Lyonsville, Mass.

Root's Bee-supplies at Root's Prices

But f. o. b. Baltimore instead or Medina. Write for catalog L.

Rawlings Implement Co.

9 and 11 West Pratt St., Baltimore, Md.

1884 1907

New 64-page catalog for the New Year now ready

FOR YOU

Twenty-two successful years manufacturing bee-supplies and raising Italian bees and queens. . . . . Root's Goods in Stock.

J. M Jenkins

Wetumpka, : : Alabama

Well-bred Queens!

For the purpose of securing an ample supply of select-bred queens, I have engaged an experienced breeder in the South to rear queens for *me only*, and confidently expect to fill orders promptly soon as weather permits mailing. . . . . .

Cook's Square Honey-jar

is the best, cheapest, and most sanitary package for retailing honey. Send for circular and price list of hives, bees, and useful implements. . . . . .

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail. . . .

MARSHFIELD GOODS

MEANS

Quick Shipment, Honest Goods, Low Freight

Our sections are manufactured from young basswood timber.
Hives are almost clear lumber—they are beauties.
Shipping-cases made strong and substantial, nice, smooth, and perfect.
Send for our free catalog of supplies.

Marshfield Manufacturing Company, Marshfield, Wisconsin, U. S. A.

Fire Sale Bee and Poultry Supplies!

Come or send, and save 25 to 50 per cent on slightly damaged goods. NEW LEWIS GOODS at factory prices by return freight. Honey and beeswax wanted. State lowest price and particulars. Honey in five-gallon cans for sale. Send for new 1907 catalog.

H. M. Arnd, Prop'r York Honey & Bee Supply Co. (Not Inc.)
Long Distance Telephone, North 1559. 191 and 193 Superior St., Chicago, Ills.

W. H. Laws, the Queen-breeder,

wishes to say that he has a number of extra fine BREEDING QUEENS of the Leather or Red-clover Stock that is the equal if not superior to any thing ever offered, and probably the best he has ever owned. To the man who keeps bees for profit, for ease in handling, and returns in honey, these queens are of untold value, to be used in requeening your cross and undesirable stock. Several of my customers write that the queens received from me the past season were the only ones that gave any surplus in their yards. I also breed the Golden Italians, Holy-Lands, and Carniolans, in separate yards. Price of queens, each, $1.00; six for $5.00. Those breeding queens, $10.00 each. Safe arrival and satisfaction guaranteed. A car of bees offered again this season. **W. H. LAWS, Beeville, Bee County, Texas.**

Better than an Island

This place is just as good as an island for breeding queens, for there are no other bees within five miles, and so pure mating is guaranteed. It is better than an island when you order queens, for the fastest trains stop here, and hence queens are not away from the colony long enough to impair their usefulness. Safe introduction is guaranteed if you follow my special directions. I consider the Banat Caucasian bees the best and gentlest in the world. Banat Caucasian bees are bred here; other races in outyards. Queen-breeders should secure their breeding-queens from this pure stock. Order now. Banat Caucasian queen, $3.00. Caucasian queen, $1.50. Golden Italian, 75c. Tested queens, one year old, double these prices,

Dele Collins, Ph.D., Emporium, Pa.

Caucasian and Long-Tongue Italian Queens.

1905, '06 Queen-breeder in Apiary of Dept. of Agriculture, Washington, D. C.

	Before June 15.			After June 15.		
	1	6	12	1	6	12
Both Races.						
UNTESTED,	$ .75	$4.25	$8.00	$ .60	$3.35	$6.50
SELECT "	1.00	5.50	10.00	.75	4.00	7.50
TESTED	1.50			1.25		

Satisfaction Guaranteed. Descriptive Cir. free.

LESLIE MARTIN,
Birdcroft Apiaries, Lebanon, Tenn.

Westwood Red-clover Queens.

No better hustlers flying; will get honey where other bees fail. Try them and be convinced. Nuclei a specialty. Also full colonies of ten frames each. Safe arrival guaranteed. Price list sent on application.

HENRY SHAFFER, 2860 Harrison Ave., Station L, Cincinnati, Ohio.

QUEENS! By uniting the swarms from 1000 colonies the coming season I will sell queens and nuclei after March 1 at following prices: Queens, 25c; $3.00 dozen. Nuclei with queen: 1-frame, $1.25; 2-fr., $1.50; 3-fr., $1.75. **NUCLEI!**

R. M. Spencer, Nordhoff, Cal.

Moore's Long Tongue and Golden

Fine select untested queens, $1; 6, $5; 12, $9. Tested, $1.50; 6, $8. Breeders, $3.50. Safe arrival gar'd.

Queens

W. H. RAILS, - ORANGE, CAL.

Same Old Place

is where you get the best of queens; untested, $1.00; $4.25 per 6; $8.00 per dozen. Tested, $1.50; best breeders, $5. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy-Lands, Italians.

The JENNIE ATCHLEY CO.,
Box 18, Beeville, Bee Co., Tex

Italian Queens

Golden, Three-banded, or Leather-colored. Write for circular to-day. . Prices right. . Queens all right.

Robt. B. McCain, Rt. 1, Oswego, Ill.

Southern . . . . . Bee-keepers!

White Mfg. Co., Blossom, Texas:
Friend White:—Goods received, opened, and put together. I must really give you credit for your workmanship on hives and fixtures. They are really good. Also your foundation excels any I have got in Texas. The bees go to work on it at once, while they sometimes would eat the other foundation down. THOS. F. JORDAN.
McKinney, Tex., Mar. 7.

If you want bee-keepers' supplies of best quality and for the least money possible, you should buy them from the WHITE MANUFACTURING COMPANY. Situated, as we are, right near the great pine belt of North Texas, Louisiana, Arkansas, and Indian Territory, we can secure the best material possible at least cost, thus enabling us to give entire satisfaction. Catalog and price list free.

White Manufacturing Company
Blossom, Lamar County, Texas

THE RIETSCHE PRESS

Made of artificial stone. Practically indestructible, and giving entirely satisfactory results. Comb foundation made easily and quickly at less than half the cost of buying from the dealers. Price of press for L. frame sheets, $2.00; other sizes, 25c extra. Price of the press making the foundation directly on the wired frames, $2.50, any size wanted.

Adrian Getaz, Knoxville, Tenn.

A NEW BEE SUPPLY HOUSE
AT LITTLE ROCK, ARK.

I am prepared to furnish you the best of bee-supplies, manufactured by The A. I. Root Co. Let me send you my catalog of bee-keepers' supplies. Also have for sale the very best strain Italian queens and nuclei or full colony. Satisfaction guaranteed. **W. J. LITTLEFIELD.**

Boston Headquarters
—FOR—
Bees-Queens-Supplies

H. H. Jepson, - 182 Friend St.

ROOT'S BEE-SUPPLIES
New Goods. Free Catalog.
AT SPRINGFIELD, MASS.
F. R. DANIELS,
'PHONE. 117 FLORENCE ST.

Dittmer's . . . . . Comb Foundation

Why do thousands of bee-keepers prefer it to other makes? . Because the bees like it best, and accept it more readily.

Dittmer's Process . . . . . is Dittmer's

It stands on its OWN NAME and its OWN FOUNDATION —to which alone it owes its reputation and merits. . . We are now ready to make prices for next season for

Working Wax for Cash

and for full line of supplies. WHOLESALE and RETAIL. Free catalog and samples.

Gus Dittmer, Augusta, Wis.

2 per cent Discount During March

In order to liven up business during the dull months we will give two per cent off all supplies, in the catalog, wholesale or retail, during March for goods for this year.

Jobbers for
Central : Pennsylvania
— for —
ROOT'S GOODS

Now's the time to save money on goods for next season. Send for catalog. Best shipping facilities in the State.

Frank W. Prothero
Dubois, : : : Pennsylvania

IN THE HEART OF MICHIGAN

Did you know that within one hundred miles of me are over three-fourths of the bee-keepers of Michigan? Are you one of them? If so you will find it to your advantage to write for my new catalog. A full line of Root's Goods at Root's Factory Prices. Hilton's double-walled hives are used more than any other in my State. It has stood the test of thirty years. . . . . I ship goods promptly. Wholesale or retail. . Cash or exchange for beeswax at all times.

George E. Hilton - - Fremont, Michigan

NOW is the Time to Order Your

BEE-SUPPLIES

AND SAVE MONEY

IT will cost you only one cent for a postal card to get our **delivered prices on Dovetailed Hives, Sections, Section-holders, Separators, Brood-frames, Foundation, Smokers, Extractors, Shipping-cases, etc.** It may mean a saving to you of many dollars. It is the natural advantage we have over others that enables us to make you the Best Price. There are no better goods than ours, and we GUARANTEE SATISFACTION or REFUND your MONEY.

We MANUFACTURE and keep in stock all standard Bee-goods, and can ship promptly.

MINNESOTA BEE-KEEPERS' SUPPLY COMPANY

NICOLLET ISLAND, No. 20. (JOHN DOLL & SON, Props.) **MINNEAPOLIS, MINN.**

What would be the Condition

of bee-keeping now had not some ingenious bee-keeper invented and made the Bingham Bee-smoker and Honey-knife? Bingham fills orders for thousands of them every year from the foremost distributors of bee-keepers' supplies who say that they like to sell Bingham tools because they always give satisfaction. If you want the best and can't get them near by, you can always get them direct from the original inventor and sole maker of them at regular prices per mail or hundred. It might be a pleasure to have bought so valuable and indispensable a tool directly from the original inventor of them.

Respectfully yours,

T. F. Bingham, Farwell, Mich.

BEE and POULTRY SUPPLIES

Every thing needed for the "Busy Bee" and "Industrious Hen." Prompt shipments of orders.

LEWIS' GOODS for Bees. LEE'S GOODS for Poultry.

Catalog of either, with instructions to beginners, FREE. Discount before March 1. Address at once

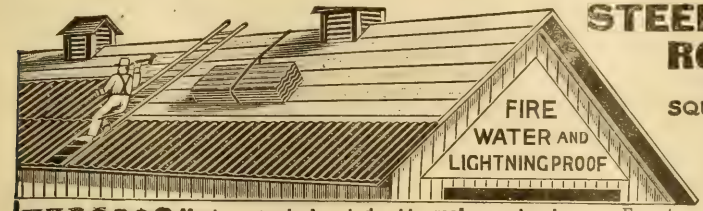
The C. M. SCOTT CO., 1006 E. Washington St., INDIANAPOLIS, IND.

WHY PAY FREIGHT

Western New York Bee-keepers, Buy Your Supplies of

GEO. W. CLASIER, WARSAW, NEW YORK

Freight prepaid on Cash Orders of $5.00 and over at Root's Catalog Prices. Send for Catalog and Price List.



STEEL ROOFING

PER 100 SQUARE FEET

$1.50

Most economical and durable roof covering known. Easy to put on; requires no tools but a hatchet or a hammer. With ordinary care will outlast any other kind. Thousands of satisfied customers everywhere have proven its virtues. Suitable for covering any building. Also best for ceiling and siding. Fire-proof and water-proof. Cheaper and more lasting than shingles. Will not taint rain-water. Makes your building cooler in summer and warmer in winter. Absolutely perfect, brand new. **$1.50** is our price for our No. 15 grade of Flat Semi-Hardened steel roofing and siding, each sheet 24 ins. wide and 24 ins. long. Our price on the corrugated, like illustration, sheets 22 ins. wide x 24 ins. long, **$1.75.** At 25c per square additional we will furnish sheets 6 and 8 feet long. Steel pressed brick siding, **per square, $2.00.** Fine Steel Beaded Ceiling, **per square, $2.00.** Can also furnish standing seam or "V" crimped Roofing.

WE PAY THE FREIGHT TO ALL POINTS EAST OF COLORADO

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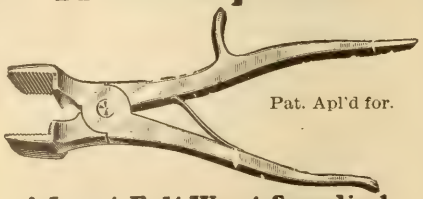

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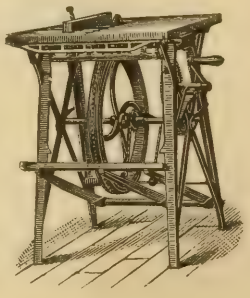

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BUY one lot of Paroid; open it; inspect it; apply it to your roof, and if then you are not satisfied that you have the *best* ready roofing made, send us your name and address, and we will send you a check for the full cost of the roofing including the cost of applying it.

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Before my plan was invented paint was sold in two ways — either ready-mixed or the ingredients were bought and mixed by the painter. Ready-mixed paint settles on the shelves, forming a sediment at the bottom of the can. The chemical action in ready-mixed paint, when standing in oil, eats the life out of the oil. The *oil* is the very life of all paints.

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My paint is *unlike* any other paint in the world. It is ready to use, but not ready-mixed.

My paint is made to order after each order is received, packed in hermetically sealed cans with the very day it is made stamped on each can by my factory inspector.

My $100.00 Cash Guarantee

I guarantee, under $100 Cash Forfeit, that the paint I am offering you does not contain water, benzine, whiting, or barytes—and that my Oilo is pure, old-fashioned linseed oil and contains absolutely no foreign substance whatever.

Two full gallons free to try—6 mos. time to pay

NOTE
My Eight-year Guarantee backed by $50,000 Bond

I ship my thick pigment, which is double strength, freshly ground, in separate cans, and in another can, I ship the pure, old process Linseed Oil—the kind you used to buy years ago. Any child can stir them together.

I sell my paint direct from my factory to user—pay no dealer or middleman profits.

I guarantee freight on six gallons or over

My paint is so good that I make this wonderfully fair test offer:

When you receive your shipment of paint, you can use *two full gallons*—that will cover 600 square feet of wall—two coats.

If, after you have used that much of my paint, you are not perfectly satisfied with it in every detail, *you can return* the remainder of your order and the two gallons will not cost you one *penny*.

No other paint manufacturer ever made such a liberal offer.

It is because I manufacture the finest paint, put up in the best way, that I can make this offer.

I go even further. I sell all of my paint on *six months' time*, if desired.

This gives you an opportunity to paint your buildings when they need it, and pay for the paint at your convenience.

Back of my paint stands my Eight-Year officially signed, iron-clad Guarantee.

For further particulars regarding my plan of selling, and complete color card of all colors, send a postal to O. L. Chase, St. Louis, Mo. I will send my paint book—the most complete book of its kind ever published—absolutely free. Also my instruction book entitled "This Little Book Tells How to Paint" and copy of my 8-year guarantee.

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By the Bee Crank.

Indianapolis is so close to the center of population of the United States that she can almost touch it.

With a good glass one might see the very spot from the top of our great Soldiers' and Sailors' monument, for it is only forty miles away.

Indianapolis is connected with every important point in the country by a bee line. We are within about 24 hours by rail of the entire country, from the Atlantic to the Rockies.

This is one reason I have been able to develop my specialty of quick deliveries. But I don't depend entirely upon geographical location.

I carry a complete line of bee-keepers' supplies in stock ready for shipment. Your order is mailed one day and the goods are on the way the next.

I carry the Root goods—charge you Root prices for them. I can save you freight charges on Metal-spaced Hoffman Frames and Danzenbaker Hives. Am never out of Dovetailed Hives, Section Honey-boxes, Weed-process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, and Pouder Honey-jars.

Send me your Beeswax and put your name on the package. I pay the best market price, cash or trade. Send large shipments by freight, small ones by express.

Get my new catalog—it's free.

Here's a letter I received a few days ago

MR. WALTER S. POUDER, Indianapolis, Ind. MINOOKA, ILL., March 2, 1907.

Dear Sir:—Your shipment of bee-supplies arrived in good condition. I opened the boxes and was surprised to see the care that was taken in packing the goods, and the quality of same. Bee-ware can not be duplicated in this locality at your prices.

Yours truly, WILL HANSEL.

Walter S. Pouder

513-515 Massachusetts Avenue, Indianapolis, Ind.

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests
Illustrated : Semi-monthly : One Dollar per Year.
Published by The A. I. Root Company, Medina, Ohio

Vol. XXXV. MAR. 15, 1907. No. 6.

A MOUSE-NEST is to be seen at the back end of the bottom-board in a hive in my cellar. I am open to suggestions as to what is best to do.

IS NOT THAT picture wrong, p. 321? According to the description, the storm-door should come clear out, and rest on the front *edge* of the bottom-board. [You are correct. —ED.]

YE EDITOR, p. 332, commends a cover with dead-air space to keep things warm. I like mine for that, but that's only part. I like it to keep things *cool* when the hot sun is shining on it.

A. I. ROOT commends following hens as the best exercise for little chickens, p. 343. Locality again, Bro. Root. In this locality a hen would lose half her chickens in trailing them through the cold wet grass.

LOAF SUGAR fed in dry lumps was commended in *British Bee Journal*. I tried it, and it didn't work in this dry climate. I wasn't smart enough to sprinkle it with warm water, as does E. W. Alexander, page 315.

TOP ENTRANCES are suggested, p. 310, to prevent bees crowding the brood-chamber, thus preventing swarming. If that means field bees going straight into the supers, what about their loads of pollen in the supers? [Who will answer this question?—ED.]

MR. THOMAS W. COWAN, high authority in foul-brood matters, in *British Bee Journal*, p. 41, files a caveat against calling black brood "European foul brood." Black brood is comparatively new in England, and he thinks it possible that Dr. White has made a mistake in saying it is caused by *Bacillus alvei*. [We shall soon publish Mr. Cowan's editorial and Dr. Phillips' reply.—ED.]

CAUCASIANS: "There is one thing wherein they excel all other races, and that is in propolizing," page 338. That's a new one, Mr. Editor. Now, the worst gluers I ever had were the worst at making watery sections. How is it with Caucasians? [This principle does not hold true in the case of Caucasians, if we are correct. Their comb honey looks a good deal like that made by the ordinary black bees of this country. If we are wrong we shall be glad to be corrected.—ED.]

NOT SURE that we've got to the bottom of that bottom-starter business yet, p. 307. I wonder if it isn't this way: Any one can get along without bottom-starters by crowding the bees enough; but it is more profitable to use bottom-starters than to crowd them so. Without bottom-starters, fastening to the bottom is about the last work done on a section, and with room enough it may not be fastened at all; with bottom-starters it is about the first thing, room or no room. [We take pleasure in accepting your amended statement.—ED.]

"THE PROBLEM in most cellars is not to keep the bees warm enough, but cool enough to prevent too much activity," p. 336. Yes, in your locality, Mr. Editor, but remember that you are on the southern limit of cellar wintering. [If the cellar is cool it is no problem at all to warm it up with a stove, or to let heat in from the furnace-room if a furnace is used in the basement. But if the cellar is too warm it is a real problem to cool it off if the outside temperature is 60 or 65. There may be more cool cellars than warm ones, but we can handle a cellar that is too *cool* better than one that is too *warm*.—ED.]

GLEANINGS for March 1 is quite a pure-food journal, isn't it? All the better. [We have been a little fearful that some of our subscribers might object to so much pure-food matter in our editorial columns; but it really seemed to us that the *very foundation* of the honey industry, and the prospect of better prices, lies in our State and national pure-food laws; and the more we can publish the fact by getting bee-keepers to talk it among their customers, the better will be our chances of advancing prices. We have more to follow on this subject, with the permission of our readers.—ED.]

BEESWAX and rosin to fasten foundation in brood-frames, p. 334. That means rosin in beeswax when the combs become old and are melted. Editor Hutchinson says there isn't rosin enough to do any harm; but I'd like to know what you foundation-men say about it. [Why, the rosin used is not a drop in the bucket, nowhere near it, to the amount of actual comb built in the frame; then when combs are cut out the knife hardly ever cleaves clear close up to the wood, where the mixture of rosin and beeswax was originally placed. No, we share the view of Editor Hutchinson.—ED.]

PROF. WILEY, at the National convention at Philadelphia, said in substance, "The Bible says, 'man can not live by bread alone.' That is a mistake; man *can* live by bread alone." I have never forgiven myself that I did not try to correct him then and there; and now our good Prof. Cook makes the same misquotation, page 312. "Man can not live by bread alone" is not to be found between the lids of the Bible. In Deut. 8:3 is found, "Man doth not live by bread only;" and Jesus, quoting, says, "Man shall not live by bread alone," Matt. 4:4, Luke 4:4. To say you *shall* not steal or you *do* not steal is a very different thing from saying you *can* not steal.

SPEAKING of zinc perforations, is it not true that different sizes are needed for different purposes? A queen, and especially a virgin, will make desperate efforts to squeeze through a perforation to go with a swarm, but will make very little attempt to go into a super through an excluder. I have seen many a queen make slow work going down between top-bars $\frac{1}{4}$ inch apart.

P. S. Since reading what J. A. Green says, p. 339, I don't feel so sure about queens not going into supers through excluders. [J. A. Green is about right so far as our observation goes.—ED.]

NOW THAT zinc perforations are on the docket again, if they are to be made more than $\frac{163}{1000}$ it would be handy to have $\frac{166\frac{2}{3}}{1000}$, for that's exactly $\frac{1}{6}$. [There is no advantage in having the width of the slots $\frac{1}{6}$ inch wide unless that width *happens* to be also just right for the bees. Perforations $\frac{165}{1000}$ wide that sold a few years ago caused numerous complaints from the users of it. The $\frac{166\frac{2}{3}}{1000}$ is too near the danger limit. If $\frac{163}{1000}$ is slightly too small, the increase of even $\frac{1}{1000}$ makes a great big difference—don't lose sight of that fact. Our experience shows that 165 would be the limit. Zinc now turned out has perforations about $\frac{164}{1000}$, while last year it was about $\frac{163}{1000}$.—ED.]

CIRCUIT JUDGE S. R. Artman, at Lebanon, Ind., recently rendered a decision in which he held that the liquor-traffic, being a recognized menace to the welfare of the community, has no legal standing as an inherent common-law right of citizenship; therefore the legislature can not license it. Abundant authorities, State and federal, were adduced to show that gambling could not be legalized, and it was declared that these same courts had held the sale of intoxicants to be equally baneful. [This principle is being recognized everywhere now, and this one fact alone goes to show that our country is getting better. The time is passing when the saloons own the judges in many cities; and the further fact that brewery stock is falling in value in Ohio, and that the owners of the stuff are unloading for better securities, is another evidence that a better time is coming; for be it remembered that Ohio has been a stronghold of the liquor interests.—ED.]

W. WOODLEY, *British Bee Journal*, p. 24, speaking of the effort of the editor of GLEANINGS to convince me that English comb honey was selling at 48 cts. per 1-lb. section, says, "I contend that this quotation is entirely wrong. . . . The few parcels of English and Scotch honey which change hands wholesale at any thing over 1 s. (24 cts.) per lb., are few and far between, either sections or in jars." The bulk of good sections ranges in price from 12 to 20 cents each. The retail price, as proved by prices marked on sections in shop-windows ranges from 18 cents in cutting grocery concerns to 24 cents each in first-class dairy establishments. [We based our original statement on a controversy that appeared in the *British Bee Journal*. There were a number of reports that seemed to show that British heather honey of best quality was selling much higher than the same quality of honey in America. If we have made a wrong impression we are glad to be corrected.—ED.]

COMMISSION MEN, it seems to be assumed, p. 311, are naturally inclined to "bear" the market. If working on commission, pure and simple, I don't see why it isn't to their interest to "bull" it, for the higher the price the more the commission. [Ye-s-s. Theoretically you are correct; but the whole commission business is getting to be more and more tabooed, and the actual cash-sales plan is taking its place. More complaints have arisen over honey sold on a commission basis, a good many times over, than on cash sales. As a natural consequence, both sides, as a rule, especially where the parties are responsible and honest, prefer to make an outright sale. But it sometimes happens that a commission man soliciting commission consignments will not give the actual state of the market in his published quotations. For example, he may sell the honey for a good deal more than his bee-journal price or the

one on which his commission is based. Of course, his commission will be less. But how is the producer to know that he does not pocket the difference between the *actual* selling price and his *alleged* price? Let us take a concrete example. We will suppose Mr. Commissionman quotes his market on No. 1 comb honey at 15 cents. He secures a consignment of, we will say, 1000 lbs. When he makes his returns he bases his commission on 15 cents, or $150. On a ten-per-cent basis, his commission will be $15.00. Mr. Producer receives a check for $150 less $15.00, less freight and drayage $5.00, or a net amount of $130 for his honey. But suppose Mr. Commissionman sold this honey at 18 cents, how will Mr. Honey-producer be any the wiser if the other fellow says he sold it for 15 cents and pockets this three cents or the total amount of $30? The honey-producer is not supposed to know to whom the honey is sold, and therefore he has no means of ascertaining whether Mr. Commissionman cleaned up not only the $30, but his commission of 10 per cent, or $15 more. In other words, our city man may quote the market just high enough to get a consignment, but may sell above his quoted market. The effect of this low quotation is to depress the honey market generally, and Mr. Commissionman makes on the sale his legitimate commission plus $30.00 that is not his. But suppose he wants to make an outright purchase of some lots that are offered. Obviously it will be to his advantage to have the market quoted low, so that on cash deals he will not have to pay the higher price, and on commission deals he can make a "scoop" in addition to his regular commission. In a word, as I tried to point out in our last issue, the whole scheme of quoting prices in GLEANINGS on honey may have a tendency to "bear" the market rather than to "bull" it, or push it up to the level it would naturally seek. Far be it from us to cast discredit on the men who furnish us honey quotations, for as a whole we believe they are honorable men. If we did not believe them to be such we would drop their quotations. The trouble is not with the *men* but with the *system* of quotations.—ED.]

THE reader's attention is drawn to the scheme of honey quotations discussed by Dr. Miller and the editor in the columns above.

THE manuscript for the department of Fancies and Fallacies arrived too late to go in its regular place. It will be found, however, in the latter part of the journal.

ONE of the brightest and happiest articles relating to our industry we have seen for some time appears in the March number of the *Illustrated Northwest Farm and Home*, published at North Yakima, Washington. The article is entitled "The Honey-eaters' League," and is couched in a happy vein which is certain to be well received, and ought to do the bee-keepers of the Northwest considerable good.

A NEW NATIONAL PURE-FOOD ASSOCIATION.

WE note with pleasure the organization in Chicago, on Feb. 19, of an association charged with the duty of enforcing to the utmost limit all pure-food laws and the securing of the uniformity of the same. It is said representatives were present from the National Wholesale Grocers' Association, National Wholesale Druggists' Association, National Association of Manufacturers of Soda Water, National Extract Manufacturers' Association, and other similar organizations. If this association is what it purports to be we believe it would be a good thing for the National Bee-keepers' Association to join hands with it in securing a prompt enforcement of the laws relating to pure food. Such a society could work more quickly than Uncle Sam, and it could do much to prevent graft, etc. The General Manager of the National Association, Mr. N. E. France, Platteville, Wis., would probably be glad to coöperate in future with this organization at any future meetings. We need not wait for the national government to get ready. Let us help ourselves a little.

THE ENEMIES OF THE NATIONAL PURE-FOOD LAW, AND WHAT THEY ARE ATTEMPTING TO DO.

No law enacted by Congress in many years has created so much criticism and excitement as the new pure-food law. In many business circles it forms the sole topic of conversation. From Feb. 11 to 16 the city of Buffalo, N. Y., resounded with the story of the pure-food law because a convention representing the National Canners' Association, the National Wholesale Grocers, the New York Wholesale Grocers, the Western Canned Goods Association, the National Canned Goods and Dried Fruit Brokers' Association, and other societies met to discuss ways and means of coöperating with Uncle Sam in the proper enforcement of the law, and two of the principal speakers were Professor Wiley and Dr. William Frear, who are the men chiefly responsible for the correct operation of the law.

Other meetings of a like nature have been held elsewhere, and the whole business world is agog. Several State governments are engaged in the work of framing pure-food laws almost identical with the national. We would not allude to the subject so often were it not for the tremendous importance of this matter to all honey-producers. No business was ever more cruelly undermined by adulteration than that of honey-production in the

last twenty years, and the bee-keepers of this country stand a chance to gain all they have lost, and more too, by the passage of pure-food laws in all the States of the Union.

But our old enemies are very active. Senator Proctor, of Vermont, a friend to pure food, alluded in the Senate the other day to a very powerful lobby which is being maintained in Washington to throw obstacles in the way of food reform, one result of which is the Tawney amendment mentioned in our last issue.

President Roosevelt himself is preparing a message to the people on the "States' rights" aspect of the question, as that is the way our enemies are working. They are seeking to create the idea that the national law interferes in matters left solely to each State to legislate upon.

GLEANINGS has always taken an advanced position on this subject, and we feel it our duty to keep our readers informed of the trend of events. It is absolutely useless to talk of better prices for honey until the adulteration evil has been scotched.

THE DEATH OF A LARGE BUYER AND CONSUMER OF BEESWAX.

The name of Anton F. Baumer, who died at Syracuse, New York, January 26, was not generally known to bee-keepers, though the company of which he was the leading spirit and vice-president is one of the largest buyers of beeswax in the world. We refer to the Will-Baumer Candle Company, of Syracuse, who manufacture vast numbers of beeswax candles for use in churches of the Catholic and Greek faiths. The company also prepare wax for other uses.

Mr. Baumer was not an old man, having been born in 1862, but he led a strenuous life as vice-president of a concern doing a large business in this and other countries. In the course of his career he traveled a great deal in the interests of his company. Both here and in Europe, and, being socially inclined, he had many friends and acquaintances. He was a native of Syracuse, his father having founded the great candle-factory before he was born. When the Will and the Baumer interests were consolidated he virtually became the predominant head of the concern, with the position of vice-president of the company, so that Syracuse loses by his early demise one of its brightest and most popular business men, for apparently every one there knew him or knew of him as one of the city's foremost citizens.

It does not seem possible to a bee-keeper who produces a few pounds of beeswax each season that a large business could be built up in wax candles alone; but this goes to show the value of probity and honor in conducting a business, for Mr. Baumer was always known for straight and above-board business methods. He did not endeavor to piece out the beeswax with paraffine; on the contrary, the candles of his making were certain to be made of beeswax and nothing else. The result was, the church authorities everywhere could implicity rely on his goods being pure. We presume the company will continue to do business as heretofore.

Mr. Baumer left a wife and five children. Pneumonia was the cause of his death.

ELECTRIC FANS FOR VENTILATING BEE-CELLARS; OTHER MEANS FOR COOLING OFF AND FRESHENING UP CELLARS THAT ARE TOO WARM.

WE have before referred to the fact that, when our machine-shop cellar becomes too warm, we turn on an electric fan to change the air; and, presto! how quickly the temperature drops and the atmosphere sweetens up!

Early in the season we reported that our machine-shop-cellar bees were not doing well. At first we were inclined to believe that the trouble was owing to the fact that they had been shut in, *a la* Hershiser. But we have since learned that this was not the cause of the trouble. A large number of colonies were put into the inner inclosure, but without the usual ventilation we had given in former seasons. The bees became very uneasy, and bumped against the wire cloth of the special bottom-boards in their vain endeavor to escape. In the course of a month some colonies gave the unmistakable odor of dysentery. Conditions seemed to presage disaster for all the cellar-wintered bees, unless something were done, and that right speedily. This was the first of January, and there were at least three months ahead of us.

The first warm day that came we took the bees out and gave them a flight. Then we put them back just as they were, but this time we set half the bees in another compartment of the cellar, the other portion going into the regular inner bee-room. We then connected a six-inch galvanized iron pipe from the window to this inner compartment in such a way that the air from outdoors would be sucked in The outer room was larger and more ventilated. The bees in both compartments were confined on the wire-cloth-inclosed bottom-boards, as we have frequently explained. An inspection of the cellar on this 5th day of March showed they were in good condition — no signs of dysentery, and on opening up some of the hives they seemed to be snappy and bright.

About three weeks ago we noticed that the air in the inner cellar would become a little bad again. The temperature would rise to 60 degrees, and the bees become uneasy. We put a little electric desk-fan directly in front of the opening to the galvanized pipe, by which the air was brought into the room, and set it a whirling, and it has been whirling night and day for a couple of weeks back. The bees quieted down, and the conditions now seem to be perfectly ideal. The air is fresh, and the temperature has dropped to 45.

"But," the reader may retort, "what good is an electric fan to me if I have no electric current in the house?" Ay, there's the rub. Such a fan is not available to the average bee-keeper. Then why do we refer to it here? Simply because it shows the value of a rapid

change of air and the means for reducing the temperature in cellars where the temperature runs too high. In most cellars a ventilator can be provided by making a sort of blind to shut out daylight, and yet admit air. In order to make this effective there should be an opening in a live chimney to which a stove or furnace connects so there may be an active current. But this ventilation will not be required where the temperature can be held down to 45—not lower than 40, certainly, nor higher than 47. Where the right temperature can be maintained, not so much change of air will be required.

Some cases of uneasiness on the part of the bees can be allayed by sprinkling the clusters with water every now and then. If the cellar be very dry this should be done any way.

THE CONNECTICUT FOUL-BROOD BILL; GIVING ADVANCE NOTICE OF INSPECTION.

THE Connecticut bee-keepers have agreed upon a foul-brood bill which they are unitedly presenting to their State legislature. This is good; for it is better to present a united front and get something than to disagree and present two bills and get neither, but, unfortunately, as it seems to us, on the compromise there is one section that provides that the inspector shall give the owner notice in advance of the intended inspection. If by mail, said notice must not be less than 48 hours previous to the inspection. This, it seems to us, will defeat to a very great extent the effectiveness of the law in the case of certain parties who might be inclined to conceal the presence of the disease in order to obtain a clean bill of health on the yard. Suppose, for example, that a bank inspector were to give the officers of a bank that he was about to inspect 48 hours' notice in advance of his arrival. Could not that bank, if it were doing an irregular or crooked business, "fix" things up so that every thing would pass muster, then, after he was away, continue its illegal banking? Suppose a fire-insurance inspector were to give 48 hours' notice to policy-holders that on a certain day he would make an inspection. Could not these people sweep up their premises, get rid of all inflammable rubbish, and otherwise make their premises presentable, then afterward let rubbish accumulate, defeating the very object of the inspection?

Of course, in the case of the foul-brood situation in Connecticut, the presumption is that the *great majority* of bee-keepers would be honest and would welcome the visit of the inspector, who would be able not only to tell them if they had the disease, but how to cure it. But the chap who continually harbored foul brood in his yard (and there are plenty of them in the country who work on the theory that they can always hold it under control) could very easily remove the affected colonies and then tell the inspector to go through the yard. It is these fellows who could keep the disease alive in their yard year after year. The disease so "protected" by a provision of the kind under consideration would be a constant menace to neighboring yards.

The other provisions of the proposed foul-brood law seem to be excellent.

THE INDIANA FOUL-BROOD BILL.

THE following is a copy of the proposed foul-brood bill before the General Assembly of Indiana. It appears to be based on the Wisconsin and Ohio laws. As a whole, the general provisions are good. We have only one suggestion to offer, and that is, that the State inspector be allowed to appoint deputies under the general direction of the State Bee-keepers' Association. This is a weak point in some laws already in force, because it very often happens that one inspector can not begin to cover all the territory and do it well.

The scheme of raising the fund to defray the expense of the law is the same as in the Ohio law, and is a good one.

The officers of the Indiana State Bee-keepers' Association urge all the bee-keepers of that State to send in their dollar and become members of that Association. This dollar will also make them members of the National. In view of the pending legislation in the interests of bee-keepers, our Indiana subscribers should rally to the support *at once*. Send the money to Jay Smith, Secretary, Vincennes, Ind., box 74.

Be it enacted by the General Assembly of the State of Indiana.

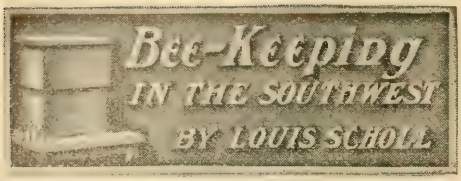
SECTION 1.—Upon the recommendation of the officers of the Indiana State Bee-keepers' Association, the Governor may appoint for a term of two years a State Inspector of Apiaries. Such inspector shall, when notified of the existence of a disease known as foul brood among apiaries, examine all such as are reported and all others in the same locality, and ascertain whether or not such disease exists, and, if satisfied of its existence, shall give the owner or person who has care of such apiaries full instructions as to the manner of treating them.

SECTION 2.—Within a reasonable time after making such examination the inspector shall make another examination thereof; and if the condition of any of them is such as, in his judgment, renders it necessary, he may burn all the colonies of bees and all the combs necessary to prevent the spread of the disease.

SECTION 3.—Any owner of a diseased apiary, of honey made or taken from such an apiary, who shall sell, barter, or give away such apiary, honey, or appliances, or bees from such an apiary, expose other bees to danger of contracting such disease, or refuse to allow the inspector of apiaries to inspect such apiary, honey, or appliances, shall be fined not less than fifty dollars nor more than one hundred dollars, or be imprisoned in the county jail not less than one month, nor more than two months.

SECTION 4.—There shall be levied annually on the owner of each colony of bees in the State of Indiana one cent for each colony owned, which levy shall be placed on the tax duplicate of the respective counties by the county auditors at the time of the levy of other taxes each year. The amount so collected shall constitute a special State fund, to be disposed of in the payment of the salary and actual expenses of the inspector.

SECTION 5.—The inspector shall make, at the close of each calendar year, a report to the Governor, stating the number of apiaries visited, the number of those diseased and treated, the number of colonies of bees destroyed, and of the expense incurred in the employment of his duties. Said inspector shall receive three dollars for each day actually and necessarily spent in the employ of his duties, and be imbursed for money expended by him in defraying expenses: Provided that the total expenditures for such purpose shall not exceed the amount secured by the special assessment as defined in section four.



Salt, applied wet, says Mrs. J. E. Chambers, of Vigo, Texas, beats all my "cures" for bee-stings mentioned on page 88.

Say, Mr. Editor, how are *your* chickens? Contrary to the arguments against keeping poultry with bee keeping, the writer now has a pen of nice Plymouth Rocks. If I can overcome the trouble of so many bee-keepers who handle poultry as too many poultrymen handle bees, I may be at least as successful in the poultry-business as I have been with my bees. [Wait till A. I. R. gets home. —ED.]

MOVING BEES TO NEW LOCATIONS.

Experience in moving bees at all kinds of times has taught me that bees moved to a new locality, just a short time before the honey-flow, will give better results than if previously moved. The excitement stirs them up to activity and gives the bees a vim and vigor that come just at the right time for them to take full advantage of the flow. It seems to awaken them in such a way as will cause them to rush out in full force and a determination to gather all in sight, while colonies already in the place are slower to begin operations. This is an important matter when locating new outyards or changing locations. The bees are left on the old location, and stimulated to build up as much as possible when they are moved to the new location in time for the flow. I am doing this again this year.

AUTOMOBILES FOR BEE-KEEPERS.

"Hauling bees to outyards, without horses," is mentioned on page 1109, 1906, and two illustrations to show how an auto is used for carrying a load of "baby nuclei." The advantage of such a horseless vehicle is that it is sting-proof, and there's no trouble with the bees. Another bee-keeper's "automobile" of California is shown as a frontispiece of the Nov. 15th issue, 1906—another horseless carriage in the shape of a mule. The editor, page 1418, thinks it is probably sting-proof. While there are automobiles in Ohio and California, we Texans have them also, and a picture of one of these horseless carriages is shown on page 406.

But, all jokes aside, a "rig" of this kind is not a bad one for moving bees, especially over bad roads or where the sand is deep. There are a good many advantages in moving bees on such a heavy wagon, which rolls over the ground much more smoothly, and with fewer jolts, than a lighter one. While small stones and sticks jolt a light wagon, this heavy kind acts more like a steam street-roller, simply rolling the obstacles into the soil. Another advantage is the slow steady gate of the team, besides being sting-proof to a greater extent than horse teams. A larger number of colonies, too, can be loaded on such a wagon, and, although the move is slow, it is more apt to be sure. It beats *real* autos on the kind of roads over which I have moved bees, loading from 30 to 40 heavy colonies on at one load.

SCATTER YOUR APIARIES.

The advantage of having bees scattered in different yards has been more apparent this past season, and shows up again in our spring examinations. Three of my apiaries along the mountain-ranges did nothing, while heretofore a good crop was obtained year after year. Three yards in mesquite range secured a good crop, while two other yards on cotton plantations turned out better than any of them. Only locations of the former kind would have left my crop report blank. It might be suggested that the three first-mentioned yards be moved to better localities; but this would be impracticable, as results another season might be just the reverse as regards yields of the respective locations, or, in other words, if all the apiaries were located where the best results were obtained last year a failure of a honey crop might be experienced, while on the old locations much honey might have been secured. This has taught me to scatter my apiaries, and in different kinds of locations. In some portions of our country, localities differ very much, even when only a few miles apart, as regards the honey flora.

CHEAP PAINTS FOR HIVES.

Some bee-keepers do not paint their hives, because "paint costs." If they could get a cheap paint for bee-hives they would paint them. It must be admitted that a well-painted hive, one kept painted, will outlast an unpainted one, if made of the same material. It holds good with dwelling-houses, and so it will with bee-hives, notwithstanding the arguments put up in favor of unpainted hives; and the better painted the hives are, the more lasting; hence the best paint should be used for the purpose—a strictly pure lead and zinc, and pure linseed oil, outside white, should be used. Several years ago some of the much advertised cold-water paints, such as "powderpaint" and "asbestine," a white fire-proof weather-proof paint, were given a trial. The work seemed satisfactory until exposed to rain, which penetrates and soaks into the wood just as badly as when no paint is used. While it is fairly satisfactory for hive sides and ends, it is almost worthless for covers. However, such paints are better than no paint at all when hives are not shaded. All things considered, however, "the best paint is the cheapest in the end." This can, perhaps, be better shown by the following illustration which I take from a color-

card of the paints we have found the most satisfactory and lasting in our experience as "painters," which, by the way, I have been following as a side issue. Suppose your paint-dealer offers you two brands of paint —one being a strictly pure prepared paint at $1.75 per gallon, and some other at $1.35. Now, the first will go much further, and cover from 25 to 30 per cent more surface per gallon than the cheaper brand containing barytes and whiting (both objectionable in good paints), but much used in place of white lead and zinc. Even should you ignore the cheap quality of the lower-priced paint, the better article will actually cost less, because it takes *fewer* gallons to do the work. For example, 2000 square feet require two coats of paint. Of the $1.35 article, ten gallons are required, amounting to $13.50. Of the other it takes only seven gallons at $1.75, which amounts to $12.25, leaving a saving of $1.25; besides, what is more important still, you have the very best paint for your hives. It should be remembered that the labor is the same for either a cheap or a high-price paint to be applied, except that hives painted with the cheaper article must be repainted much sooner, hence the expense is increased in this respect also. It is not an agreeable job to have to paint hives very often, especially when they are once tenanted, hence it is best to paint them right, which is the purpose of this article.

THOSE CANDY-FEEDING EXPERIMENTS.

Dr. Lyon's article and the editor's footnote, page 95, together with the editorial on page 83, mixed me up quite a little. Further discussions on the subject would be timely. *I* am not certain which one of the three kinds of candy should be used for *best* results in winter feeding, and it might save others much loss from feeding the wrong kind of candy. "Good" candy gave best results with Dr. Lyon; "hard" candy, made of sugar and water, boiled, gave good results, while that made by boiling *honey and sugar* melted in the hives and killed the bees. He fed outdoors.

At Medina, the "Good" candy gave trouble, melting in the hives and killing the bees, while the best results were obtained from "hard" candy made from sugar and water. The feeding was done indoors. The results were just the reverse in the two cases, if I understand the articles correctly. The question now is, "What caused such different results?" The editor attributes it to the difference between indoor and outdoor feeding. There's something in this. "Good" candy over a colony out of doors is not subjected to as high a temperature as in the cellar. Although the heat of the cluster may be the same in both cases, the temperature around the candy in an outdoor super would most likely be hardly as warm as the other. In addition to this the moisture of a cellar would play a great part toward the melting of "Good" candy, as it keeps best in a cool dry place. But why the same results with the hard candy made of honey and sugar fed outdoors by Dr. Lyon, as with that fed indoors at Medina? One thing is true—if honey is boiled it will remain liquid for a time, at least, if kept warm, or even after it has become apparently hard, as in the candy it soon becomes liquid again if subjected to warm heat. In this respect it is a harder matter to keep "hard sugar and honey candy" in a warm place than "Good" candy. Judging from Dr. Lyon's experience, the heat from the cluster in an outdoor colony has the same effect upon such candy as when fed indoors, with perhaps the difference that it would melt sooner and give worse results in the cellar. I am not sure but that Dr Lyon would have found just as good results from hard candy made of pure granulated sugar and water, which gave best results at Medina, as he did with the "Good" candy.

Unless otherwise convinced I believe the best all-around results can be obtained with the hard-boiled sugar-and-water candy. Pure granulated sugar and water are cheapest in the first place. If honey is used, either in hard or "Good" candy, it adds to its expense. Besides, unless it is known to an absolute certainty that there is no danger, diseases might be introduced by using honey in feeding. Another danger with "Good" candy is that one can not always be certain whether he is getting *pure* powdered sugar or not.

It seems to be clearly proven now that the honey market in England is no great bonanza for the bee-keeper. I took pains to get from England some honey quotations from Travers & Sons, the largest wholesalers in London. They quote amber Jamaica honey at 5 cents per lb.; fine pale, 6 cents; finest cream white, 8 cents. Honey in glass jars, etc., seems to be rated more according to the package than the contents. My correspondent says the reports as to the high price of some kinds of honey in England, notably heather, are doubtless true, for some people there want that honey, no matter what the price, and actually enjoy paying a fancy figure. Heather honey is national in England, and John Bull eats it loyally in the spirit of—

Oh! wrap the flag around me, boys.

It would be interesting to know the *per capita* consumption of honey in England as compared with this country. It certainly is far greater there than here. From the very first, English literature has teemed with references to the bee and honey.

As showing how the editor of a great metropolitan daily may err in regard to common things, I clip the following from the New York *Times* for Jan. 14:

NO BEE "WITH HONEYED THIGH."

It was, of course, a *lapsus linguæ* of the editor who wrote under the heading of "Bees and Blue Flowers" in to-day's issue of the *Times* when he spoke of "bees lading their hip pockets with honey."

No one doubts that the editor knows what a large majority of his readers do not know, i. e., that bees do not carry honey in their "hip pockets" or pollen-baskets. Neither is honey sucked from the flower, as is so often believed.

The process consists of the rolling about in the flower of the elongated lower lip which is covered with hairs to which the honey clings. When this lip, or palp, as it is called, is laden with honey the honey is conveyed to the mouth and swallowed. It passes to a so-called first stomach, whence it is ejected by way of the mouth again into the cell of the comb.

The supreme delight of the *Times*' editors when they are corrected or criticised prompts this small correction of an almost universal fallacy. HONEY.

It is refreshing to have so quick a refutation of the error, and still more so to see the editor of so good a paper willing to print the correction. But it shows there is still a great work to do in educating the general press in regard to bees as well as honey.

DO BEES IN GATHERING NECTAR FROM THE CLOVERS IN ANY WISE INJURE THEM FOR FODDER FOR CATTLE?

I have already made some quotations from the New Zealand Bee Bulletin, by Isaac Hopkins, written to meet the objections of farmers whose fields are visited by a neighbor's bees, on the ground that the bees take from growing crops what is useful to the farmer. In the following extract Mr. Hopkins shows that the superfluous nectar is evaporated and lost to the farmer at all events unless the bees take it. He says:

That the nutritive quality of the plants in any growing crop is not diminished by the abstraction of honey from their blossoms would appear to be evident from the fact that those plants have actually thrown off the honey from the *superfluity* of their saccharine juices, as a matter which they could no longer assimilate. There would appear, on the other hand, to be good reason to believe that the plants themselves become daily *more* nutritious during the period of their giving off honey—that is, from the time of flowering to that of ripening their seeds.

In England the gardener of the Duke of Bedford made experiments on the grasses and clovers growing on about 100 different patches, but all as nearly alike as possible, especially at the time of flowering and at that of ripened seeds. These plants were acted on by hot water till all soluble parts were dissolved, and the solution dried in an oven, and weighed. This product was sent for analysis. The chemist, Sir H. Davy, says:

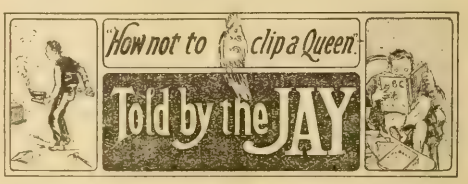
In comparing the compositions of the soluble products afforded by different crops from the same grass, I found, in all the trials I made, the largest quantity of truly nutritive matter in the crop cut when the seed was ripe, and the least bitter extract and saline matter, and the most saccharine matter, in proportion to the other ingredients, in the crop cut at the time of flowering.

Mr. Hopkins adds:

In the instance which he then gives, as an example, the crop cut when the seed had ripened showed 9 per cent *less* of sugar, but 18 per cent more of mucilage and what he terms "truly nutritive matter" than the crop cut at the time of flowering. From this it would follow that, during the time a plant is in blossom, and throwing off a superfluity of saccharine matter in the shape of honey, the assimilation of true nutritive matter in the plant itself is progressing most favorably. In any case it is clear that the honey, being once exuded, may be taken away by bees or any other insects (as it is evidently intended to be taken) without any injury to the plant, by which it certainly can not be again taken up, but must be evaporated if left exposed to the sun's heat.

It would be a good plan to submit the above to the growers of alfalfa. Two important points are established here—namely, clovers and grasses have not reached their best stage at the time of blossoming; and bees do not injure the plants by carrying off the nectar, which is of no more use to a plant than sweat is to an animal.

L'Apiculteur, of Paris, does not like E. R. Root's footnote to Dr. Miller's Straw in GLEANINGS for Nov. 15, relative to Professor Gaston Bonnier's discovery of the prospector bees that look up work for the others to do. We might term them "foremen" bees. Our French friends call them *chercheuses*—that is, seekers. We in this country have been long familiar with the scout-bees and their ways. It is not them we dispute, but the assertion that they plan the work for the other bees to perform. We are aware of the splendid abilities of Professor Bonnier in the field of apiculture, and appreciate highly any thing he has to say relative to that science; but we should be glad to have more proof for the above assertion.



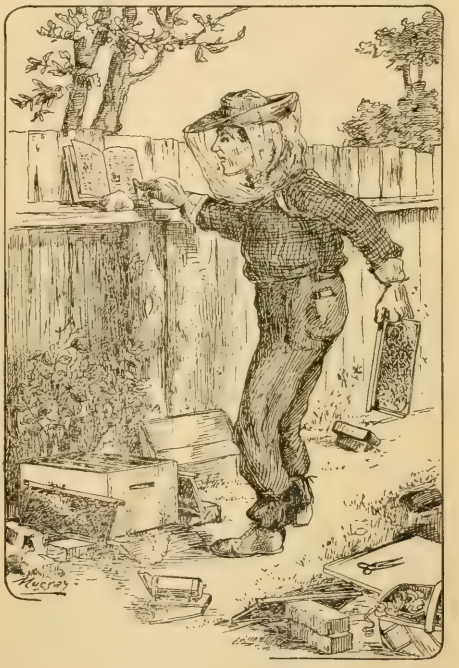
AN AMUSING AND YET NOT UNCOMMON EXPERIENCE OF BEGINNERS.

The first colony of bees I got was in a ten-frame home-made hive. I kept them standing in the back yard the first year, not daring to go near them. In the fall I went out one night and peeped under the cover, and was surprised to see that they had no honey. I supposed all a fellow had to do to get honey was to get some bees and they would do the rest. Nothing succeeds like success, so they say. Not so here. Nothing makes me succeed like a failure, so I determined that next year those bees should make some honey or furnish a reasonable excuse. I subscribed for GLEANINGS and got the A B C. Then the bee fever took hold in earnest. I studied the book night and day. I knew it all by heart. I got the "Facts About Bees," and learned it till I could recite it as easily as a minister can quote scripture. The argument in it was good. Every thing in it was all worked out. How grateful I felt that every thing had been learned for me,

and all I had to do was to reap the benefits! I tried hard to be unassuming, but inwardly I could not help feeling proud that I knew every thing about bees.

I did all this studying in the winter; and how I longed for spring to come that I might demonstrate what I already knew! How that winter persisted in staying with us, and how reluctantly did spring show her shining face! But at last, in the latter part of March, there came a beautiful bright warm day—just the time for clipping the queen! I had never seen a queen, and my anxiety to view her majesty was something fierce. I had an assistant cover me with mosquito-bar. I put on mittens and wrapped my wrists with rags. Then I fired up the smoker and prepared to go into action. How I dreaded opening that hive! I felt a little pale, but my teeth were set and it was do or die. I was too big a coward to retreat while every one was watching. I must have been an awe-inspiring sight to those bees as I swooped down upon them, dressed in armor, with the smoker spitting smoke and fire. I soon enveloped the hive in smoke, gave it a few jolts and tore off the cover, then smoked again. Of course, the bees cowed before such a vicious onslaught. Now, the books said: "Catch the queen and clip her." Clipping was the primary object of the expedition, but I saw where the books were right in saying "catch the queen" before saying "and clip her." The only change in the wording of that I would make would be to precede that with "find the queen." I took out the frames carefully, and stood them around the hive in various places, but could not "catch the queen." I looked and looked. There were more bees in that hive than I had expected to see in ten hives. The separation of a mixture of the proverbial hay-stack and needle would have been a cinch compared with the task in hand. I hunted all the afternoon, and had to give it up on account of darkness. I was disgusted but not discouraged. This problem confronted me: "If I fail to find one queen in half a day, how long will it take to find several thousand queens?" (the number I expected to have in a year or two).

Nothing succeeds like a failure, and the next day I went after them with more zeal than ever. On lifting out the third frame my eyes rested on a bee the like of which I had never seen before. It was a long bee, and she walked with a more majestic tread over the comb, and did not seem to be in such a rush as the rest of the bees. She was of a dark brown color, and how handsome she looked! Verily this *must* be the queen! The queen of Sheba might have looked good to Solomon, but she was not arrayed like this one. The next thing, "catch the queen." I tried to make the catch, but she was not so easy. Just as I would close my fingers on her she was not there. At last I got hold of one wing, but she buzzed around so that I let her drop. Again I got her by the wings and tried to transfer her to the left hand, but her head did not stick out far enough for me to get a good hold, and she backed out and got away. Next time I shut down so hard that I was afraid I would kill her, and then let up so that she got away again. This time she dropped in the grass and I had a time to find her. The fourth time I held her between my left thumb and finger in a trembly fashion, much as a dog bites a rat, and probably the sensations to the rat and queen were similar. I then got the shears. I forget whether they were a large pair of tailor's shears or the kind they use for shearing sheep. In my enthusiasm I had used them to pry frames apart with, and they were more or less gummed up with propolis. I slid them under the wings and shut down. The wings bent over, but would not cut. I tried again and again, until I either wore the wings in



NOW THE BOOKS SAID: "CATCH THE QUEEN AND CLIP HER."

two or pulled them off. But I got them off, and a leg with them. Is it any wonder that those bees decided they needed a new queen—one more in keeping with the modern ideas of rapid transit? A little later I thought I would "shook" them into a new Danzenbaker hive, and I was astonished to find that they had a new yellow queen with wings of the regulation length and a full quota of legs.

P. S. In my first article I forgot to tell where I was educated. Was educated at the State Agricultural College of Indiana. Graduated with horrors at the foot of the class and received the degree of R. F. D.

[Many a beginner has a similar experience. When he pays anywhere from one to three dollars for a nice queen, and then essays to clip to keep his three dollars from flying

away, his fingers begin to feel trembly, and he wishes Mr. Queenbreeder had clipped her before sending.

A little advice to such beginners right here may prove to be helpful. First practice on clipping drones. Learn to pick him up by the wings until you can do the little act deftly and neatly, without pinching or hurting him. When this is accomplished, grab his waist between the thumb and fore finger of the other hand. In that position he can be held without injury and his wings be clipped. Now try her majesty the queen. The job will then be easy. When grasping her by the waist or thorax do not be afraid of hurting her, for a very slight pressure will do no harm, as the hard bony substance that goes to make up her corset waist, we will say, will protect her from any injury. After clipping, open the fingers on top of the frames, allowing the queen to crawl off quietly by herself. There are a good many other ways of doing the work; but this for the beginner is about as simple as any unless one uses the little Monette queen-catcher and clipper sold by G. W. York & Co., of Chicago.—ED.]

GETTING THE BEES READY FOR THE SURPLUS.

"Mr. Jones, how did you succeed in preparing your supers and hives for the surplus season of 1907 which we talked about when you were here last?"

"First rate, Mr. Doolittle. I have all the supers cleaned, fixed, and made, that I think I shall need this season, and the sections well under way for filling them."

"That is good. The winter and early spring is the time to get all our hives and supers ready for the summer's operations, and I am glad you are beginning right."

"I was thinking this morning that all this surplus of hives, supers, and sections would be of little use to me unless I knew something about getting the bees ready to take the best advantage in them, and so I thought I would come over and see you about this still more important matter of getting the *bees* ready, so I could be meditating on it and thus be ready to act when the time comes to put it in practice."

"Good idea. In fact, our time for study and preparation all along the line of bee work is during the winter months; and he who takes time by the forelock is the one the most likely to succeed."

"Very good. What is the first work along this line?"

"My first work is to see that each colony has stores enough to carry them to where the hives can be successfully opened and the combs manipulated, and to know about the strength of the same as to number of bees."

"How do you find this out in early spring?"

"This is easily done on some cool to cold morning where chaff-packed hives are used, by taking off the cover and turning up one corner or one side of the covering, cloth, or quilt that lies over the frames to keep the chaff from falling down among the bees. Turn it back till you can see the edge of the cluster of bees; and as you do so, look along the combs for sealed honey, and if such is seen in four or five of the combs you can safely calculate that such a colony will be all right till pollen becomes plentiful, at which time you can open the hive and make a thorough examination."

"But suppose I do not find much or any sealed honey, what then?"

"You are to mark that hive and feed the bees in some way, the very best of which is to set in frames of sealed honey. If you do not have such, take out a comb and put in a division-board feeder next to the cluster of bees, when you feed them by pouring feed a little more than blood-warm in the feeder, the smell and warmth of the feed arousing them sufficiently so they will take the feed. But remember that a comb of sealed honey set right in there where I tell you to set the feeder is the best possible way to feed bees at any time of the year where bees need feeding."

"Well, as I have quite a few such combs which I saved for future use last summer, I shall be all right here. But how about ascertaining the strength of the colony as to bees?"

"After having found out about the amount of honey, just turn up the covering till you come to the first edge of the cluster of bees on one side, then turn up the cover on the opposite side till you come to that side of the cluster, then count the number of spaces between the combs they occupy, and you have the thing at your command at once."

"How is that?"

"Suppose you find bees in from seven to ten spaces, you can know that such colonies are extra good ones; and if they have honey enough they will need no further attention except to know that they have a good queen later on. If you find bees in five and six spaces, such colonies are good ones, and will bring up to strong colonies in time for the honey harvest from clover; but if you find bees in only two, three, or four spaces, you may know that there is little chance for the two-space cluster to live to see the flowers blossom, and the show is poor for the three-space cluster; but the four-space cluster will be apt to get ready for the basswood-honey harvest without much trouble."

"But a part of my hives are not chaff-packed. How can I tell about these?"

"This is done by lifting them up from the bottom-board and looking between the bottom-bars of the brood-frames. If the hive is

heavy, and you find bees covering four to seven frames, you can count such hives as all right till you can open the hives with safety for a careful examination of the combs as to both brood and honey."

"Why need I wait about this opening of the hive? It would seem better to know the *exact* condition of things at once."

"It is better that no sealed covers should be moved nor frames disturbed thus early in the season, for it often does more harm than good through the chilling of brood, and leaving the hive in poor condition to keep in the heat arising from the cluster of bees. We must be careful here, if we would reap the best results."

"But if I consider such hives short of stores I must open the hives in order to feed them, must I not?"

"No, not necessarily."

"How is it to be done, then?"

"Just set an empty super on the bottom-board, and in this super set a pan or square tin, dripping-pan, or some like kind of dish, then pour in your syrup or feed, the same being about as hot as you can well hold your finger in. Put on top of the feed a wooden float made of a piece of ¼-inch board about ½ inch smaller all around than the bottom of the dish containing the feed, and over the whole spread a piece of an old towel or a piece of cheese-cloth, seeing that the latter lies down so it touches the feed all around. This is to keep the bees from getting daubed or drowning. Now set the hive of bees over the super, and the warmth and scent from the feed will cause the bees to come down in masses till they cluster below the frames and touch the cheese-cloth, thus forming a line of bees from the brood above to the feed below, which, through the warmth of the feed, will enable them to carry up from two to four quarts in a night, according to the strength of the colony."

"I see. I had not thought it necessary to have the feed warm, but I now see there is an advantage in it. But can I feed at any time in this way?"

"At any time when the bees are not flying. To feed in this way during a warm day would almost surely result in robbing, and should be done in the twilight of the evening, or on cool or rainy days, and never when the bees from other colonies are likely to be attracted to such colonies as are being fed."

"What am I to do with such colonies as have only one or two frames enclosed by the cluster?"

"That is a matter over which some of our best bee-keepers disagree; but the most of them now think that it is best to do nothing with them, only that they be not robbed, through which the whole apiary is often demoralized. As a rule, if left alone the fittest will survive, and all which do not are to have their hives cared for so that the honey in them is not carried off by other bees."

"Why could not several of these small colonies be put together, thus making one strong one of the several?"

"That looks reasonable to the one who has never tried the matter; but to those who have tried it, the knowledge has come through the facts in the case, that, nine times out of ten, such united colonies will be no better at the end of three weeks than would be any that survived of those left untouched."

"That is strange."

"So it is, and it has puzzled many of our best bee-keepers during the past. About the only way of helping these weak colonies seems to be the giving to them a frame of brood where lots of young bees are just emerging, taking their combs all away but two of honey, and putting the frame of emerging brood between these combs of honey, and confining the whole to these three combs by means of a dummy and warm blankets around the whole, thus keeping them warm till the young bees are able to care for more room."

"Why would that not be a better plan than either uniting or letting them take their chances?"

"At first glance it would; but after repeated trials it is generally found that, with the exception of saving some extra good queen, or for some special reason for wanting to save just that *one* colony, the taking of that frame of brood away from the stronger colony thus early in the season does more damage to the strong one than is gained by saving the weak one; and, besides, it often happens that the bees that were in the weak colony die before the young bees from the brood become old, and strong enough to care for things, and so we not only lose our weak colony but this frame of brood from the stronger, making a loss of the whole thing, and having only our labor for our pains."

BUCKWHEAT AS A HONEY-PRODUCER.

The Conditions that Control the Flow of Nectar; the Season more Important than the Amount of Bloom; Overstocking; Preparing for Winter in July.

BY E. W. ALEXANDER.

In the June 1st issue of GLEANINGS I noticed the following questions: "How many colonies will 60 acres of buckwheat support, or how much honey can be gathered from it?" As the editor calls my especial attention to this question I will give some of my experience in keeping bees in buckwheat locations. I first wish to say that this question never can be answered exactly; the principal reason is that, during the time that buck-

wheat is in bloom, many other honey-producing flowers are also secreting nectar, principally goldenrod, which yields a dark honey resembling buckwheat very much, and with us is a better honey-producer than buckwheat. However, I will try to throw a ray of light on this subject.

Several years ago I kept nearly 200 colonies in a location where there was barely 100 acres of buckwheat within reach of my bees — that is, within four miles, or in a circle eight miles in diameter. Still, with this small acreage per colony it was no uncommon thing to harvest a surplus of 15 to 20 lbs. of nice buckwheat section honey per colony. This caused me to feel very anxious to keep bees in a buckwheat location where thousands of acres was raised annually, so I moved to this place. But I soon found out, to my sorrow, that the amount of bloom had but little bearing on the amount of surplus I obtained, and in this respect buckwheat is no exception to other flowers, aside from the fact that it does its best when we have quite cool nights followed by a clear sky and a bright hot sun with little or no wind; then from about 9 o'clock in the morning until 2 in the afternoon it secretes nectar very fast. We seldom find a bee at work on it much earlier or later in the day. But on goldenrod they will work from seven in the morning until after 5 in the afternoon. It also requires quite cool nights and a very bright sun during the day. Neither it nor buckwheat amounts to much in cloudy weather, even if the day is warm. With a temperature below 70° on a cloudy day, bees will waste away fast on either goldenrod or buckwheat. They simply crawl around, unable to fly; and unless they get a bright sun the next day they soon die.

This question has a close bearing on the subject of overstocking, and it is hard to answer it without touching somewhat on that question. From the reports given in our bee journals the past season, during the commencement of the clover bloom in several of our Western States, I noticed that it was all that could be desired; but as to the yield of honey, it has been in many places almost a failure, and we have received many letters of inquiry for clover extracted honey from some of the best clover sections of the United States. The writers of these inquiries state that, although they had a very large bloom, their bees got but little surplus.

My friends, the time will come when many of you will realize that what is commonly called the "season," which is, the condition of the ground as to proper moisture and the temperature, and the electrical condition of the atmosphere at the time the flowers are in bloom, will have a thousand times more bearing on our surplus than the *amount* of bloom or the number of colonies we may have in one apiary.

A few years ago, during the commencement of our August harvest, when our bees had at least 1500 acres of buckwheat bloom to work on, and were getting honey very fast, a heavy thunder-shower came down from the north about 2 P.M., which caused the mercury to drop 21 degrees in less than half an hour. Then this low temperature of about 65 degrees, with windy cloudy weather, lasted some 11 days, during which time the bees destroyed large quantities of their brood, for there was no nectar in any flowers during that time, and they were ready to rob any hive that was opened. We have but very little basswood in this locality, and two years ago the bloom was very light. We could hardly find a tree that had any flowers on, but still our bees got a fine surplus of over 9 tons of basswood honey; but the weather was all that could be desired. It was clear, hot, and very damp; the moisture of the air condensed on every thing that was cool, and consequently we got the honey.

One year ago we had the most profuse basswood bloom I ever saw. Nearly every tree was full of flowers; but the weather was cold, cloudy, and windy during nearly the whole time it was in blossom, and we did not get enough basswood honey so it could be smelled or tasted in our surplus. I don't know that I ever saw the buckwheat harvest stop so suddenly, with apparently little cause, as it did last August. From the morning of the 21st to the night of the 24th, bees got honey very fast. Our hive on the scales averaged a gain of about 8 lbs. a day, and we extracted a tankful of a little more than 2 tons each day for four consecutive days, and our men all agreed that there was more honey in the apiary each night than there was in the morning. But on the night of the 24th we had had a light shower with a fall of temperature of 11 degrees. The bees were very quiet the next morning until about noon; then when it warmed up a little they were ready to rob any thing they could get at, and there were thousands trying to get into our honey-house around the screened windows; and we knew from past experience that the honey season of 1906 was then drawn to a close. The hive on the scales did not gain ½ lb. any day after that fall in temperature and shower, although there was considerable buckwheat in bloom.

Then at other times I have noticed, when the weather remains warm without any rain, the flow of nectar would last until Sept. 5; but if a break in the harvest comes at any time after the 24th of August we at once take off our extracting-combs, run them through the extractor, and put them away for another year.

This year we finished the last work in the apiary for the season on Sept. 1, and our honey was then all either in the barrels or tanks, and we had little more to do. We always prepare our bees for winter during July and August, so our summer's work was finished until we put them into the cellar.

I might continue to write page after page, citing cases where the weather has nearly all to do with our securing a surplus, but I don't think it necessary. The one principal requirement in securing a nice surplus is, as I have stated, the season; but this, being far beyond man's control, will always make the

production of honey a somewhat uncertain business. The bloom of 60 acres of buckwheat added to what other honey-producing plants which would blossom at the same time, would undoubtedly help 100 colonies very much to fill up their hives for winter and give some surplus. I should consider it quite a help to an otherwise fair location; but I can not see how we can ever ascertain any thing like a correct knowledge of what our harvest will be, or the number of colonies that will overstock a location. My advice is, don't make any debts expecting to pay them from your future crop of clover, basswood, or buckwheat honey; for if you do there are many chances that you may be badly disappointed.

Delanson, N. Y.

[When we visited Mr. Alexander, two years ago this coming summer, he showed us how the bees were working on goldenrod as well as buckwheat. At that time he stated that the bees were getting as much (if not more) from the goldenrod as from the buckwheat. While his locality has generally been credited with being a great buckwheat country (and this is true), yet if this were the only source it is doubtful if our correspondent would be able to maintain so many bees in only one locality. Goldenrod thrives luxuriantly there, and, moreover, the conditions seem to be just such as to make it yield a large amount of nectar. The surrounding country is very hilly and stony. Some of the side-hills, in consequence, can not very well be cultivated, and it is these that grow up wild with goldenrod.

As to the amount of acreage that it takes to support a given number of colonies, if Mr. Alexander's bees have a flight of three or four miles for pasturage, the lowest calculation shows that there are 25 colonies to the square mile, taking three miles as a radius, we will say, and 700 colonies as the basis of our figures. But the average bee-range of this size would not have over 200 colonies, or seven to the square mile. If the 200 were divided up into three outyards, or even two, the available bee-range would be more evenly distributed.—ED.]

HOW BEE-KEEPING HAS DEVELOPED.

Some Suggestions to Those who would Make it their Only Business.

BY W. Z. HUTCHINSON.

First, a brief backward glance at the past, a glimpse of the present, then let the eye rest upon the future.

In the past, almost every farmer had a small flock of sheep, two or three cows, a dozen or two hens, raised an acre of flax, made his own cheese and clothing, and, among other things, kept a few hives of bees — brimstoning the heaviest and lightest in the fall. Had a man attempted bee-keeping as a specialty, the keeping of one hundred or even fifty colonies, he would have been looked upon as visionary, wild, almost a lunatic; and, under the existing conditions, it *would* have been a foolish move. The product would have been in poor shape for transportation or retailing, the facilities for transportation most meager, and a sufficient number of consumers most difficult to find and reach.

As the years rolled by, population increased wonderfully; railroads, steamboats, and other modes of transportation multiplied; and then came the invention of the movable-comb hive, the honey-extractor, the bee-smoker, comb foundation, and the section honey-box. The product of the apiary was secured in a marketable, transportable shape; there were means of transportation, and a *market*. Men began keeping bees in larger numbers, making a prominent side issue of a business that eventually grew into specialty. Bee journals came upon the field of action; factories for the manufacture of bee-supplies were built, and bee-keeping as a separate rural industry became an established fact.

But there were many problems to be solved. The successful wintering of the bees, and the control of increase or swarming, were difficult of solution, and bee-keeping as understood and managed in those days was truly an uncertain pursuit — very profitable if things turned out well, but likely to leave the bee-keeper, some fine spring morning, with only empty hives and combs. It is no wonder that the advice was to combine bee-keeping with some other pursuit. Gradually the difficulties were overcome. Foul brood could be banished from an apiary or from a neighborhood; swarming could be prevented or forestalled, and the proper food, temperature, ventilation, etc., brought the bees safely through long severe winters. That bee-keeping might be depended upon as a sole business was proved by the success of such men as Crane, Hetherington, Coggshall, Elwood, Holtermann, Miller, Townsend, Coverdale, Aikin, Gill, McIntyre, Mendleson, and many others equally successful but not so widely known.

This is an age of specialty, and bee-keeping is no exception to the rule. One farmer is a stock-grower; another raises potatoes, as did Mr. Terry; another, great fields of cabbages; another, fruits, etc., and, instead of keeping a few bees, they buy their honey of the man who makes a specialty of its production, he in turn buying his meat, milk, and potatoes. Many who are now keeping bees in connection with some other pursuit are asking themselves and others if they shall drop this other pursuit and make a sole business of bee-keeping. To such I would say that *never were the prospects brighter for making a success of bee-keeping as a sole business.*

One feature that I have not touched upon, and it is most important, is the continually increasing demand for honey. Its use for manufacturing purposes, especially by the great baking companies throughout the country, has done more to put commercial bee-keeping upon a sound basis than many of

us dream. The prices paid are not high, but the demand is large and steady, which is of vastly more importance. The handling of crops of honey is drifting away from the hands of the commission merchant into those of the cash buyer. Honey has really become a staple, in good demand, and can be readily sold for *cash* almost any day of the year, the same as butter, wheat, and potatoes.

There is really no great difficulty in wintering bees without loss. An underground or suitable cellar, where the temperature is beyond the influence of outside temperature, properly ventilated, and the bees supplied with early-gathered well-ripened natural stores, or else fed a syrup made from granulated sugar, solves the wintering problem. There are several methods, notably "shook swarming," whereby distant apiaries may be managed by occasional visits, with no loss from absconding swarms.

The first thing to be considered in embarking in bee-keeping as a sole business is the location. This is the foundation of bee-keeping as a specialty. I would never think of such a thing as making a specialty of bee-keeping in a poor location. Still further, unless the location is different from any with which I have had experience, I would not attempt specialty with bees in one location—certainly not with only one apiary. With the systems of management now in use, it is possible to care for an apiary many miles from home—so far that the journeying to and fro must be done on the cars. If possible, have each apiary where the flora and other conditions are different from those at the other yards. The chances of a total failure are thus greatly lessened; there is almost certain to be a crop at some of the locations. To illustrate, I have bees in four different kinds of locations; or, rather, there are four sources of supply available to one or more of the four yards. These sources are clover, basswood, red raspberry, and buckwheat. Last year the buckwheat furnished about one-fourth of the crop, while basswood yielded nothing. Next year the conditions may be reversed. Clover yielded the most profusely last year; next year it may be raspberry.

Having secured the desirable locations, next comes the stocking of them with the very best kind of bees. I have found nothing superior to the darker strains of Italians. Get the best of hives and implements. This is one of the advantages of specialty, that it can afford to have tools and implements which are beyond the reach of the small bee-keeper. It can have the best of hives, feeders, cellars, extractors, etc. For instance, I have sold the two-frame extractors that came with the apiaries that I bought last fall, in Northern Michigan, and shall put a four-frame automatic at each yard the coming season.

To recapitulate: Get a good location; better yet, several good locations; stock them with good bees, plenty of them, enough so that when there comes a good year the crops will be enormous; have the best of hives and implements, and study out some system of management that is adapted to yourself and your conditions. Simple, isn't it?

One thing more, and I am done. Unless you love this work, unless you can go into it with enthusiasm, and full faith in your ability to succeed, don't attempt it.

Flint, Mich., Feb. 26.

GOOD CANDY.

Made with a Universal Bread-mixer; How to Make it so that it Can be Used as a Winter Food Without Melting down and Killing the Bees.

BY D. E. LHOMMEDIEU.

With unusual interest I have just read the article, page 95, on making bee candy.

Last spring it became necessary to feed. I used up 3 bbls. of pulverized sugar in "Good candy." It was mixed with the universal bread-mixer, No. 8. Smaller sizes could be used if desired. They are made in Connecticut, and cost $2.50 or $3.00. Turn into the mixer *measured* warm extracted honey, and *measured* pulverized sugar. (By experimenting you can determine the right quantities to make a stiff dough.) If made too soft it will melt and run out of the hive entrance. Use galvanized or tin basket sprinkled with the pulverized sugar; lay in one batch made in the shape of a pancake; then add a layer of sugar, etc., till you have enough to feed the outyard.

By keeping sugar over the candy, robbers can't touch it. Go to the hive; cut off a chunk of candy, the size you wish to feed, with a knife; lay it above the cluster. It will last quite a while compared with liquid feed. The brood started in this way will surprise you. You won't need to roll up your sleeves to make bee-candy this way, and there will be no robbing if the hive is properly closed at the top.

Colo, Iowa.

[Your scheme of making bee candy we believe to be excellent. We have learned by experience that it is very important to do a thorough job of mixing the honey and the sugar, and nothing could do this better, probably, than the common bread-mixers now on the market. But in view of some serious losses some of our bee-keeping friends have sustained from attempting to use the Good candy, or, as it is sometimes called, queen-cage candy, on top of the frames for a winter food, it would behoove every one to err on the safe side by putting such candy in a shallow tin pan or tray. The wooden butter-dishes that can be had at any grocery would serve a most excellent purpose. Even if you yourself can mix the candy so it will not "run," there will be others, doubtless, who can not do it; and then, too, the conditions in your climate might be slightly different from those in another. Iowa is a much dryer State than many of those east of the Mississippi, and especially those bordering

on the great lakes; hence the advisability of putting queen-cage candy in some sort of container that will prevent it from getting away and playing havoc with the bees.—ED.]

WAX-PRODUCTION.

Is it a Profitable Business in the Tropics? The Wax-press vs. the Honey-extractor for Getting Honey out of Combs.

BY C. F. HOCHSTEIN.

In December 15th GLEANINGS I read with interest an article from Mr. W. K. Morrison on the production of wax in the tropics, the West Indies especially. Now, I have been experimenting on this wax-producing business for some years, right here in the West Indies, with all kinds of systems and all kinds of hives, and the results of my experiments so far have been a failure financially. My experiments so far clearly show that, in a winter location like mine in Cuba, where the surplus-honey flow is from October 1 to April 1, if honey will net the bee-keeper even no more than a cent a pound he will come out better financially than producing wax at thirty cents a pound during the same time.

I will now give the reason for this, and point out how the bees will work in following Mr. Morrison's system in this location.

Let us take a brood-chamber boiling over with bees the first of October; put on a honey-board, then a super with starters one inch wide. If the weather at this time is cool the bees will be loath to go above the honey-board, but will stick honey in every cell in the brood-chamber as fast as the bees hatch out. The result of this will be that, in a short time, the brood-chamber will be full of honey, with no bees.

On the other hand, should the weather be warm at this time the bees will commence to stick in brace-comb between the top-bars and the honey-board. When this space gets pretty well filled they will crowd up above the honey-board and build brace-comb to the bottom-bar, then combs from the bottom-bar up, and fill these same combs with honey as fast as the building of them goes on.

After they get the super about a third filled in this manner, then they will commence on the starters. These they will commence to draw out, putting honey into the cells before they are half drawn out. That is the way the bees work here in using all starters from foundation in the super. If a drawn comb, cut down so as to leave a one-inch starter in the same is used, they will work just the same, with the exception of cleaning out the honey and carrying it below. Now, any bee-keeper who has ever had a super full of frames, with combs built from the bottom-bars up, can imagine what a mess he would be in, running his supers in this manner.

I have tried to meet this objection half way by using five full combs and four frames with starters in them, interchanged in a ten-frame super. This worked a little better, but even here the bees would fill the drawn combs nearly full of honey before starting to draw out the starters. I also reversed the conditions, putting the brood-chamber above and the super with starters below, and a honey-board between; but this would not work either, as the bees would carry the honey up and crowd out the queen from laying.

From my former experiments, the conclusion I have come to regarding the profitable production of wax over honey is that it will have to be done in a one-story hive, divided into two parts, and in a summer location—I mean where the surplus honey-flow comes in summer. If nothing happens to the contrary I shall try it this summer. I have a suitable hive planned for the purpose.

I want to learn all the short cuts possible, to save work. I don't care to work like a "house on fire."

Why doesn't Mr. Morrison tell us more about his bag act? What kind of bags does he use? How many combs does he put into a bag? Does he put the same bag into the press? How long does he let them drip? What has he under the bags to catch the drip? What kind of house does he use for the purpose? I know it is *almost* possible to build a bee-proof honey-house; but it certainly is not possible to build an ant-proof house in Cuba.

I should think it would take a regular hippodrome to put all the paraphernalia in needed to hang up 75 or 100 bags with 75 to 100 tubs under them to catch the drip; and I should judge that the wear and tear of bags, the honey they soak up, what honey sticks to the tubs and pails, what the bees and ants get, and what drops from the starter left in the frame from the time it is cut until it is put back on the hive would more than pay the wages of a couple of men to extract it and barrel it at one handling.

I can not understand, either, how Mr. Morrison can get his honey to drain out of a bag. I have had cappings and chunks of honey all mashed and cut up fine, in an uncapping-box, with a wire screen ⅛ inch mesh; have left the cappings in this box two and three weeks at a time, and the honey would not all drain out. Remember, our honey crop comes in cool weather.

Then it looks to me as though a man could uncap, extract, and cut out a given number of combs a good deal faster than he could cut them into a bag, let it drip, take it down, put it into a wax-press, press it, take it out, etc. Query: How many combs can Mr. Morrison handle per hour, from hive to barrel?

I am afraid if I had to do all this slashing, mashing, and hanging up, when I got through some one would have to put me into a wax-press and squeeze the honey out of me and my clothes. I have studied on this matter of wax-production here, in order to do away with hired help as much as possible, and because there are some good bee-locations to be had in places where it would

cost more than the honey is worth to get the honey to market.

Mangos, Cuba.

[This was referred to Mr. W. K. Morrison, who replies as follows:]

Nearly all the points raised by this correspondent have been answered already in the pages of GLEANINGS, but it will do no harm to go over the questions again. It was only in the last issue of GLEANINGS Mr. Frank Reiman, of Nueva Paz, Cuba, drew a picture of wax-production in Cuba quite the opposite of what Mr. Hochstein has given. For its size, Cuba is an enormous producer of beeswax, nearly all of which is produced in what some may term "winter," but what most Americans would be glad to call "summer."

I suspect Mr. Hochstein is a Yankee who likes to follow Yankee ways, even in the tropics. My experience has been that, if it was warm enough out of doors to secret nectar, it was warm enough inside a hive for wax-making. Mr. H. could possibly solve some of his difficulties if he used an entrance to the top story of his hives. He would solve more problems if he used shallow brood-chambers. Full sheets of foundation in all brood-frames are also essential to success.

As to bags, three are quite enough for one apiary—one in the press, one dripping, and one being filled. As to the best material, opinions differ. Some like cheese-cloth, others use burlap. In Cuba one can purchase a linen cloth used by women for fancy work, which is strong and good. If too close in a mesh, get one of the women who make drawn work to pull some of the threads. Don't apply the pressure too fast, or the bag will burst.

The honey expressed is fine, but it may be used to feed back. But don't use any thing but a very shallow brood-chamber for "feeding back," and always add water before feeding. You can do this in July and August.

If Mr. Hochstein will examine the illustration by H. H. Root, on page 103, Jan. 15, Fig. 8, he will see just how a bag is squeezed. The plan is as old as the hills. I can't say just how fast this method is, but it is certainly much faster than extracting, and much cleaner, as there is no uncapping.

As to ants, the honey can be run right into the barrels at once, and sealed up. By the way, Mr. H., you have no ants in Cuba worth talking about. You want to go to South America for ants that really know their business.—W. K. M.

THE ASPINWALL NON-SWARMING HIVE AS TESTED AT MEDINA.

BY E. R. ROOT.

On page 204 of GLEANINGS for 1906 I referred to a new non-swarming hive by Mr. L. A. Aspinwall, of Jackson, Mich., a hive that was exhibited at the Michigan State convention that took place in that State a year ago. It will be remembered I stated that, notwithstanding it was claimed to be a non-swarmer, and of entirely new, and, I may say, of odd construction, it attracted a good deal of attention as well as favorable comment on the part of the old conservatives present.

A little later on, in the April 1st issue, we gave a detailed description of it, together with a series of illustrations. At the Michigan convention referred to, Mr. Aspinwall promised to send me a hive to test. This I placed in the hands of our neighbor, Mr. Vernon Burt, a specialist in the production of comb honey in tall sections. I requested him to put into it a rousing big colony—one of the very best he had, and then force them in every way possible up to a high state of prosperity, so that, when the natural honey-flow should come on, its bees would swarm unless the special construction of the hive should remove entirely all desire for it.

But, unfortunately, Mr. Burt had a rather poor season. Very few if any of the colonies in his regular hives swarmed; but in order to make this one do so he gave it regular stimulative feeding. This he continued until the honey-flow came on; and, even after it began to lag, he commenced jamming in the feed to determine whether or not he could yet force the bees out. All his efforts were unavailing, however. At no time did they show any disposition to form any swarming-cells, notwithstanding the forcing referred to.

Mr. Burt requested me to come down and see that colony. I arrived at the yard late one summer afternoon; in fact, it was getting toward September. I took a couple of photographs, and the results are here shown. No, that hive was so jammed full of bees that they were actually crowded out of the hive at the entrance. I might state that it was very warm that afternoon. The honey-flow had entirely ceased, and the bees were loafing. We dissected the hive and then took another view.

To our newer readers I might explain that this hive is no larger than any other hive, although it has nearly twice the cubic capacity of the regular hives with the same number of frames.

The hive proper is a sort of skeleton on which rest closed-end brood-frames. Two side panels projecting a bee-space above the frames close up the two outside combs, and the closed ends of the frames shut out the wind and weather at the ends. One cleat is placed on top of each end of the frames to close up the bee-space at the front and rear. When the honey-board is set on top the whole hive is enclosed.

But the construction of the frame and the slatted dividers are the two features that constitute the peculiar construction of the brood-nest. Between each brood-frame is interposed what we may call a bee-spaced dummy or slatted dummy, as called by the inventor. These latter are made as follows:

Perpendicular cleats $\frac{3}{8}$ in. thick and $\frac{3}{8}$ in. apart, and one inch wide, edges toward the combs, are secured to the top and bottom-

bars of a dummy frame. The regular brood-frame proper, instead of having one end-bar at each end, had several of them, as will be seen by the larger illustration. Only the outside end-bar is closed-end. One of these slatted dummies is set down between each pair of brood-frames.

Now you ask, "What is this for?" Simply to give a clustering-space one inch thick of bees between each set of frames. In other words, Mr. Aspinwall spreads his brood-nest by increasing the space between each frame one inch instead of the ordinary regular bee-space. Of course, this inch space would be filled with brace comb were it not for the slats bee-spaced apart on a perpendicular line, the edges being next to the brood itself. It is because of this clustering-space between the frames, and because bees have more room through which they may pass up into the supers, according to the inventor, that all possible swarming is re-

ASPINWALL HIVE DISSECTED—MR. BURT STANDING IN THE BACKGROUND.

THE ASPINWALL HIVE IN THE APIARY OF VERNON BURT.

moved. Just why this should operate to prevent this I have not been able to understand fully; but after two or three seasons of test, Mr. Aspinwall has found he has been able not only to increase his honey crop but at the same time prevent swarming.

Quite a number now of prominent bee-keepers are testing this hive; for it should be understood that Mr. Aspinwall is not offering it for sale, as he wishes to test it thoroughly, and when he is sure of what it will do in the hands of bee-keepers in different localities under different conditions he will then be prepared to place it on the market, provided, of course, it meets the expectations of himself and friends. We expect to test more of these hives this coming summer; and, while we are making no claims for it, we know that Mr. Burt tried faithfully to force a swarm out of his hive, and failed entirely. Under the conditions of a *natural* honey-flow—not too heavy, but just enough to get bees excited—this hive might cast a swarm.

Perhaps some one will ask what those rows of holes are in the upper front board. A similar board is situated in the rear with another set of holes opposite to those in front. A cleat with rounded ends is inserted in the two corresponding holes opposite that come the nearest to the follower-board when all the frames are in place. A wedge is then pushed down between this cleat and the follower, pressing the latter snug up against the frames.

The extra end-bars are for the purpose of giving additional clustering room around the ends of the combs. This big wall of bees around each comb must necessarily give a splendid protection to the brood; and as the bees have extra room in which to cluster (as provided by the slatted dividers or dummies) they are not ordinarily inclined to hang out around the front of the entrance, says Mr. Aspinwall, although apparently they did so in this case, as evidenced by the smaller illustration; but it should be remembered that it was a very warm afternoon, with no bees flying.

I hope to make Mr. Aspinwall a visit in the height of the honey-flow next summer, as I wish to see the condition of the hive when the swarming season is on, or what will be naturally the swarming season with an ordinary hive.

In justice to Mr. Burt, perhaps I ought to explain that he was not aware that his figure was to appear in the picture, otherwise he says he would have struck a more erect position. He was simply waiting for the "gun to go off," thinking it would shoot only the hive.

BEE - KEEPING IN TEXAS.

A Visit to some of the Apiaries in the Vicinity of Uvalde.

BY H. H. ROOT.

At the National Bee-keepers' convention in San Antonio, Nov. 8, 9, and 10, of last year, Mr. D. M. Edwards asked me to come out to Uvalde and look over the country. This southern country was all new to me, so I was very glad to go, after the bee-inspectors' meeting was over that followed the regular convention.

FIG. 1.—ONE OF THE DRY RIVERS OF TEXAS.

It was with the greatest of interest that I stepped from the train when we pulled into Uvalde, for I knew something of the reputation which that locality had. Still, it was a surprise to me to find out later, that, in the year 1903, a million and a half pounds of honey had been shipped from that very station. Is it any wonder, then, that bee-keepers there were almost as numerous as poultry-raisers here in the North?

The Southern Pacific Railroad does not go through the town, but passes within a mile of it. Hacks were waiting to take the passengers into town. Although this was the 12th of November, the weather was very warm and the roads deep with dust. My overcoat hanging limply over my arm made me warmer still, and for once I wished for the cold winds and the freezing weather of the North.

Mr. Edwards was waiting for me when we drove up to the house, and it wasn't very long before we had started in a light buggy for his ranch, twelve miles from town, intending to stop at several apiaries on the way. We took a somewhat roundabout route—one that Mr. Edwards had not been over for some time, and we had all kinds of trouble for the reason that, within the last year or two, wire fences had been put up in many places, preventing any one from driving promiscuously "across lots," and some of these lots, by the way, are rather large. One pasture was over thirteen miles long. Think of going after the cows in the evening and finding them at the other end of the pasture! Some will wonder how we could drive without any roads; but, as a matter of fact, the natural surface of the ground is as level as a table, and, in many places, almost as hard. Whenever a track becomes rutty it is easier just to drive to one side of it than to fix it up. We lost our way for quite a while, and at two different times had to cross one of the dry rivers, about a quarter of a mile in width, which are made up of stones worn round and smooth, about the size of watermelons—see Fig. 1. Except when it is very wet, the water is not high enough to cover the stones, but runs far beneath the surface.

FIG. 3.—BURKETT'S SOLAR WAX-EXTRACTOR.

We did not reach the first apiary until after sundown, and then we found the owner, O. T. Burkett, had been extracting, evidently, but had just gone away. Although it was getting dark I managed to take a general view of his yard, which is shown in Fig. 2, and also of his solar wax-extractor, Fig. 3. The hot sun that shines almost all the time makes the solar extractor very valuable. Mr. Burkett's apiary looks as though it were situated in a remarkably well-kept or-

FIG. 2.—O. T. BURKETT'S APIARY NEAR UVALDE, TEXAS.

chard; but the trees shown, instead of being fruit-trees, are the scraggly catclaw, mesquite, etc., which grow about so far apart all over the country. Without thinking I found myself wondering several times why they didn't plant their trees in straighter rows. Great bunches and clusters of mistletoe are seen on nearly every tree.

We did not reach the ranch until after dark, and so there was no chance to take pictures. The next morning, however, we were out early. Fig. 4 is a view of the apiary at the ranch, showing the same growth of trees and the level ground. The covers shown in this picture are all home-made. They contain a dead-air space, and are covered with tin. Mr. Edwards says that flat covers will not do in that locality, as the sun is too hot. In one year he had $500 worth of comb honey melt down because it was in hives provided with flat wooden covers.

To be continued.

FIG. 4.—D. M. EDWARDS' APIARY AT HIS RANCH, TWELVE MILES FROM UVALDE.

FEEDING SYRUP IN ZERO WEATHER.

Hot Bricks to Raise Temperature of Hives.

BY W. B. RANSON.

As this subject is now on in GLEANINGS, and experiments are being conducted by yourself, I offer this little item. I have gone all along the ground covered by Dr. Lyon, p. 95, and failed; but by a different method I have succeeded admirably, and for the good of bee-keepers I offer the method as follows:

Take an escape-board and a Miller feeder. Take out the escape and daub a little honey around the opening and also on the beeway up the feeder. Place the feeder over the opening in the board and fill it with honey and syrup, and on each outside of the feeder place a piece of thin board 18 in. long, and wide enough to come ½ inch above the top of the feeder, and six or eight strips of wood ¾ thick, 12 in. long, placed across on top of the edges of the boards on the sides of the feeder. Take this to the colony to be fed, and first put wire cloth, six meshes to the inch, over the entrance, and quietly remove the cover and put the board and feeder on. Now put two empty supers on; and on the strips across over the feeder, place 12 or 16 bricks just hot enough not to set the hive on fire, and put the cover on top and spread two pieces of carpet over all, large enough to come to the ground and over the entrance. To keep it as dark as possible, put a large piece of roofing iron on to shed water in case of rain, and rocks and bricks on the bottom edges of the carpets plentifully, in case of high wind, and the job is done with. The feed prepared, and bricks hot, it takes only about three minutes' work to the colony. Results, in less than 25 minutes the colony will be on a regular summer-time move. The bricks keep the feed and hive hot, and the carpets hold the heat until the excitement of the bees gets up and keeps the hive hot for about 24 hours. Now, this can all be done *in zero* temperatures, and the one feed will save the colony, as no other feeding will be necessary *provided* the feeder holds enough, as it will all be stored in the combs before the hive cools off and the bees quiet down, when the fixtures can be arranged as before the work was done.

I have for several years practiced this, and have not lost one colony so treated, and that, too, with the loss of very few bees caused by feeding in mid-winter.

New River Depot, Va., Jan. 26.

[Your plan of mid-winter feeding does involve, after all, considerable work. It will not be an easy job to heat up some twelve or fifteen bricks, and then convey them to the hive that is to be fed. If there were to be several colonies so treated it would take quite a little time. Our correspondents have reported favorably regarding the use of hard candy made of granulated sugar and water. As this gives excellent results it would seem to involve considerably less labor.—ED.]

BENJAMIN PAINE'S APIARY AND ORCHARD AT ROSWELL, IDAHO.

AN APIARY IN AN ORCHARD; HONEY VINEGAR.

I am sending you a photo of our bee-yard with myself and wife standing among the bees. With 60 colonies, spring count, they increased to 95. We sold $557.80 worth of honey, besides what we used for ourselves, and made a barrel of vinegar, worth $15.

Roswell, Idaho. BENJ. PAINE.

SCHOOL-TEACHING AND BEE-KEEPING.

The Clipped-wing Plan and How it Enables a Professional Man to Keep Bees; Laying Workers Caught in the Act.

BY M. JOHNSTONE.

The engraving shows a photo which I call "The End of the Harvest." My interest in bee-keeping began in 1900, when a friend presented me with a colony of bees. My mistakes at first were, opening the hive in unsuitable weather; striving for too much increase, and attempting to experiment on a suitable hive. By 1903 I had increased to about fifty colonies, where I now keep them.

Those years of study gave me a pleasure which I hardly can hope to equal in any further researches unless it be that of queen-rearing.

An amateur usually dislikes to lay claim to any original discoveries, but I think I have been among the very few to observe laying workers in the act of depositing eggs, as reported in GLEANINGS, page 846, for the year 1900.

My crop has averaged a ton each season during the last three years, even in this bad year. Being engaged in teaching I work by the clipped-queen system, using an eight-frame hive. Supers are placed on the brood-chamber in the spring as soon as the strength of the colony warrants. Combs of brood are taken from below in exchange for full sheets of wired foundation, and placed above the queen-excluder. Swarming is thus retarded until the summer vacation commences, when full time can be given them. Last season only one swarm issued during the last week of June; and the next Monday, when I was with them, ten swarms issued. I have never known a swarm to leave the yard under this system.

My colonies are wintered on the summer stands packed in cases, seen in the rear of the accompanying engraving.

Brentwood, Ont., Can.

[School-teaching and bee-keeping go very nicely together, providing there are not too many bees. The clipped-wing plan, or any other good non-swarming plan, will serve to hold the bees until the teacher can give his full time.—ED.]

THE APIARY OF A SCHOOLTEACHER MANAGED ON THE CLIPPED-WING PLAN OF SWARM CONTROL.

HONEY-PACKAGES.

A New Idea in the Way of a Pasteboard Box Lined With Paraffine Paper; a Practical Package for Candied Honey.

BY HOWARD C. MILLS.

To those whose time is limited, the process of liquefying candied honey and putting it in cans or pails should from the start be abandoned. You may, in rejoinder, say that it takes about as long to liquefy it after being candied in the bottles as after being candied in the storage-tanks; but I can not afford to liquefy it at all, and do not believe it is necessary to do so. In other words, the people may be educated to the use of candied honey. This I have partially proven in my own experience, and intend to keep at it until my theory becomes practice. Others have had the same theory, and many devices have been tried for getting candied honey in such a condition that it would be attractive, convenient, and salable, as Mr. Hershiser puts it.

Candy-pails were the first to be used by me, and they were suggested by a Canadian in a bee-keepers' convention. I immediately dumped some pails on to the counter of Syracuse stores, and, being a new thing, they took well and people bought a second time. This showed me that they would eat candied honey. But this at its best was a sticky job for the clerks of the store, and the board on which it rested could not be kept neat and clean, and a better dust-collector could not be devised. To people who crave dirt and dust I still sell candied honey in candy-pails, but not until I have offered them something better. This something better is, according to my ideas, the most attractive, convenient, and salable package at present available. It consists of a neat white pasteboard box lined with paraffine paper, neatly labeled, with a tissue paper over the entire box, tied

FIG. 1.—MILLS' PASTEBOARD PACKAGE FOR CANDIED HONEY.

with a colored string in a neat knot. A further description of the parts will show why the package fulfills all of the requirements. First, it is most attractive. It holds one pound of honey when filled within $\frac{1}{4}$ inch of the top of the box, and is almost a cube in form.

In bringing the box package up to its present stage of perfection, cheapness has been the one important point, and in this it excels all other good packages used for candied honey.

It may be interesting to those who contemplate using such a package to know the many points in its favor, and its drawbacks, if any. For two years I have been watching and testing, so that I know what it is. The method of putting in the lining, and doing it quickly, seemed at first to be a slow process; but I have perfected this part until now one may line 150 boxes in an hour by hand, and a machine may be used that would put in the lining as fast as one can put together the one-piece section. The box is what is called hand-made, and is thus very stiff and strong, and they are all of the same size. A machine-made box would not do as well, as it would

FIG. 2.—THE PAPER PEELED FROM THE HONEY THAT HAD BEEN IN THE PASTEBOARD BOX TWO YEARS.

A TEXAS "HORSELESS CARRIAGE" FOR MOVING BEES.

See "Bee-keeping in the Southwest," on page 388.

not sustain sufficient load for stacking the boxes like a brick wall. The lining is of the best quality, and every angle and fold is made according to rule, and has a reason for being as it is. My test for a honey-package was determined on the start; and, altho' thin honey should never be stored, a package should be good for containing the thinnest honey obtainable. To make the test complete I filled several boxes with water, in the summer, and left them for three months, and there was no sign of leakage. The honey was then put into boxes in the fall, before being candied, and drawn from tanks. Weighing is not necessary, as the covering projects ¼ inch down the inside, and below this point gives capacity for one pound of honey. As there was absolutely no leakage, the package was very attractive, which fulfills Mr. Hershiser's first requirement.

Now as to convenience. A customer buys a box; and if the dealer delivers it he does not have to handle it any differently than a box of baking-powder; and when the consumer prepares it for the table the cover is removed easily and a slight jar with box inverted drops the cake of honey on to a plate, the paraffine paper easily leaving the cardboard surface. Next the corners are unfolded and paper peeled off, leaving a hard polished surface, and there is not a particle of waste. The paper, having been folded correctly, this is easily accomplished.

I recall a method of putting the paper in the box, that was used by one of GLEANINGS' correspondents. He said, "Lay paper on top of the box, and push it down into the corners." That would not give a very satisfactory result, in my opinion.

The paper in this box is always to be folded in the same way, and every fold has its purpose, and assists in preventing waste and making paper cleave easily from the honey surface.

Now the last and most important requirement of a honey-package is, that it must be the most salable. Theorizing will not go far in deciding this point. I will state that I filled several hundred of these in the fall of 1905, and early in the winter they were offered for sale to a Syracuse store. At first sight the store-manager wished to buy the entire number, and, of course, wished to have exclusive control of the new package. This would not be right, and they were easily distributed among several stores.

The honey put into them was of the 1904 crop, and soon candied hard. One of the most valuable considerations to the consumer is the fact that the honey put into them must be first class, as sour or unripe honey will not be a success as candied honey.

I have sold several of these boxes before the honey had candied, but do not recommend that method. Fill the boxes before the honey candies; put up pounds; pile them into a wall; retail them for 15 cts. each, and sell them to the dealer for $1.40 per dozen; he can then make a nice profit, and if he should carry some over to the next year they are just as salable as when bought, and he need not fear breaking them.

To those who wish to work up a home trade, and to bee-keepers who want a nice cake of honey for their family table, I recommend this honey-box, which stands for attractiveness, convenience, and cheapness.

Syracuse, N. Y.

[We regard this as an excellent honey-package, especially for candied honey. The two samples sent us by mail (as shown in the half tones) arrived in fine condition. Mr. S. D. House, of Camillus, N. Y., a neighbor of Mr. Mills, exhibited these same packages at the Brantford convention. They received very favorable comment, and there is no doubt that bee-keepers, if they only think so, could do a big business in putting up candied honey in this attractive form. The fact that the package can be so easily filled with liquid honey, and left to candy, is a large element in its favor. Some of our subscribers have not succeeded in cutting up a

big square can of honey into bricks; but even if they did succeed, the bricks were too irregular in size to pack well. Here is a package, apparently, that should fill a "long-felt want;" and while it may be too late to consider it this season the idea can be laid aside for next winter.—Ed.]

THE RELATION OF THE ENTRANCE OF THE HIVE TO THE WINTER CLUSTER OF BEES.

A Possible and Even Probable Solution of the Problem.

BY J. E. HAND.

Mr. Editor:—Believing that a correct knowledge of the forces that govern the position of the winter cluster of bees, as well as the correct principles of ventilation, are essential to the successful outdoor wintering of bees, I will endeavor, in as few words as possible, to explain why bees cluster over and near the entrance in severe weather in early winter. In attempting to explain the relation of the hive entrance to the winter cluster of bees, some of the writers of bee literature have fallen into the very common error of taking the effect for the cause. For instance, they find the cluster well forward, and near the entrance, in early winter, and hastily jump at the conclusion that the entrance is too small, which all looks very plausible from a theoretical point of view, and straightway the entrance is made larger, and still the cluster remains in the same position, which seems to assure them that their theory is correct, and they have solved the problem of correct ventilation in their minds. The very nature of the honey-bee, as well as a correct knowledge of the impulse that governs the acts of the bees, would tend to show to the close observer of bee nature that they were already suffering from an overdose of ventilation, and were clustered over the entrance for the sole purpose of shutting off the circulation of cold air and regulating the temperature within the hive. Did you ever attempt to drive the bees down out of an extracting-super after they had settled there for the winter by leaving the cover off from the hive during a cold night? If you have you will know how vain is such an attempt, for the bees will crowd into the spaces between the combs to shut the cold out and laugh at your efforts and hold the fort in spite of the cold; and this is very much the way they will often do in case of a very large entrance. Every act in the life of a bee is directly in the interests of the welfare of the colony. Individual comfort has no part in the economy of the hive, and a bee does not hesitate to sacrifice its life for the welfare or defense of the community. This whole matter can very easily be proven. For instance, we find a colony of bees in the early winter with an entrance $\frac{1}{2}\times12$ inches. We are pretty sure, before we open that hive, that the cluster will be well forward, and low down toward the entrance, and upon examination we find that such is the case, so *we* say that the entrance is too *large*, and we will immediately contract the entrance to $\frac{3}{8}\times3$ inches, and place a rim under the hive, forming an air-chamber, and remove the cover, spreading several thicknesses of heavy quilts or old carpet over the brood-chamber, letting them come well down over the sides of the hive, and push down over the whole a box that has previously been covered with black roofing paper; and in less than 48 hours, or just as soon as it is warm enough for the bees to move, the cluster will be found in the warmest part of the hive, which is the very top, snugly tucked up close to the quilt, where they will remain contented and happy during the rest of the winter, and where in the *sectional* hive they will locate their broodnest in the spring. These are facts based upon a careful study of the instincts of the honey-bee, which any one may prove to his entire satisfaction. Over-ventilation kills more bees in outdoor wintering than any other one thing except starvation, and the fact that bees will survive the winter and come out alive in the spring with an entrance so large as to be entirely out of all proportion to the needs of the colony, only proves the wonderful powers of endurance of a strong healthy colony of bees. With a sufficient air-chamber under the hive, which should always be provided, a one-inch auger-hole will afford sufficient ventilation for the strongest colony of bees when wintered out of doors; and, when covered with wire screen, to keep the mice out it is about the safest kind of entrance for our northern country. However, three one-inch holes with a slide to regulate the ventilation according to the weather would be an ideal entrance for winter.

Birmingham, O.

[Our correspondent is a keen and close observer, and we are inclined to believe he has suggested the cause of the bees clustering over the entrance. We shall be glad to hear from others on this point.

His conclusion as to the right size of entrance is quite in harmony with our own experience and practice.—Ed.]

DISTURBING COLONIES IN CELLARS.

Is the Effect Really Injurious? Feeding Honey in the Cellar; Does it Unduly Excite the Bees?

BY T. F. BINGHAM.

Reading Mr. Alexander's fascinating description of his winter cellar for bees, and his particular emphasis on winter disturbance, as given in Jan. 1st Gleanings, page 27, introduces the question anew. Are these reliable data on which to predicate the generally prevailing opinion that such disturbance is detrimental to bees? There are many bee-keepers who have moved bees in winter and put them in cellars. One gentle-

man near me hauled about fifty colonies sixty miles in December, and put them in a cellar without their having an opportunity to fly till April. They wintered finely, and did exceptionally good work the following season, and have continued so to do every year, though they have not had their winter sleigh-ride—a treat relating to their ancestors. There may be, as is often the case, an opinion that comes to us for which we are not responsible, and which has come without definite observation.

This theory that it is detrimental to disturb bees in winter has been potent many years, which, of itself satisfactory, may not have unquestioned experimental support. Bees in their normal condition, when idle, cluster and apparently hibernate. They cluster just as closely after the brood is out of the combs and the queen has stopped laying, as they do in midwinter in an atmosphere of the same temperature. They are just as lifeless, and as easily vexed, as in midwinter.

My experience has led me to the conclusion that bees in their natural condition in warm weather fly frequently when not brooding, even though the broodless period may last several months. At such times it is reasonable to presume that the whole colony is active—at least for a short time; yet we do not read of such flights being detrimental to them.

Having visited my own cellar for years, and swept the floor of my cellar as often as once a week or two during every winter, is evidence that I did not consider disturbing them detrimental to their successful wintering.

This winter I have set apart five full colonies of bees, all with young queens to feed, as often as once in two weeks on hot buckwheat honey. I fed them so as to have about two pounds in each hive. The hives are my regular half-winter size, and contain seven frames holding combs 5×12 inches. I have already fed them three times. I fed in a shallow ⅝-inch-deep round cake-tin, and gave the five pounds of hot buckwheat honey—about a pound apiece. The tin plates have no floats, and are crowded snugly up against the frames and bees below the clusters. They wake up and feed and roar just as they do in summer when fed. They clean up the plates, and all is still as before. This feeding does not seem to disturb the other bees, of which there are more than 100 other colonies close to them.

I am trying this experiment to satisfy myself. It may be a success or it may be five colonies out.

I am trying some other experiments which may be of value as facts for bee-keepers. Every thing needs a few facts at each end of it.

Farwell, Mich.

[As we have already stated, this question of disturbance in bee-cellars depends somewhat on conditions. Frequent disturbance does not cause nearly as much trouble as when the bees are disturbed only once in a while. It is hardly conceivable how any bees could have more disturbance than our indoor-wintered colonies directly under our machine-shop, with heavy machinery in motion overhead; yet we venture to state that there are very few bee-cellars that give better results in wintering than ours.—ED.]

WINTERING WITH ENTRANCES COVERED WITH WIRE CLOTH.

Some Experiments with Bees Confined in a Cellar.

BY H. T. JACKSON, M. D.

Reference to shutting bees in their hives while being wintered, in recent numbers of GLEANINGS, leads me to give my experience with wintering bees, which began in the fall of 1904, when I placed four colonies, in Dovetailed hives, in an open shed. A cushion of dry leaves in an empty super was placed on each hive, and all were thoroughly packed in leaves, with only the fronts exposed and the entrances closed with wire cloth. A weak colony, which I feared would not survive the winter out of doors, was put in the cellar, with entrance also closed by wire cloth. No suitable weather for a flight occurred during the winter, so those out of doors remained shut in until spring, being no better off in this respect than those in the cellar. A few bees escaped from one hive, but perished a few inches from the entrance. Doubtless a great many would have shared a like fate but for the wire cloth over the entrance.

They wintered only indifferently, there being considerable dampness and mold in the hives, while the one in the cellar came out in good condition in the spring, and was the best colony the following summer.

Profiting by this experience I built a bee-room in one corner of my cellar, which contains a furnace, by covering a skeleton frame with building-paper, making it as tight as possible. This corner had once been occupied by a cistern, and in the wall were two three-inch tiles for intake and overflow of cistern. The lower one was continued by a wooden box down to the bottom of the room, and the upper one was carried up similarly several feet outside of the house, for ventilation.

In the latter part of November my 12 colonies were placed on ordinary bee-stands around three sides of this room, each having a light cushion of leaves in a super on top, with the ¾-inch entrances, the width of the hives, covered with wire cloth tacked to end-bars and a top cross-bar.

Last winter was a very mild one here, and I had some trouble in keeping the room cool enough. The door of the bee-room was close to that of a vegetable-cellar. When both were open they nearly came together, virtually connecting the two. By this means I was

enabled to give them colder air when necessary, which soon quieted them down.

Every hive was weighed as it was taken in and out of the cellar, with the following results:

Colony.	Wt. Nov. 23, '05.	Wt. Apr. 13, '06.	Honey cons'd.
1	49½ lbs.	43 lbs.	6½ lbs.
2	56 "	44½ "	11½ "
3	45 "	38½ "	6½ "
4	66 "	55¾ "	10¼ "
5	46 "	41 "	5 "
6	52 "	42 "	10 "
7	60 "	52 "	8 "
8	49 "	40 "	9 "
9	45 "	35 "	10 "
10	43 "	37 "	6 "
11	47 "	37½ "	9½ "
12	57 "	48½ "	8½ "

They all came out in good condition in the spring, with hives dry and clean. The principal care during the winter was to keep the temperature even and the entrances open.

Last fall I added an improvement to the bee-room by boxing in a window three feet distant, on the opposite side from the tiles, connecting it with the bee-room. Another window inside, opposite the outer one, prevents loss of light in the cellar The outer window is on hinges, and is opened and shut by means of a rod attached, having a hook on the cellar end, which may be hooked into links of a chain fastened to a joist above to permit any size of opening desired.

In mild weather the window is kept partly open, so the bees are virtually in the open air at a temperature of from 40° to 45°. A thermometer, suspended by a cord, hangs just inside the door, and can be reached and drawn out for observation without going in.

I have 17 colonies in the room at present, and have the temperature fairly under control. As one attends to the furnace morning and night it is but little extra work to adjust the window to conditions of weather outside during changes. Steady even weather requires no adjustment. Perhaps the leaf cushions and supers are unnecessary; but they permit sliding the covers partly off, if upward ventilation is needed, without bees escaping; they also allow the placing of candy or honey over the frames if feeding in spring is necessary.

I fed some in this way with candy last spring with good results. A two-inch rim under No. 2, with front covered with wire, produced no better results, but no care was necessary to keep entrance clear.

Bees which leave the hive in the cellar or bee-room never return. Why let them out? Those that *must* die can die as well inside, while those able to fly out can be saved. The entrances of some hives remain clear all winter, few bees dying, while others lose a lot of bees—proportioned, I suppose, to the number in the colony and to their ages.

This method of wintering bees is very satisfactory to me, both in saving of bees and honey, as shown by the above table, and comes about as near a certainty as we can get, in my opinion.

Verona, N. Y.

WEAK COLONIES IN THE SPRING.

The Alexander Plan of Building them up; some Experiments to Show that, with Two Colonies, it was Not a Success.

BY WM. L. COUPER.

I regret to say that I am one of the comparatively few who failed in trying Mr. Alexander's plan of placing a very weak colony above a very strong one, with an excluder between. I quite agree with Mr. Alexander that the method is one of the most valuable kinks that have been given to the bee-keeping world, and the fact that it has failed with some is merely a proof of the fact that no method will suit all cases. I tried the plan with only four colonies. In one case I exactly followed Mr. Alexander's instructions; in the other I varied to the extent that the upper colony was not very weak and the lower was only marked strong, not *very* strong.

In order to make the appended notes of my experience with this scheme intelligible I must give a short explanation of my system of spring management. I look at each colony once a week, weather permitting, marking the date and condition of each opposite its number, in a note-book, thus:

No. 30, w 2, May 7, means that on that date colony No. 30 was weak and contained two frames of brood.

To show the results of treated colonies compared with those not treated I give these with eight colonies as follows:

Col.	April 20	April 28	May 7	May 14	May 28
A1	v s 3	s 4	m 5	s 6	s 7
A2	v w 1	v w 2	v w 2	w 3	w 3
B1	s 3	s 4	s 5	s 5	s 6
B2	m 2	w 2	m 3	m 3	m 4
C	v s 3	v s 4	v s 6	v s 7	
D	v w 1	v w 2	w 3	m 4	m 5
E	s 3	s 4	s 6	v 7	
F	m 2	m 3	m 4	m 5	s 6

A1 and B1 were the strong colonies selected, and A2 and B2 the weak ones to be placed over them. C and E were strong colonies, and D and F weak ones managed in some other way; v stands for very; s for strong; w for weak; m for moderate. The figures show the number of combs of brood.

It will be seen by this table that the treated colonies at the commencement of the test were as nearly as possible in the same condition as those untreated, selected for comparison. In the case of the former, neither top nor bottom story built up nearly as quickly as in the latter. When any colony builds up to six or seven frames of brood in an eight-frame hive I give a second story, and, after this, records are kept in another place. I can not give the records of A2 and B2 after they were placed on their old stands, as the loss of field bees weakened them so that I had to build them up by other means. The colonies were joined quietly, and there was no fighting. A was the strongest colony in the apiary, but it did not build up as fast as C.

I can not answer absolutely for the dates,

as I wrote them in pencil, and they are not very easy to read; but they are correct to within a day or two.

It may be well for me to explain what I mean by strong and weak. A colony marked *v. s.* would be overflowing with bees; one marked *v. w.* would have two frames covered pretty thoroughly with bees. I have never had one weaker than that.

Cannington Manor, Saskatchewan, Can.

WET BEE-CELLARS.

The Alexander Method for Weak Colonies.

BY E. TARR.

I have been interested lately in reading the various ideas about wintering bees in cellars. While I always try to get my bees into the cellar as quietly as possible, I know of two bee-keepers near here who load the hives on to a two-horse sled and haul them to the cellar door, and their bees winter finely.

I knew a man who had one colony, and he put it on the bottom of a truck-wagon without springs, and hauled it nearly six miles over the frozen ground to put it into a cellar. It wintered finely, and the next season that colony with its increase produced over 100 lbs. of comb honey.

The first year that I used my present bee-cellar the bottom was very wet and muddy when we put the bees in, for we did not get it built until the last of November, and it was a very wet fall. The following March there was a heavy rainstorm; and as the lower end of the drain was frozen up the water came into the cellar over 1½ feet deep, close up to the bottom-boards of the hives. The water stayed 24 hours before we got the drain open and drew it off. The bees wintered finely.

While not advocating these ways of wintering, I am merely stating facts.

HEAVY COLONIES FOR COMB HONEY.

I have been quite successful in producing comb honey, and for years have been in the habit of uniting all new swarms except those that came out very early. We generally put three or four into one hive and gave them from three to five supers of sections. While they would store honey very fast (in one case 80 lbs. in 8 days), most of them would swarm in about ten days and leave a lot of unfinished sections. The last few years I have been raising the hive up an inch from the bottom-board all around, and it works to a charm. The best one last summer made 150 finished sections.

THE ALEXANDER METHOD OF BUILDING UP WEAK COLONIES IN THE SPRING.

Last spring I tried Alexander's method with weak colonies, putting them on top of very strong colonies. It worked nicely, except in two cases. On one strong colony there was a small hole in the side of the hive so the queen-excluder did not fit well, and the queen in the upper hive came up missing. One weak colony I took off too soon. I think the method is all right if we use common sense when we practice it.

Napleton, Me.

A SYMPOSIUM OF OPINIONS ON THE ALEXANDER PLAN OF BUILDING UP WEAK COLONIES.

[Few things that we have ever published have attracted more widespread attention than the Alexander method of uniting weak colonies. Many have succeeded, and some others have failed. Apparently there is so much to be gained by the method that, if one can make a success of it, it will pay him well to see whether he can discover the cause of failure. The subjoined reports, favorable and unfavorable, winding up with an editorial footnote, may serve to point out the difficulty.—ED.]

Will it Work in Every Instance? More Details Needed for Some Localities.

BY F. A. BECKETT.

I have noted several times in the last few issues of GLEANINGS the success and failure of various bee-keepers who have experimented with the Alexander plan of building up weak colonies in spring. I set my bees out of the cellar April 2 (46 colonies), and they did not have a day warm enough for a flight until about the fifth or sixth of the month; but when that time came we had several nice warm days in succession. April 10 I selected five of my weakest colonies, each one having perhaps a pint of bees with one frame containing sealed brood in the center, a patch on both sides in the form of a circle, and about four inches across. These five colonies were placed on top of five of my strongest ones, which were rich in stores, and had six of those ten frames containing brood, and well covered with bees. All instructions were carefully carried out in each and every detail; and after reading Mr. Alexander's article in the Nov. 1st issue, p. 1357, I can see no place where I could have done differently and made any improvement, as I understood him perfectly in his first article. Ten days after doubling them up I made examination of all of them with following results. All five colonies above the excluders had ceased operations—brood deserted, and queens missing or dead. All stores had been carried below, and, so far as as I could see, they had simply united below in one strong swarm.

Now, Mr. Editor, to be fair in the matter, let me state that I have gained considerable knowledge by reading various articles written by Mr. Alexander; and while I have no doubt he succeeds in this operation in his locality I can not be convinced that it will work in *all* localities. There are certain conditions that vary. I will give it another trial this coming spring, but on a smaller scale, and I would advise others who wish to try it to be very cautious and not put too many colonies into the experiment unless they have them to spare. If this manipula-

tion can be made a success in all locations, then Mr. Alexander will have to give us more details to go by, as I am almost convinced that, to make a success of it, there are yet some few points where we are in the dark.

Penfield, Mich., Dec. 7.

ALEXANDER'S PLAN OF BUILDING UP WEAK COLONIES A SUCCESS.

GLEANINGS, in the past year, has given its readers a most excellent bill of fare, especially in the very valuable articles emanating from the pen of Mr. E. W. Alexander and a few others. I tried his plan last spring, of building up weak colonies by placing them on top of strong ones. I had three stocks that had become very weak from spring dwindling; and when I noticed it in the fore part of May I put them on strong colonies adjoining, placing two perforated queen-excluders with bee-space between them, between the hives, so as to keep the queens apart. This was done quietly, without any jarring. These were examined once a week to see how they progressed. In about four weeks two of them were taken down. All four being strong in bees and brood they were given surplus cases. The third one was left on a week longer, it being very weak when placed on top, not having more than half a pint of bees, and about six or eight square inches of capped brood. This colony would have dwindled right away, and the other two would have taken all summer to build up had I not placed them on the strong colonies. My bees were not wintered in the cellar, but on summer stands, as per illustration in GLEANINGS about two years ago. I believe that this method of building up weak colonies will work all right at any time when honey is coming in, or by judicious feeding when nothing is being gathered away from the hive, W. H. KIRBY.

Oshawa, Ont., Jan. 1, 1907

ALEXANDER METHOD OF BUILDING UP WEAK COLONIES NOT SUCCESSFUL IN NEBRASKA; NEVER PAYS TO KEEP OLD QUEENS.

I was much interested in the Alexander method of building up weak colonies, as we bee-keepers all have more or less weak colonies in the spring. Last winter I wintered several late swarms without extra feed; and as they had young queens I wanted to save them; so I put queen-excluders on a few extra strong colonies, and put weak ones on top. Next morning bees were carrying out dead bees; and upon examining the weak colonies I found every queen dead, and bees and honey all gone; so I begin to think it is in the location that the Nebraska bees are more strenuous than New York or Eastern bees; and if Mr. Alexander will bring out a light or medium colony of his bees and put them over a strong colony of Nebraska bees they will kill his queen just as soon as they can get at her. I then tried putting wire cloth over strong colonies; but it left so much ventilation for both colonies that neither of them did as well as when left separate with a quilt on top to keep them warm, and a feeder on the side. Some of these light colonies with young queens built themselves up and made more surplus honey than the strong colonies with old queens. It does not pay to keep queens over three years old, no matter how good they may have been the first year, or at least that has been my experience.

Miller, Neb. T. J. QUAIL.

UNITING A WEAK COLONY OVER A STRONG ONE; WHY SOME FAIL WITH THE ALEXANDER PLAN.

A good many have had trouble in following the Alexander plan of building up weak colonies. I think the trouble in many cases is due to rousing up the bees and getting them uneasy before the weak colony is put over the strong one. Then the two colonies have a war for a while. I always use wire cloth between the two hives and never have any trouble from the lower colony going up and killing the bees in the upper hive. For some time I have wintered my weak colonies this way, on the summer stands. Last winter I had several weak colonies, and I put them all over strong colonies, making an entrance in the back with my knife through the hand-hole of the upper hive. This should be just large enough to allow two or three bees to pass out at a time. This is done on some cloudy day after very cold weather comes and the bees have quit flying.

Last year I had a weak swarm of bees. There was just one frame of bees and a young queen. I put this frame of bees in with nine frames of honey, and put the frames in a hive and set on top of one of the strongest colonies I had, and in February they got pretty strong, and I left them on till April; and when I set them off I had two strong colonies.

Milan, Ill. JOSIAH JOHNSTON.

[We have received quite a number of reports on the Alexander plan of uniting a weak colony with a strong one. Most of them have been very favorable and a few unfavorable. The foregoing are fair samples. When successful, great results are secured.

When it is understood that we ourselves failed with this method, and afterward succeeded, there is hope for others who have failed. What, then, are the important requisites? The most important one is putting the weak on top of the strong *with as little disturbance as possible, with little or no smoke.* In Mr. Alexander's second article, page 1358, Nov. 1, last year, he places very strong emphasis on this, even to the extent of repeating himself. He even goes further and leaves the cover off the strong colony, in some cases, until the cool air forces the bees down. Then he puts on top the perforated zinc and the weak colony.

He also stipulates, as important in the

case of very weak colonies, taking a comb of brood out of the strong one, minus the bees, giving the same to the weak one. This has a tendency to equalize odors. The weak one with this comb of brood is not put on the strong colony for half a day, at the end of which time it is transferred to the strong.

One correspondent advised a wire-cloth screen between the upper and lower colony for a day or two, or until the bees could get all the same scent. After that time he substituted a sheet of perforated zinc, when every thing went well. This, in our opinion, would go a long way toward correcting the trouble of some of our correspondents.

We have received so many favorable reports in regard to this method of strengthening weak colonies with such excellent results, some going so far as to say that the hint was worth four or five years' subscription to GLEANINGS, that it behooves others who may have made a failure of it, to try again; but, as one correspondent suggests, it should, perhaps, be on a small scale on the first trial.

In this connection there is one consideration that is not mentioned by Mr. Alexander. He has a very gentle strain of leather-colored Italians. Such bees will generally unite without any fighting. But try hybrids or blacks, without a good deal of smoke, and there is liable to be a first-class little war on in no time, and the dead bees will be dragged out of the entrance by the scores after the battle. Smoke in any case with this method, with any bees, is liable to cause trouble. It is possible and even probable that any cross strain of bees could not be worked on this plan. We can hardly think that locality has very much to do with the matter; but we should be inclined to believe that the unfavorable results secured by some of our correspondents were due to the strain of bees. If a wire-cloth screen be interposed between the two divisions of such bees for a couple of days, the zinc board substituted at the end of that time, the results might be entirely favorable.—ED.]

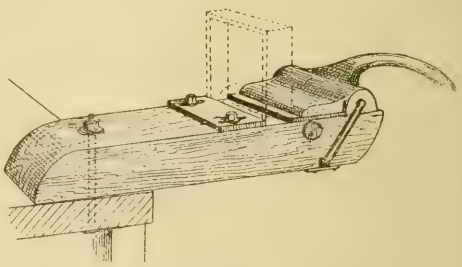
THE PARKER FOUNDATION-FASTENER IMPROVED.

A Clamp for Holding End-bars while Drilling Them.

BY A. J. OBERLITNER.

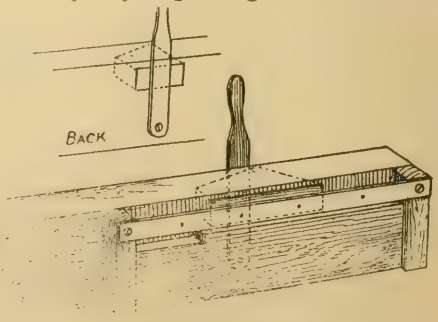
Enclosed find sketches of two devices of my own construction, a foundation-fastener and a machine for piercing frame-end bars.

The Parker foundation-fastener, as it is made, doesn't work very well. In the first place, there is a paddle, as I will call it, for lack of a better name. It pitches up too much, causing a sort of scraping which will not stick the wax well, but has a tendency to roll it up, especially if it is a little cool. Just take a knife and some wax on a board, and try pasting it fast by holding the blade at different angles, and you will soon see that it works best when the blade is nearly parallel to the wax. Note the motion and varying pressure required to make a good job of pasting the edge of a sheet of wax. Now you are ready to make a foundation-fastener. I will describe mine from which you will get the principle.



The drawing shows the construction clearly. It may be adjusted for any size of section by means of the iron plate held by the screws in slots, and by the eccentric washer which stops the lever at any point desired. The swinging hinge must have the proper length, and must also be hung just right This is the whole secret of a fine working machine. With this I can fasten foundation starters at a lively rate.

In the Feb. 15th issue, of last year, C. W. Dayton submits a machine for piercing end-bars. It is quite ingenious; but at best, forcing an awl through a piece of wood is hardly satisfactory, for such holes will partly close up in damp weather and cause trouble if the frames are not wired shortly after piercing them. If we want a nice clean hole in wood we must remove the wood where the hole is to be; and the best thing I know of is a small hand drill with cut gears so it will run smooth. The higher it is geared the better. Such a drill will cost about $1.00; and when one is used to running it he can fairly punch the bit through a ½-inch piece of hard wood, to say nothing of soft. But we must have some way of getting the holes at the right place without too much time lost. Now, I don't believe in finding fault with other people's way of doing things unless we have something better to offer or suggest, so I will submit my way of piercing frame-end bars.



As before, the drawing shows the construction of the holder or clamp. The iron strap contains the holes at the right distance apart. The space between this iron strap and the

block is slightly more than the thickness of two end-bars. These end-bars are held tight while being drilled by means of the lever, which crowds the wedge over solid. The machine may be screwed to a bench-post, or be held in a vise. In either case it must be solid. Now we will take a hand drill, stick the point of the bit in one of the holes in the gauge-iron C, start the crank, and punch your hole as if it were more like punching it through than boring it. Treat each gauge of hole the same, then shove the lever to either side, lift out the two bars, drop in two more, bring up the lever, proceed as before, and be surprised how quickly it is done.

Bairdstown, O., Feb. 26.

WHAT DO WE REQUIRE IN A BEE?

An Interesting Review of the Differences in Bees; a Plea for a Standard of Perfection, and for More Systematic Breeding.

BY R. F. HOLTERMANN.

Probably in almost every line of live stock found in the class of domestic animals we have ideals mapped out, and then an effort made to breed to that type. In this way we have some, if not all, of our most famous breeds in cattle and sheep. In bees we have not so far been able to control the drone parentage; or if it has been done, as some think, it has not been recognized to any extent. That such control can be secured I believe, but this is a matter which, in my estimation, the governments of our countries should take up, as the work is too expensive for the individual bee-keeper to undertake; and if undertaken, and success attained, others would share the fruit of his thought, labors, and expense. But with all our uncertainty in the direction of controlling the selection of males, when the importance of breeding is more fully recognized, and we can agree and keep before us a definite type, then some breeder will undertake to locate in a section where he will be isolated, say on an open prairie or the like. Or extensive honey-producers will club together or pool their orders so as to control the stock from which their breeder shall propagate.

But have we ever agreed on a definite type which we may practically desire? and if not, how shall we find out with the least trouble if the bee possesses these qualities? Beauty of the bee has been considered, as well as gentleness and tongue reach; but the few who have done this have worked in a more or less disconnected way. There is much more to do, and the need for a more general awakening as to even these points is plainly evident. It is generally admitted that bees vary greatly, for the reason that colonies apparently similar so far as bees are concerned give vastly different results in gathering honey. Can we, by tests, get more accurate information as to what traits shall be kept for breeding, and what weeded out?

One in my own country, and of my own country, recently made the assertion that, if the black bees had been selected as carefully as some other varieties they would have made as good a showing. I do not think that this gentleman claimed to have much practical knowledge of bees or of work in the apiary, for I think that, when one country is taken with another, and time is considered, the black bee has had quite as good a chance to acquit itself with credit as any other variety.

There is no use in beginning with any thing less than the best strains of the best varieties. I do not breed queens for sale, but I have bought hundreds of them, and have even bought from the Arctic Circle.

Bees vary in size much more than the average bee-keeper thinks without actually measuring by scale. I feel sure that I have bees which individually vary in weight thirty-five per cent. We might naturally expect that the larger bee would not only gather the larger load, but would have the strength to press more deeply into the blossoms. We might also hope that it would have a longer tongue reach.

These matters should be the subject of careful tests and experimental work.

Again, bees vary as much constitutionally as do the individuals in other animal families Some are stronger than others, and can naturally stand more hardship than others.

We have heard that changing the queen appears to check certain diseases. We have heard of starved brood and the death of this in the cell, and in this connection I owe Mr. Wm. McEvoy, inspector of apiaries, thanks for drawing my attention to the great difference in the way in which one colony feeds the larvæ. But I think that certain varieties of bees and strains in them have constitutional weaknesses which tend to earlier death than others.

There is a good deal of dead brood complained of that is not diseased. I have seen some of this in my own colonies, and much of it in the apiaries of others, and I have yet to see any of this form of dead brood in what I call the better strains or varieties of bees. For years I have sought to find it in Carniolan or Italian bees, but failed. It is always found in those strains in which black largely predominates. I know of more than one bee-keeper now who is changing the strain of bees to do away with this, and in one case at least doing it after observing this feature in my apiary. I do not say that these varieties of bees prevent foul brood; but if a strain of bee is more strongly constituted it can resist more unfavorable conditions, just as a strong or healthy person can throw off tubercular germs or other infectious disease when a more feeble person can not. It may be that certain strains of bees are more immune to the disease known as foul brood. Such a strain, too, should winter better, and withstand cold winds in spring, and live longer. Longevity is a strong point. It takes three weeks of care, attention, nursing,

comb room, and food to produce a bee, be she feebly constituted or robust. If the lifetime of a bee is, in the active season, six or eight weeks, and we can have a bee which will live under the same conditions two weeks longer than another, which, from my observations I believe we can, then we have in this point alone a great difference in the amount of honey two colonies can gather under the same conditions.

Some colonies, without robbing, will continue to gather surplus when others are getting no more than is sufficient for their own requirements. I have noticed this particularly at the latter end of a flow. Colonies that appeared to do alike during a good flow would vary greatly in a poor flow. Probable reasons may be given; but how few recognize even the *fact!* Then it is markedly the case that one colony will be bringing in light honey when the other is bringing in dark. In a general way I have noticed this difference between blacks and Italians. Some bees stop breeding almost the moment the honey-flow ceases. Such bees in many districts are difficult to build up in the early part of the season. Others go to the extreme of breeding too long after the flow ceases. The one trait is about as objectionable as the other. Some bees are easily irritated, and a continual annoyance when handled. Some are made so by improper handling. There was a time when I thought such a bee might have other favorable traits which could not be secured separate from natural irritability; but after more than 25 years' experience I know that such is not the case.

It is well known that some bees are more inclined to swarm than o'hers. We can control this to a greater extent than formerly; but it is a dangerous trait for the average bee-keeper to deal with, and this trait must, with all our modern improvements, be a leading consideration in selection. I have colonies of bees which are of about the same spring strength, side by side in the same apiary. Some breed up faster, of course consume more honey in breeding, yet they actually have more surplus honey right along, and therefore do much better work. But too large a percentage, if in the least neglected, for room or ventilation, swarm or get the swarming impulse. Bees should be weighed full and empty, and their loads compared. Efforts should be made to compare the time they take to load. The degree and duration of cold to which they can be subjected, and yet survive, should be tested. The way in which they guard and defend their hive is important.

In some strains or varieties of bees we find frequently the work of the moth larva, while others rarely have such.

The degree to which bees ripen honey under apparently similar conditions appears to vary. J. H. Shaver, Cainsville, Ont., first drew my attention to this. The variation in capping is well known, and important, as is also, to a less degree, the amount of propolis they gather. Take it all in all (and I have enumerated only a few points), there is a large and useful field right here which, in my estimation, experiment stations can best invade and cultivate. Let us, upon these and other points along the same line, set ourselves to thinking seriously, and good to the industry is bound to result.

Brantford, Ont.

THE SWARMING QUESTION.

Dr. Miller's Advice to a Correspondent who Wishes to Start an Out-apiary.

BY DR. C. C. MILLER.

A Mississippi correspondent wants to move his 75 or 100 colonies seven miles out in the country, to better pasturage, and says:

"I want to run altogether for comb honey, and all I want help for is *to hive the swarms* and look after bees occasionally at all seasons—I mean just to see that they are there all right, and set up an alighting-board, etc., that might get out of place. Tell me how to do. Is it best to try to place the bees at some farmer's house and get him to hive the swarms and look after bees, I keeping hives always ready, or get some one to stay with bees at whatever price I can during honey-flow? What remuneration and customary pay in each case? and which is the better way?"

I take it that you mean to visit the bees often enough, and attend to their management except hiving swarms and a little general seeing that things are kept in place. In the first place, let me advise you to do some thinking over the question whether it will not be best for you to take matters into your own hands and have no natural swarming. I know it looks like a bigger job than you want to undertake; you've always let the bees swarm naturally, know just how to run things in that way, and hesitate lest you might not make a success in any other way. Yet after you've tried it you may not find it so difficult as you suppose. At least, try part of the colonies by shaking swarms a little in advance of their own swarming, and you will find that the forces can be kept together better than by allowing the bees to have their own way, and you'll be likely to get more honey. Look carefully over the series of articles in GLEANINGS last summer and fall, by Mr. Doolittle, and see whether he has not been planning for just such men as you. Another item in the case naturally appeals to you. You say you have a strong love for the business, and your love for it will be no little enhanced if you feel that you are running the bees, and not the bees running you, as they do to an extent in natural swarming.

But while giving you time to think it over I'll answer as well as I can the questions you have asked. No matter what your plan, better locate the bees with some farmer who will have a friendly interest, you increasing that interest by liberal presents of honey or otherwise. If size of hives, character of bees, and condition of pasturage, are such that very little swarming is to be anticipated, then

the best plan will be to arrange with the farmer to have some member or members of the family watch for swarms, and allow half a dollar to a dollar for every swarm hived. But be sure in any case to have each swarm placed on the stand of the mother colony, the mother close beside it, and a week later the mother moved to a new stand. That will make the swarm strong for section work, and be pretty sure to prevent second swarms.

The likelihood, however, is that, in running for comb honey, and leaving colonies to swarm naturally, there will be so many swarms that the better way will be to hire a hand for the swarming season to make a business of watching for swarms and hiving them—either a member of the farmer's family or some one else—and for such service you ought to pay what would be a fair price for day labor of the ordinary kind. It will be lighter work than an ordinary day's work, because swarming doesn't usually last more than half the hours of a day's work, and the watching part is not very severe labor; but you should have some one thoroughly faithful, and that faithfulness has a money worth to you.

Now, I'm not sure whether I've met the case exactly; but I take comfort in the thought that I'm not likely to mislead very much, for the keen eyes of the editor and others will scan carefully what I have said, and make any needed corrections. Moreover, if I've failed to give light upon any point upon which you desire light, ask again and I will tell you as far as I know.

Marengo, Ill.

That Jay is a jay indeed; but if I were in his place I should want to shave—see p. 1567.

Dr. Phillips seems to be the right man for the place he occupies, and is doing good work. He gave me no little assistance in securing such information as I sought.

The wire cage for keeping bees in their hives in winter seems to be a step in advance of former methods, worthy of the careful consideration of bee-keepers, especially in the North, and perhaps middle sections of our country.

I was surprised, in looking over the markets in New York a few days ago, to see how the tall sections have gained on the 4¼ by 4¼ style in the past six or eight years. Fully one-half or more of the honey I saw in the market was in tall sections, I think.

I found light Cuban honey selling at 16 cts., and here in the city of Washington I find it selling at retail for 20 cts.; yet it seems doubtful if it ever comes into competition, to any extent, with our northern honey as it does not come on to the market till late in the season, after all or most of our white honey has been disposed of.

I did not mean to say that soil is responsible for all the failures of flowers to yield honey. We know the weather has much to do with it, also climatic conditions, of which we know but little. I wish we knew more. Here in Washington, where Washington's birthday finds me, I am told that clover rarely yields much honey.

I was informed in New York that the trade in "*compound*" honey was very dull, as it was quite uncertain how the new law would affect such goods. I saw enough, however, to lead me to believe that the business of adulteration will not die without a struggle. Yet here in Washington I found the chemists busy in preparing to meet not only present adulterations but those likely to be practiced in the future.

J. A. Green tells how he had some sections where the cappings were colored by lampblack. During the past season I had a large number of sections ruined where they were covered by enameled cloth by the bees gnawing through the cloth and using the bits of cloth and black enamel for coating the cappings, and I have begun to wonder if there were not something better to use for this purpose.

Dr. Miller suggests the value of honey for fattening cattle, and Mr. Boomhower has proved its value for swine. My son was recently visiting up in Maine where the gentleman with whom he was staying told him how he was using up his poor honey by feeding it to his horse; while at our house (honey-house, I mean), when bottling honey, if any gets spilled on the floor we have a dog that is always ready to remove it very quickly. Surely the outlets for honey are increasing.

By the way, I wish all the bee-keepers, farmers, fruit-growers, stockmen, and all others who follow agricultural pursuits, could know what the government is doing for them. Already the Agricultural Department is one of the most important of the government. The white marble walls of a new building are now rising for the use of this department, which will, when completed, cost some $5,000,000; yet it seems doubtful if even this great building will hold all the difierent bureaus and divisions of this department.

It would be interesting if one could write up all the government is doing for the people, but it would require a volume, and then

the half would not be told. The new pure-food law is going to add immensely to the work of the Department of Agriculture, but I believe there are few bee-keepers who will object. I believe this law alone will do as much for us as any thing that has been attempted by the government. By the way, Mr. Editor, you can add to the list of States that have pure-food laws, given on page 161, that of New Hampshire; and Massachusetts, I believe, is also in line.

As I was riding down Ninth St., Washington, the other day, in a street-car, I overheard a gentleman talking to his neighbor about bees. At once I was much interested, saying to myself that at last surely the people are becoming interested in bees when they talk about them on the cars. He said that his uncle's family had moved out into the country, and his sons had taken up the specialty he preferred. One raised vegetables, another gave his attention to poultry, while a third turned to bee-keeping as more pleasing to him. He said this bee-keeper had already fifty hives of bees, and each hive contained "a million and a half of these industrious insects," and his friend remarked that "*nature was wonderful.*"

A large entrance in summer, suggested by E. R. Root, is worthy of our attention. I purchased a yard of forty hives of bees last spring. The hives were mostly for eleven Langstroth frames, and yet the largest entrances that could be given, a part of them for summer, were about five inches long by $\frac{3}{8}$ inch high, while he used a winter entrance about 2 inches by $\frac{1}{4}$ inch high, wintering out of doors in chaff-packed hives. I found some of the combs in these hives had melted down and were in bad shape; and I am of the impression the former owner had not been able to secure much surplus honey, and I was not surprised at the small amount of ventilation given. The winter entrance, small as it was, was undoubtedly all right, as I do not remember to have ever seen a lot of bees as strong on the 1st of June as those bees were.

WAX-PRODUCTION; FEEDING BACK THE HONEY.

Mr. W. K. Morrison:—I am always interested in your articles, but I am going to ask you to go a little more into particulars than you did in your last article in GLEANINGS on wax-production. You tell us not to use five, six, or seven frames in the super. Just how many do you find best? and relative to bleaching wax, do you leave it in the sun? My honey is always thick. How much water would you use to a gallon of honey in feeding back? At what stage do you cut the comb out? Do you let them fill the frame to the bottom-bar? My bees begin to put in honey as soon as the wax is the size of your hand. R. M. SWAIN.

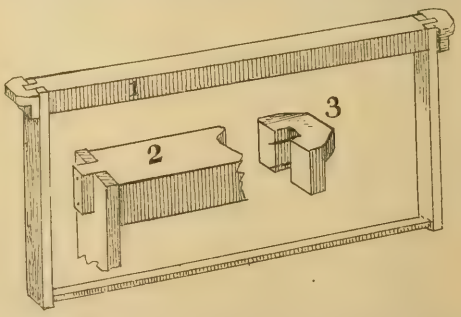
Cibola, Ariz., Jan. 7.

[For several reasons I prefer thin combs, ten frames to the super, and eleven is all right. They are very much sooner capped over and finished. Running your wax once through a solar machine ought to bleach it enough for any market. Thick nice honey ought to sell, even in Arizona; but if you are really compelled to "feed back," one pint of water to one pound of honey will be all right in your country; but you will have to use a shallow brood-chamber in "feeding back;" for if you don't, three-fourths of the honey will be wasted. A brood-chamber $5\frac{3}{8}$ inches wide is deep enough for this purpose. If the bees start to fill a comb I let them finish it. When the brood-chamber is composed of combs having none but worker-cells, the bees build drone-combs quite frequently, in which nothing is deposited. This takes place at swarming time generally, or when nectar comes in slowly.—W. K. M.]

A NEW SELF-SPACING FRAME.

As there seems to be a lull in the topic of frames just at present, perhaps it is a good time for me to add my mite to the mass of wisdom we now possess concerning the subject. Perhaps I better admit right here that I am a crank of the crankiest kind, and that comb-frames have been a hobby with me for nearly thirty years.

We always look with suspicion on new ideas, and we often turn down a novelty before we see all there is in it; so please look



at the little odd-shaped block attached to the corner of the frame while I tell you a little about it.

Please notice that it has thirteen plain surfaces (unlucky number, I know), but for all that it is easily and quickly made, and when attached to the frame it takes the place of three separate devices in the ordinary frame —a projection by which it is suspended in

the hive, a means by which the frames are properly spaced, and also to locate the frames lengthwise in the hive.

They also, by their impact with each other endwise, form a continuous barrier, thereby protecting the rabbets from any accumulation of propolis or bee-glue. In fact, they are in position a closed-end frame in manipulation, a loose hanging frame with no metal parts to dull the honey-knife. They also afford a wide strong hold for the fingers when shaking the combs, and then see what a good grip for the thumb and finger when you wish to carry a heavy comb in one hand. Frames made in this way can be very strongly nailed, with no tendency to twist, and are sure to hang perpendicularly in the hive.

South Cabot, Vt. D. S. HALL.

THE PREFERENCE FOR 4×5 SECTIONS.

One week ago I took off three supers of white clover in 4×5×1⅞ sections; one super in 4¼×1¾ sections, all nicely filled and capped. All were put into the same show-case in my store, and marked 18 cts. To-day it is nearly all sold; but the trade all pick out the 4×5×1⅞ sections. Why? The sections that are left are all good. I think the customers who consume these will settle this section question with me. In 1894 I used all 4¼×1¾; 1895, half 4¼×1¾, and half were 4×5; 1896, 24 supers 4×5, and 3 4¼×1¾.

Bradshaw, Neb. C. B. PALMER.

HONEY FROM ALFALFA.

I noticed the question, "Does alfalfa yield honey in Texas?" page 1565. It does in Nebraska; but the most of it comes from that grown on light warm soil with a medium stand. Rich clammy soils and a thick heavy stand yield less. Why? The nearer the ground the better the flow. Cold damp pastures and the honey-bee don't mix. If you want to find bees on alfalfa, use the mower when the blossom is about one to two weeks old. Don't go in where you have poured water a short time before, nor into damp low ground after a rain, unless the weather is very warm; and don't look near the bee-yard. Go to the far side of your field, if not over a mile; and if you don't find bees flying out as you go through, examine your cutter-bar and sickle; and if there are no cripples or dead bees on them, then make up your mind that Texas alfalfa does not yield honey. F. E. STARKEY.

Boelus, Neb., Dec. 31.

QUEEN-EXCLUDERS; SLOTS TOO SMALL; WIRE-CLOTH SEPARATORS.

On page 107 G. C. Greiner discusses excluder openings; and as you call for reports I briefly send the following:

Last spring I ordered 25 full-sheet excluders, the first I ever used, of the latest pattern; and upon testing them I found that my Carniolans had to struggle to get through; and at the close of the season I found a number quite badly clogged with dead bees. However, before using all I filed off the rough burr edge and slightly enlarged the opening of several sheets; and, while not an interesting job, I expect to treat the rest in that manner. I had previously met with no little annoyance in consequence of finding brood in comb-honey supers; and to obviate that difficulty I ordered the excluders.

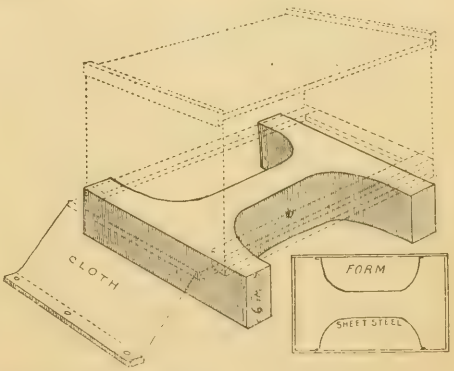
Cobleskill, N. Y. S. A. B.

[See editorial on this subject in our issue for March 1, page 310.—ED.]

CEMENT HIVE-FOUNDATIONS; ALIGHTING-BOARDS MADE OF CLOTH.

The drawing shows my cement hive-stand and cloth alighting-apron attached to the bottom-board, which I intend to use in my apiary next season. The hive-stand should be about six inches high, and two inches shorter and at least two inches wider than the hive. The ends of the hive-bottoms should never rest on the foundation, as it will have a tendency to keep the bottom of the hive damp, and thus be injurious, both to the bees and the hive.

The walls of the hive-stand should be about three inches thick. A knock-down box held together with clamps can be used as a form for making the stand. Sheet steel properly bent should be nailed on inside of the box sides to give the stand the desired form.



CHAPPELL'S CEMENT FOUNDATION AND CLOTH ALIGHTING-BOARD.

The alighting-apron should be about 18 inches long and as wide as the hive, and can be made of old sacks or new factory cloth. If the latter is used I would give them a coat of white paint, as it would make them last longer.

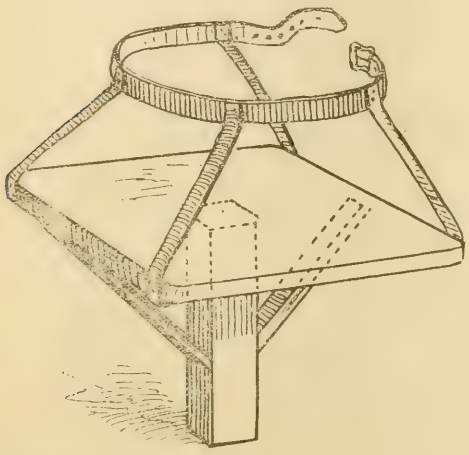
The advantages of the cloth over a hard board for the bees to strike on when coming in loaded will be seen at a glance. The apron makes a nice runway for a returning swarm if using clipped queens, and is also a nice thing to dump a swarm on if natural swarming is allowed. Another advantage is that the apron is always hitched to the bottom-board ready to use, and can be carried with the hive. I have always used a loose board for the bees to alight on, but it was always trying to get a "divorce" from the

hive, and never satisfactory. A piece of wood heavy enough to hold the apron in place should be nailed to the lower end of the same. R. D. CHAPPELL.

Vassar, Mich.

A CONVENIENT SEAT.

Here is a description of a tool to be used when you are looking through your apiary. If you try it you will find it a time-saver. It



beats sitting on lids or toes. It's just an ordinary milking-stool strapped to the waist. It is made as shown in cut.

Los Olivos, Cal. M. D. WHITCHER.

[Our artist could not resist sending the drawing, which is here reproduced.—ED.]

A QUEEN STINGS A WORKER.

I read with great interest Jay Smith's article, page 1192, 1906, headed, "Do bees sting queens?" I say yes. I also say queens sting bees. Last summer, during the queen-rearing season, a neighbor a few miles away gave me an order for four queens, and wanted me to come and introduce them. I had laid one of these cages down, wire cloth up, while I opened the hive to look for the queen; and when I picked the cage up I noticed a black worker on the outside of the cage, from some one of the colonies in the yard, for they were all pure blacks. The Italian queens were fighting through the wire cloth, and they were both stinging too. I watched to see the end, and it was very interesting to me. The end was that the queen stung the outside worker bee to death, the queen being pretty badly stung in one hind leg. I then went ahead with the introducing part. I do not know whether she ever recovered or not. I suppose she did, as I told the man if she died I would replace her.

Ravenswood, W. Va. T. L. MCMURRAY.

FALL HONEY CANDYING IN HIVES BEFORE SPRING; SUMAC AS A HONEY-PLANT; SOURCE OF GREEN HONEY.

On page 1375, Nov. 1, Grant Stanley says his bees get their winter stores in September and October. If his bees get their honey then from asters and goldenrod, as mine do here, next spring his hives would have most of the combs filled with honey candied solid, and he would have to shave them down to the base of the cells to get it out of them. He must save July honey for winter, and extract fall honey.

Page 1377, Nov. 1, G. A. Stone wants to know what green honey comes from. Sumac yields it here. Get the light to strike it right when running from the extractor and it is as green as a leaf. In clear glass it has a green shade. It is as light as white clover, and next to it in flavor. I think it the best honey-yielder in this part of the country. I think it never fails entirely. I have taken it by the ton when the basswoods were full of blossoms, and I thought sure I should have basswood honey. When I extracted I could not taste basswood, but the sumac was there every time. The sumac is better than basswood, so I don't worry about it.

New Hampton, N. Y. E. D. HOWELL.

RATS AND MICE; POISONING THEM WITH STRYCHNINE.

Put a quantity of dry flour in a shallow dish or pan, and crumb a quantity of strychnine into it I usually pulverize the poison between my thumb and finger. I consider this method of poisoning safer than putting it on some bread or meat, as nothing will eat the dry flour but mice and rats, and they seem to be very fond of it. The drowning method given will not work in the winter season unless you put the kettle and water in a warm place, as it will freeze.

Filion, Mich., Jan. 14. I. S. TILT.

[We thought when we first got hold of "rat biscuit" it was going to do the business, but either the rats have learned what it is or it is not so well made as at first; for lately they don't touch it at all. If they will continue to eat the flour after strychnine has been added, it will be a great boon. Of course, every one who handles such a deadly poison will exercise the greatest care.—A. I. R.]

COOKED POLLEN FOOD.

Have you any publications or reports of any thing that has been done in any way of experiments in the line of cooked food for bees, perhaps to take the place of pollen, in winter, or for other ends in view? I notice at times some of the bees seem to eat almost any thing liquid, and I wonder if any thing

has been done along that line. I don't know that there would be any thing gained or lost by such experiments.

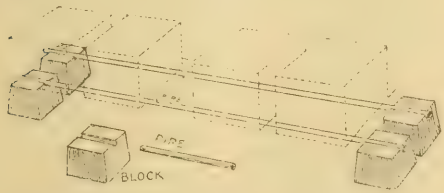
W. B. BURLINGAME.

Exeter, N. H., Nov. 14, 1906.

[This subject has been fairly well studied in Germany, where quite a number of compounds are made by bee-supply houses, and sold to bee-keepers generally. Dr. Dzierzon highly recommended some of them. The best compound is said to be a paste composed of invert sugar, pea flour, and white of eggs in certain proportions. This, if fed in spring, is supposed to stimulate greatly the secretion of chyle food by the workers who have to feed the queen and the larvæ. Perhaps the most celebrated of these manufactured foods is that of Dr. Follenius, in Hamburg, or Karl Glorius, in Leipzig-Schonau.—ED.]

A SUPPORT FOR A ROW OF HIVES MADE OF CEMENT BLOCKS AND IRON PIPES.

I send a rude sketch of a cement block, such as my few hives are resting on. The groove in the top is for the reception of an iron pipe. The pipes are 20 feet long and supported by four such blocks each. The



blocks are 8 to 10 inches high, and are arranged in two rows like a railroad. Such blocks and pipes have at least the merit of durability, of which the hives also partake.

Chuluota, Fla. J. A. BARBER.

THE ALEXANDER PLAN FOR BUILDING UP WEAK COLONIES; A SLIDE TO PREVENT THE INTERMINGLING OF THE COLONIES FOR TWO DAYS.

I had a very weak colony last spring. I went to a strong one and took every thing from the top of the hive down to the brood-frames. Over them I laid a queen-excluding honey-board, and over that a wire cloth. I then cut out a piece of wire cloth, 3×6 in., from the back end, then over these I fitted a piece of thin tin, extending back an inch beyond the hive. I then took the weak colony (bottom-board off), and set them on the strong colony for two days. I then drew the piece of tin back a very little, admitting few bees at a time. After two more days I withdrew the tin entirely, then after one week more I peeled off the wire cloth. When the colonies became equal I separated them, setting them each side of the old stand, watched them a little while, and every thing was lovely.

My bees had been flying for several days before my experiment. E. MCNETT.

Lewis Center, Ohio, Oct. 23, 1906.

THE ALEXANDER PLAN FOR WEAK COLONIES A SUCCESS.

I bought 31 stands of bees in old hives, nearly all of them weak, and transferred them into ten-frame hives on April 10. I had eight weak colonies of from one pint to one quart of bees in each, and I put these eight colonies on eight colonies of the same lot that had about two quarts of bees in each. I lost only two colonies out of the sixteen, and I fed them in the Doolittle feeder in the top of the hive with young queens from Texas. I claim the plan is a success.

Boonville, Ind. LEONARD ECKSTEIN.

THE ALEXANDER PLAN OF BUILDING UP WEAK COLONIES; FIVE COLONIES LOST.

I find something good in every number of GLEANINGS; but the Alexander plan of building up weak colonies was a sticker. I lost every one of five so treated, but will try it again. Next time I'll use a wire screen between the two colonies at first for a short time. E. H. BEARDSLEY.

Chicago, Ill.

STICKY FLY-PAPER TO CATCH ROACHES.

On page 97, in reply to Miss Wood's request I will say if she will use fly-paper—the Tanglefoot, or some good kind—by placing the sheet on mattings or between open covers, or tack a strip around the hive next to the cover, except in front of the hive, it will catch the roaches, bugs, etc. But care must be taken that Miss Bee can not get on the matting. Half-inch strips on the outside will do; but I prefer the inside when used between the cover. A thin strip of wood can be used to keep out the bees, and leave room enough for the roaches to crawl in. The roach will eat honey, but I can't say how much they can eat; but let it be little or much it takes that much from the bees.

When a moth-miller goes on top in the cover it is a goner. J. W. PATTEN.

Holden, Mo., Jan. 28.

CHICK PEAS.

Would you kindly favor a subscriber by telling him where he can obtain chick peas, as suggested, good for sowing on behalf of bees? Do you think they can be sown in Minnesota? R. G. FISHER.

Lakeland, Minn.

[Large quantities of these peas (garbanzos) are shipped from Sonora, Mexico, over the Southern Pacific Ry. to New Orleans. Perhaps one of our subscribers in that region could supply our friend.—W. K. M.]

KANSAS STATE CONVENTION.

The fourth annual meeting of the Kansas State Bee-keepers' Association was held in the parlors of the National Hotel, at Topeka, Dec. 27, 28. While the attendance was not large, it was nevertheless the best and most interesting meeting ever held by the Association. Mr. C. P. Dadant, of Illinois, was pres-

ent, and read a paper on the pollination of fruit by bees. An effort will be made to have the present foul-brood law amended during this session of the legislature. The meeting will be held at Hutchinson, during the State fair, in September. The meetings closed with a banquet on the evening of the 28th.

The following officers were reëlected: President, Dr. G. Bohrer, Lyons; Vice-president, E. W. Dunham, Topeka; Secretary and Treasurer, O. A. Keene, Topeka.

Topeka, Kan., Jan. 13. O. A. KEENE.

HOW TO STOP A SWARM OF BEES.

Please state all of the methods you know on how to stop a swarm which you can see going across the country.

Bluffton, Ind. C. H. SUDDUTH.

[There is no way to stop a swarm of bees while in flight except by means of a spray-pump and a pail of water. With this you can drive them back, and actually force them to alight. But the water must be applied before they start for the woods. If you can get in front of them before they get started, with the spray you can stop them and confuse them, and finally make them turn back or alight on the nearest bush or tree.—ED.]

BEES AND RED PEPPER.

There are a great many dogs around my home that dig up the flower-beds. To prevent their doing this, mother sprinkled red pepper over the places where the seeds were planted. She did it early in the morning, and when I returned from school at half-past three the ground where the pepper lay was covered with honey-bees. It was early in the spring, and I had not then seen any bees around. I should like to know why the bees came after the pepper.

Swarthmore, Pa. ALICE P. GARWOOD.

[The above question was sent to Dr. E. F. Bigelow, editor of the Nature and Science department of *St. Nicholas Magazine*, and he has asked that it be answered by the readers of GLEANINGS. We have never heard of a case of this kind before, and can account for it only on the basis that the bees are attracted by pungent odors. The red pepper falling on the ground probably became moistened, with the result that it gave off an odor which, with their delicate organs of scent, the bees readily detected. That they were appropriating any moisture from the pepper is doubtful. Mr. Morrison states that in localities where pepper is grown, the bees can be seen gathering it as a substitute for pollen.—ED.]

QUEEN STUNG BUT NOT KILLED.

I had a queen stung last year right at the butt of the wing, and she lived. I waited to see if she would die, but she did not.

CHAS. WARNER.

Wait, Ohio, Sept. 19, 1906.

HOW TO GET RID OF ANTS.

When our bees are troubled by the ants we put the colonies on benches, the legs of which rest in cans containing a little turpentine. After this is done there is no further trouble. EDMUND ULRICH.

Steinauer, Neb., Feb. 15.

SHALLOW HIVES IN AUSTRALIA.

We take the following from the *Commonwealth Bee-keeper*, Melbourne, Victoria:

I contend that more honey can be extracted from these shallow frames than from deep ones. I mean that they can be handled more quickly. (I fancy I hear some of our readers say, "Nonsense! Fancy running an apiary of, say, 400 colonies with those pesky little frames"). Why, Mr. Editor, in the last red-gum flow, I took off 43 60-lb. tins in eight hours, without an assistant, one man uncapping and one at the extractor, three in all. Besides taking off, brood-nests were examined, as was usual; old black queens beheaded; weakish hives given brood from strong ones, etc. I mean to say that there was no effort made to form a record. I doubt, sir, if this could be accomplished with the deep frames under similar conditions. If you wish, I could tell some greater virtues of the hive concerning the swarming part. There was some comment in last issue upon a six-tin average, 360 lbs.; some seem to think it nearly impossible. I know for certain that one man in the Western District got 19 tons from 192 colonies, almost all from a red-gum flow. I think it would have pulled the six-tin average if the yellow box had been a success. Get your colonies strong, *suppress swarms by the shallow-hive method*, give them your whole attention, and, if Providence is good enough to give us a fair amount of nectar in blossom, then our task is easy to accomplish the six-tin average. The ton was 2240 lbs.

ARE THE ORDINARY WHITE SUGARS OF COMMERCE WHOLESOME, AND FREE FROM DELETERIOUS SUBSTANCES?

We have already published two or three items to the effect that the white granulated and loaf sugars on the market have been bleached by chemicals that not only abstract some of the goodness of the sugar, but leave a residue which can not be entirely eliminated, and which is more or less harmful. In the Alabama *Times* appears the following item, entitled "Sugar under the New Law."

Washington, Jan. 29.—Southern sugar-refiners are very desirous of having the Department of Agriculture make a ruling as to the manufacture of sugar under the new food law, and a delegation is in the city for that purpose. For a hundred years it has been the practice to bleach sugar with bluing. Years ago indigo was used to give the sugar brilliancy, but of recent years aniline dyes have been employed. Another method of refining sugar is by the use of sulphur fumes. It is said that, under the pure-food law, unless the Department of Agriculture makes a ruling to the contrary, the use of aniline dyes and sulphur fumes will both be prohibited, and probably the use of indigo, so that the refiners will have to return to primitive methods. In fact, it is said by the cane-sugar refiners that there is a chance that white sugar will be eliminated altogether. The refiners and producers of sugar want a ruling before the appropriation is made for enforcing the law.

Better have the white sugars "eliminated altogether" if they contain harmful substances. Better by far that we go back to "primitive methods" and get a natural sugar without any harmful chemicals in it. Hasten the day when we may get a cheaper and better sugar. We hope the Agricultural Department will not let up one inch.—ED.

Even as a hen gathereth her chickens under her wings.—MATT. 23:37.

Our Lord and Savior, in that wonderful verse, a part only of which I have quoted, recognized the intense and unselfish devotion of the mother hen for her chickens. Just now it is not my purpose to discuss the great moral truth in that verse, but only to consider the illustration; and it is not so much the mother *hen* I wish to talk about as it is the chickens—the "motherless" chickens, in fact, that come from an incubator.

My first hatch, as I have told you, was given a hen to "brood," and I am glad to tell you she did her part so well that not one of the thirty was lost. They are now weaned and feathered out, and only yesterday I was wondering what great birds they were that were clear up in the tops of the palmetto and live-oak trees. Sure enough, they were my thirty "Florida flying-machines." They had climbed into the trees, and, for sheer pastime, were seeing who could fly the furthest, and they went sailing away off across the lot. Well, there was no sitting hen for the next lot, so I put them in the brooder under the incubator, and they got killed from the oil by rubbing against the lamp to keep warm, as I have told you. I succeeded in saving two only, and these came so near death I had given up all hope. The skin came off in great patches, taking the feathers too; but when I saw nature was fast making new skin, and feathers too, I took hope, and now they too are pretty fair flying-machines, even if they are a sorry pair to look at. I washed them with Castile soap and water, put on cuticura, and now they flop their new pearly-white wings and give me thanks every time I come in sight.

ARE BROODERS NEEDED HERE IN THIS FLORIDA CLIMATE?

I have not yet fully settled the question, but I feel sure a very cheap form of brooder will do nicely. After the coal-oil mishap I put my chicks, as they came from the incubator, in a light thin pine box, lined inside with burlap, and set it on top of the incubator. The top of my incubator, being metal, is always quite warm, and the chicks in my box kept over night nicely. In the morning, box and all was placed out in the sunshine. We always have sunshine here. As the strongest chicks were soon out by daylight, some of the weaker ones needed a little warmth before the sun got well up. I fixed this nicely with a hot flat-iron placed bottom up under the pine box. By the time the iron was cool the sun was up and no more heat was needed. I used the flat-iron only three or four cool mornings during the first week.* Some of you may say this is more trouble than to have a regular brooder. Well, I proposed to try one of the best up-to-date incubators and brooders; but after I had deposited the cash for incubator by *fast express* (and brooder by freight) the first communication I could possibly get from them was a *printed postal card, 16 days later*, saying my order was "entered," etc. I then countermanded the whole order, and that is why I am not only keeping poultry absolutely without houses or "coops," but I am raising beautiful strong chickens *without a brooder*. One important result is, I have yet to see a glimpse of any sort of poultry vermin on the island. My five pullets laid regularly four eggs one day and five the next, until one began sitting, and now we get three eggs one day and four the next, and this has been going on for over thirty days. I use a bone-mill to give them animal food, and the sea-kale that grows abundantly along the beach gives them a great plenty of vegetable food that they are very fond of.

SOMETHING MORE ABOUT "BABY CHICKS."

Through bad management and a cheap incubator (probably mostly the former) my chicks did not get out of the shell very well. I would not at present advise putting eggs in the incubator every day and having "new chicks" every day. It is true, in my "nature studies" it gave me some lessons I might not have gotten otherwise, and it may do all right "just for the fun of the thing."

When the eggs did not hatch on time I noticed one writer said it helped them along to dip the eggs in water at 105 degrees. Well, I presume I got a little nervous, and failed to notice an egg I was dipping was chipped. As the warm water rushed into the opening you ought to have heard the baby chick protest. Oh how I do wish I could put the pretty little talk in print, used by baby chicks! I have known for years that the mother hen has quite a vocabulary that the chicks recognize and understand; but that the little chick has a whole lot of pretty little speeches that the *mother* understands perfectly is one of my recent "wonderful discoveries." Together with this talk is a physical and intellectual growth that is positively amazing. These chicks in my pine box had no mother to love (and to love them) except me, and straightway it seemed as if they lavished and *poured out all* that little love and longing on my poor self. Their toes got cold, and they called "Chirp, chirp, chirp." I warmed them, and they expressed their thanks with that pretty little "Chee, chee, chee." Instinctively they wanted to follow somebody to exercise their little feet and

*The burlap was put around the inside of the box double, folded overhead double with the loose end so it could be folded back to leave an opening on the top for air larger or smaller according to the weather. You can tell by their actions when they have about the right amount of air. When rainy, box, chicks, and all were carried inside. The chicks got out and in over the top where we ventilate. I feel sure it is best to get along *here* with as little artificial heat as possible.

wings, and so wherever I went a "retinue" was ahead, behind, and between my feet. When I tried to run away from them it only increased their glee, and the way their tiny feet would spin was a caution. When I went into the house a "delegation" would surround the doorstep awaiting my return. If I was gone too long it was "Chirp, chirp, chirp;" but when I opened the door, there was a flopping of the pearly baby wings and the glad "Chee, chee, chee." When I was potting plants they climbed all over my feet, and I have thought several times I *ought* to tell Mrs. Root there was *somebody* down here in Florida who, in *real truth*, "loved the very ground I walked on."

I told them again and again they would surely get stepped on, but they just laughed as at a joke at the thought that I, who *loved* them, would harm a feather of their little bits of bodies. Sometimes I let them climb up my feet and get on my knees. This is a great treat for them. They crawl up my sleeve, under my vest and coat, get on my shoulder, examine my ears and eyes, meanwhile making a musical little concert of their "Chee, chee, chee." Their sense of hearing is just wonderful. After they have tired of their vigil at the doorstep, they wander off in the garden; but I can see them out of the window, and the moment I move my feet under the table they hear the sound and are back at the doorstep to give me welcome when I come out. Now, it isn't their food, for I keep this by them all the time. I am forced to conclude it is real affection for the one who has won their baby affections and stands in the place of mother and teacher. When I feel I *can't* have them around I have tried to drive them away; but it seems almost hopeless to try to convince them that *I* do not love *them* as devotedly as *they* love *me*. The watering-pot seems to be the best weapon, and it is truly laughable to witness their consternation and protests when I give them a gentle showering to make them go home.

There is one fine large chick that seems to be a sort of leader. When first hatched he was remarkably large and of a golden yellow color; in fact, he seemed a fluffy ball of the softest and finest down. Well, he and I were always particular "chums." I told him over and over again he would get stepped on, but he just bubbled over with fun about it, apparently, until one day when the wind was rather strong and cool I went to fetch a cloth-covered frame used over the greenhouse, to set up as a windbreak for the chicks. All at once I felt my foot on something soft, and, oh dear me! it *was* my pet chicken. His merriment had all stopped, or, rather, changed to a pitiful peep, while he slowly crawled along with his newly feathered pearly little wings dragging on the ground. I cuddled him up in my hands and tried to tell him how sorry I was, and it almost made me cry to hear him try to give me his accustomed "Cheep, cheep," of friendship. He moped about all day, but wouldn't eat or notice any thing; and when I put him in with the rest at night, I fully expected to find him dead in the morning. I remember wondering if it would be wicked to pray that God might spare the life of a chicken. The next morning he was better, but he didn't eat any until about noon; but by night he seemed his old self again; in fact, he was so full of "frolic" he didn't seem to want to go to bed at all. After I had put him in his box the third time, and it was getting pretty dark, I heard his well-known "Cheep, cheep, cheep," at the doorstep, and *I* understood by it he meant, "Say! aren't you glad I ain't gone dead?" and I replied as I held him up against my cheek, "Yes, darling, I am *exceedingly* glad, and I thank God that you are alive and well once more in spite of my carelessness."

WILD ANIMALS ON THE ISLAND.

Just once we found coon-tracks in the neighborhood, and for fear they might get through the poultry-netting and raid my chickens I told Mr. Shumard I would offer a premium of $1.00 for a coon dead or alive. Accordingly he set his traps and soon had *five* dead coons, and now there are no more coon-tracks. With a sharp hatchet and a cedar block I chopped them up, bones and all, for the chickens. Well, ever since then if I chop on that block with the hatchet, the chickens, far and near, come rushing in on the double quick. When the dinner-bell rings at Mr. Shumard's, where I board, it is the signal for the little chaps, and they push ahead into the dining-room if the door is not closed quickly. Not only are their sight and hearing wonderfully acute, but they learn tricks and every thing else, when less than a week old, with a readiness that is almost startling. The baby chicks drink from an inverted bottle that holds, may be, a pint. As soon as they saw a similar apparatus in the big yard, that holds about a gallon, they took in what it was for, and rushed up to it to get a drink. Was not that almost reasoning?

MOONLIGHT NIGHTS IN FLORIDA.

I have heard it said that, the nearer you approach the equator, the brighter are all the starry constellations of heaven. Well, along the latter part of January we had some very bright moonlight nights. I noticed I could read fair-sized print very easily. At just half-past one, one night, I was surprised to hear sounds among the poultry. It didn't seem like sounds of alarm, and you can imagine my surprise when I heard the rooster calling the hens with his usual "Cut, cut, cut." Sure enough, there he was, calling them to get some corn left over when I fed them the night before, and one of the pullets was singing as merrily as if it were daytime. As nearly as I can make out, the rooster stayed up until morning; but the "females," doubtless recognizing they had made a blunder, discreetly climbed back again to their accustomed perch in the cedar-tree. Has any one ever before seen the chickens fooled by moonlight?

Dear reader, has it occurred to you while reading my long chicken-story, if, indeed, you have had the patience to take it all in, that

there are baby boys and girls in this land of ours who might prove as interesting and as wonderful in their make-up as the baby chickens? Well, this same thought has been in my mind; and may be these "nature studies" that have afforded me so much pleasure may better fit me for graver problems than any I have yet encountered.

"Behold the fowls of the air; for they sow not, neither do they reap, nor gather into barns; yet your heavenly Father feedeth them. *Are ye not much better than they?*

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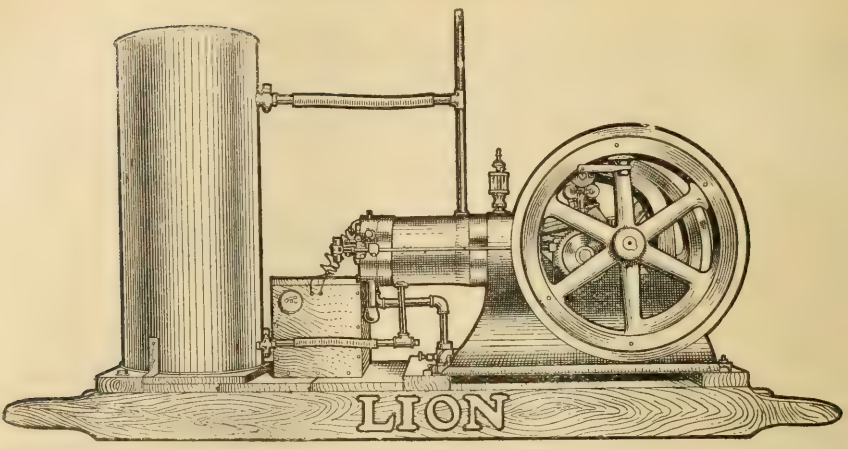

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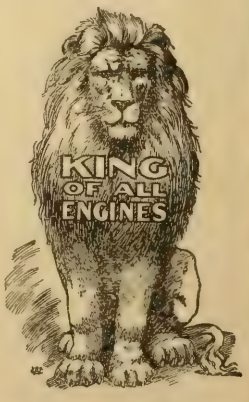

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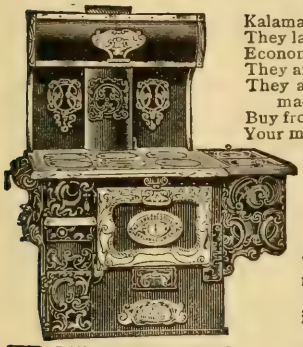

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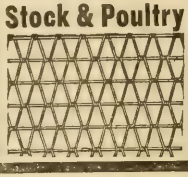

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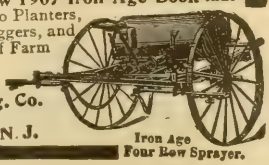

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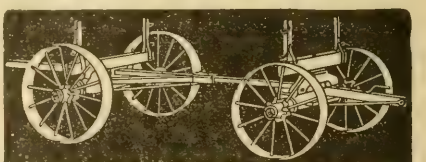

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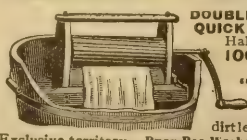

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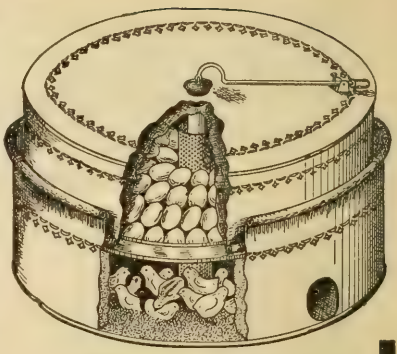

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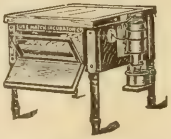

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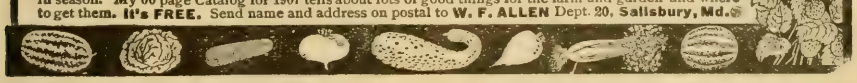

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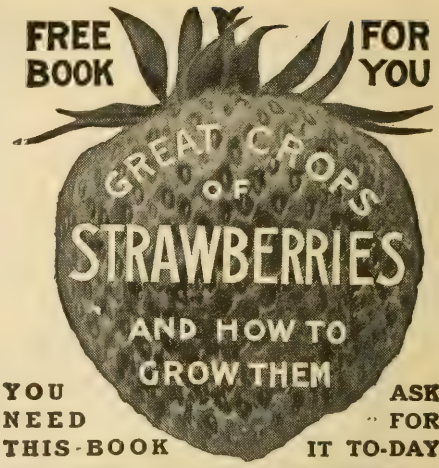

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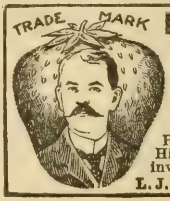

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W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—Pair thoroughbred Beagle pups at a bargain. For information write Box 311, Medina, O.

FOR SALE.—Opaline honey jars, all kinds; send for price list. HAROLD E. SHORE, Germantown, Pa.

FOR SALE.—Fine job-printing outfit.
C. A. STEBBINS, Broad Creek, Va.

FOR SALE.—4000 ferrets; some trained. Prices and book mailed free. N. A. KNAPP, Rochester, Ohio.

FOR SALE.—Tandem in first-class order cheap; new tires; bargain for some one. Box 404, Medina, O.

FOR SALE.—Goodell foot-lathe, $5.50; 650-volt ½-h.p. motor. G. A. WATT, Bellevue, Ohio.

FOR SALE.—Raspberry plants, Cuthbert, 30c doz. pd.; 100, $1.00 by exp. Cinnamon-vine bulbs, 10c doz. post. W. F. EBERT, Box 53, Carbon Black, Pa.

FOR SALE.—Alexander wire bee-veil, guaranteed to protect the face from any stings, 75c each, or 3 for $2.00 post paid. FRANK ALEXANDER, Delanson, N. Y.

FOUND.—After thirty years' experimenting, a comb-frame that is practical and bids defiance to propolis. All about them; write the inventor.
D. S. HALL, So. Cabot, Vt.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1907 send your name and address to FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE.—Have just lost house by fire and want to sell land—seven acres adjoining city of Auburn. For particulars address
E. B. BEECHER, Auburn, Placer Co., Cal.

FOR SALE.—$5000 will buy good farm 76 acres (15 acres alfalfa, one acre vinevard), 15 cows, 50 colonies Italian bees. Fine location. Easy terms.
O. LUHDORFF, Visalia, Cal.

FOR SALE.—Twelve acres in city limits of Holden, Mo.; 7-room house, fruit, water, good improvements. Also fifty colonies bees in good condition. Address
J. M. MOORE, Holden, Johnson Co., Mo.

FOR SALE.—White seedcorn, "Hunter's Ideal"—World's Fair wonder, 50th year; victor last year in field tests, Purdue Univ., Lafayette, Ind.; 75-lb. sack select ears, $2.00. C. S. HUNTER, Seven Mile, Ohio.

FOR SALE.—Or trade for bees, honey, and a new queen, a heavily furred buffalo robe, game chickens, violin, revolvers, and bone-mill.
ELIAS FOX, Hillsboro, Wis.

FOR SALE.—A quantity of second-hand chaff hives, consisting of 10-frame Quinbys and 13-frame Gallups; no inside furniture; only $1.00 each.
E. D. TOWNSEND, Remus, Mich.

FOR SALE.—One-piece sections, of all the standard sizes, 1000, $4.00; No. 2, $3.50; plain, 25 cts. less. These sections are strictly first-class. Also other supplies very cheap. JAS E. MORGAN,
Dansville, Ingham Co., Mich.

FOR SALE.—In lots to suit, several hundred eight and ten frame size comb-honey supers for 4¼x4¼x1⅞ sections, all made up and painted, used but little. Special low price if ordered at once. For particulars address THE ROCKY MOUNTAIN BEE CO.,
Berthoud, Colo.

FOR SALE.—A complete steam-laundry outfit. Two washers, ironing-machines, extractor, starchers—everything you need but boiler. Why not start a laundry in your home town? it will pay you good returns. Write me about it. Box 414, Medina, O.

FOR SALE.—One 400-egg Star incubator; used for 3 hatches; cost $38; $12 takes it. One 200-egg New Peerless; cost $18; sell for $10. One home-made 225-egg, in good condition; cost $13; sell for $5. One new comb-foundation mill, ten-inch, Root's make; $12 takes it. The incubators are good hatchers.
G. ROUTZAHN, Biglerville, Pa.

FOR SALE.—The following foundation-mills. Wish to dispose of them at once. Write for sample if interested, and fuller information will be given about any mill.

Mill No. 1—14-in., old-style high frame, in perfect order, price $18.00.

Mill No. 2—6-in., old-style high frame; has had a pin run through the rolls, otherwise is in good order; price $8.00.

Mill No. 3—12-in. new style, large rolls, used but very little, in perfect order: price $30.00.

Mill No. 4—12-in. blank rolls, used but little, in perfect order; price $20.00.

Mill No. 5—6-in. mill, new style, in perfect order, used but little; price $12.00.
W. W. BLISS, Duarte, Cal.

FOR SALE.—Paragon Chestnut. I can furnish Paragon Chestnut grafts for spring grafting, 25 fine grafts for $1.00, postpaid. J. H. BUPP, Loganville, Pa.

FOR SALE.—Best Wisconsin sections, per 1000, $4.00; No. 2, $3.40; plain, 25 cts. less. Discounts on Danz. hives and other Root's goods; also berry-boxes. Italian bees for sale. H. S. DUBY, St. Anne, Ill.

Bees and Queens.

FOR SALE.—200 colonies Italian bees in good condition; Dov'd hives. W. F. STUART, Ottawa, Kan.

FOR SALE.—400 colonies pure Italian bees in lots to suit. Write for prices. F. A. GRAY,
Redwood Falls, Minn.

FOR SALE.—25 colonies Italian bees in 8-frame L. hives, Hoffman frames. $4.00 each.
F. P. CATHERMAN, Lewisburg, Pa.

FOR SALE.—Bees, queens, and bee-keepers' supplies (Root's goods), at factory prices.
F. W. VAN DEMARK, Mehan, Okla.

FOR SALE.— Eighty colonies Italian bees in fine condition, 64 in Danzenbaker hives, 16 in Gallup hives; selling on account of ill health. Write for prices.
H. WILBUR, Rt. 3, Morenci, Mich.

FOR SALE;—200 colonies Italian and hybrid bees in Dovetailed hives, 8 Hoffman frames each; no disease. Also 170 acres good cotton and fruit land. Particulars on request. Reason for selling, old age and am alone. Address F. C. MORROW, Wallaceburg, Ark.

FOR SALE.—100 colonies of bees in two-story Dov'd hives for comb honey, together with fixtures and one year's supplies, three village lots with small house, barn, and hen-house. Good location. Satisfactory reason for selling. S. LA MONT, Jarretts, Minn.

FOR SALE.—My entire outfit of bees and fixtures, in part or as a whole, or will let same on shares to some reliable party capable of managing three or four hundred colonies of bees. C. D DUVALL,
223 E. Yampa St., Colorado Springs, Colo.

FOR SALE.—Three-frame nuclei with untested queen in the ten-frame hive; new, and painted white; Hoffman frames; starters in other seven frames. Price $5.00 per hive. Orders delivered in rotation after May 15. Untested queens, 75c each.
F. N. CHAMBERLAIN, Pattersonville, N. Y.

Poultry Offers.

FOR SALE.—15 choice R. C. Br. Leg. eggs, 75c; sample feathers free. H. TIEDEMANN, Hammond, Ind.

FOR SALE.—R. C. Brown Leghorn eggs and cockerels; or will exchange for bees. C.H.CLARK, Cobalt,Ct.

FOR SALE.—S. C. White Orp. cockerels, pure-bred, prize-winning, $3.50. L. B. PALM, Hyde Park, N. Y.

FOR SALE.—White Wyandottes; 15 eggs, 75 cts.; 30 eggs, $1.25. J. F. MICHAEL, Winchester, Ind.

FOR SALE.—W. Wyandotte cockerels, stock and eggs at low prices. J. F. MOORE, Tiffin, O.

FOR SALE.—Single-comb White Leghorn cockerels, $1.25 each. THEO. KELLER, Harlem, Mo.

FOR SALE.—R. C. White Leghorn eggs, $1.00 per 15, $1.50 per 30. ROUTE 1, Box 1, Osceola Mills, Pa.

FOR SALE.—White Wyandotts Exclusively (Duston Strain), eggs, $1.50 per 15.
HARRY C. DRIVER, Rt. 1, Beech Creek, Pa.

FOR SALE.—Choice poultry. Ten leading varieties for the farmer or the fancier. Circulars free.
A. H. DUFF, Larned, Kan.

FOR SALE.—Barred P. Rock and Pekin duck eggs, $1.00 per setting. Circular free.
A. W. NEWCOMER, Glen Rock, Pa.

FOR SALE.—R. C. Black Minorcas and B. P. Rock eggs, 80 cts. per sitting. JAMES STEWART,
Route 1. Franklin Furnace, Scioto Co., O.

FOR SALE.—S. C. W. Leghorns of the best strain, bred for purity and profit.
BORDNER POULTRY FARM, Prairie Depot, O.

FOR SALE—White Plymouth Rocks, pairs and trios. Eggs, 15 for $3. RONDA COOP AND EGG CASE CO.,
Ronda, N. C.

FOR SALE.—Fishel's White Rocks, direct; stock and eggs; eggs, $3.00 per 15; $5.00 per 30. Write your wants. DR. C. L. VAN OSDOL, Dillsboro, Ind.

FOR SALE.—Eggs for hatching W. P. Rocks, 75c per 13, $1.25 per 26; $2.00 per 45, $4.00 per 100; White Pekin ducks, $1.00 per 9; White Guinea, $1.00 for 15.
F. E. SCHRIVER, Rt. 3, Grafton, Ohio.

FOR SALE.—White Plymouth Rocks. Winners at Milwaukee and Wisconsin State Fair; 15 eggs. $1.25; 30, $2.00; 50, $3.00. FRANK KITTINGER, Caledonia, Wis.

FOR SALE.—Extra-fine rose-comb Rhode-Island Reds exclusively. Eggs, $2.00 per 15; $5.00 per 50.
MRS. R. J. DEEBLE, Lucas, Kansas.

FOR SALE—White Wyandotte eggs for hatching, $1.50 for 15. Farm-raised and bred for business. Express and P. O. money-orders payable Detroit, Mich. CHARLES C. SCHNEIDER, North Detroit, Mich., R.F.D.

FOR SALE.—Barred Rock, White Rock, Brown Leghorn, White Leghorn, Black Minorca, White Wyandotte, pit game fowls, and eggs. Circular free.
ENOCH GEER, Farmington, Mo.

FOR SALE.— Single-comb Buff Leghorn eggs, Arnold strain, 1906 egg record, 177½ eggs per hen; per setting of 15 eggs, $1.50. FRANK RAUCHFUSS,
1440 Market St. Denver, Col.

FOR SALE.—Eggs for hatching from my celebrated strain of S. C. Brown Leghorns; line bred for winter layers; greatest layers on record; farm range; fertility guaranteed; $1.00 per 15. Incubator eggs at reduced prices. Prompt shipment.
J. E. HAND, Rt 1, Birmingham, Ohio.

Wants and Exchange.

WANTED.—To buy fifty colonies of bees; L. frames preferred. O. A. KEENE, Topeka, Kan.

FOR EXCHANGE.—German violin for bees, supplies, cornet, or offers. R. B. HIBBARD, Evans Mills, N. Y.

FOR EXCHANGE.—One 240-egg incubator, for bees or supplies. Write S. M. WEBSTER, Metamora, Mich.

WANTED.—300 wired combs for extracting, Hoffman size. State number and lowest cash price.
GEO. E. HILTON, Fremont, Mich.

WANTED.—A small homestead in a good bee range, with or without bees. W. W. MCNEAL,
Wheelersburg, O.

WANTED.—To let, apiary of over 300 colonies on five years' time. Produced $6.00 per colony this year. Great opportunity in Colorado.
MILLER PRODUCE CO., Timnath, Colo.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—The address of some person who would let his bees on shares; California preferred. State number of colonies and conditions.
PERRIN, 117 No. Butler St., Madison, Wis.

WANTED.—Western bee-keepers, notice! Two carloads of Root's bee-supplies. Write us for prices, stating goods wanted. Would also like to quote distant bee-keepers delivered prices.
SUPERIOR HONEY CO., Ogden, Utah.

WANTED.—Every Western bee-keeper to send for our new illustrated catalog. We can save you money Write to-day.
THE COLORADO HONEY-PRODUCERS' ASS'N,
Denver, Colorado.

Honey and Wax Wanted.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.
R. A. BURNETT, 199 S. Water St., Chicago, Ill.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here. GRIGGS BROS., Toledo, O.

WANTED.—20,000 pounds pure clover honey. Send average sample and state best price.
J. E. CRANE & SON, Middlebury, Vt.

WANTED.—Beeswax, any quantity; will make remittance the day wax arrives.
THE COLORADO HONEY-PRODUCERS' ASS'N.,
Denver, Colorado.

WANTED.—In large or small lots, No. 1 white and amber extracted honey in 60-pound cans or barrels. Send sample and quote lowest cash price delivered in Preston. M. V. FACEY,
Preston, Fillmore Co., Minn.

WANTED.—Beeswax. We will pay 30 cts. per pound for fancy pure yellow beeswax delivered in New York until further notice. CHAS. ISRAEL & BROS.,
486 Canal St., New York City.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

Honey and Wax For Sale.

FOR SALE.—Buckwheat honey in 60-lb. cans, at 6c per lb. C. J. BALDRIDGE,
Homestead Farm, Kendaia, Seneca Co., N. Y.

FOR SALE.—50,000 pounds California water-white extracted honey by the case or car.
H. J. MERCER, 731 E. Third St., Los Angeles, Cal.

FOR SALE.—3000 lbs. basswood and 1000 lbs. clover honey in kegs. C. J. BALDRIDGE,
Homestead Farm, Kendaia, Seneca Co., N. Y.

FOR SALE.—800 pounds of pure beeswax for sale. Refuse from wax-extractors wanted. Will pay cash.
W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—A quantity of fancy buckwheat comb honey in 4¼ sections, 24-section no-drip shipping-case.
E. D. TOWNSEND, Remus, Mich.

FOR SALE.—Fancy basswood and clover honey in barrels or 60-lb. cans; sample 10 cts., which may be deducted when ordering. ROBT. A. HOLEKAMP & SON,
4263 Virginia Ave., St. Louis, Mo.

ITALIAN bees and queens bred for honey; price list free. B. F. YANCEY & SON, Angleton, Tex.

FOR SALE.—Honey, bees, and queens; cartons at half price, and some other supplies. Bees on Danz. and L. frames. Free circular.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

Improved Carniolans always winter best, breed up strongest early in the spring; the finest comb-honey builders. (Italians for those preferring them.) Catalog free. W. W. CRIM, Pekin, Ind.

Bee-keepers' Directory

This department is for the exclusive use of all-year-round advertisers. If you have any thing the bee-keeper needs, your card in this department keeps your name always before your prospective customers at half our flat rates. We reserve the right to reject or modify any ad. not eligible to these special rates.

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3	"	"	"	"	"	"	7.50
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Cash in advance. Ad's can be changed only in the first issue of January, April, July, and October.

QUEENS.—Pure Gold, Red-clover, Caucasian, Banat. ROSE LAWN APIARIES, College View, Lincoln, Neb.

ITALIAN QUEENS.—Golden and leather, 60c each; worth $1.00. G. W. BARNES, Box 340, Norwalk, O.

Bee-keepers' supplies, Italian queens. Send for a free catalog. ARTHUR RATTRAY, Almont, Mich.

ITALIAN BEES and queens—Red-clover strain imp'd mothers. A. W. YATES, 3 Chapman St., Hartford, Ct.

ITALIAN BEES, queens, and Root's bee supplies.
E. SCOGGIN, Carlsbad, N. M.

I club a high-grade Italian queen with GLEANINGS, new or renewal. W. T. CRAWFORD, Hineston, La.

WANTED.—500 colonies of bees in Texas, Arizona, or California. N. E. MILLER, Box 373, Logan, Utah.

FINEST Golden and red-clover queens, Caucasian and Carniolan. DANIEL WURTH & GRANT, Pitkin, Ark.

ITALIAN AND CAUCASIAN bees and queens of best quality; price list free. A. E. TITOFF, Ioamosa, Cal.

MAPLEWOOD APIARY.—Choice comb honey, Italian bees and queens. GEO. H. REA, Reynoldsville, Pa. R. 2.

ROOT'S SUPPLIES at factory prices; wholesale and retail. ANTON G. ANDERSON, Holden, Mo.

ITALIAN BEES, queens, and bee supplies.
H. H. JEPSON, 182 Friend St., Boston, Mass.

ITALIAN BEES, queens, beeswax, honey, and bee-keepers' supplies. M. E. TRIBBLE, Marshall, Mo.

FOR SALE.—Bee-keepers' Supplies. Write for catalog. Lengst & Koenig, 127 S. 13th St., Saginaw, Mich.

FOR SALE.—Golden and red-clover Italian queens. WM. A. SHUFF, 4426 Osage Ave., Philadelphia, Pa.

ITALIAN BEES and queens—red-clover and golden strains. E. E. MOTT, Glenwood, Cass Co., Mich.

ITALIAN BEES, queens, honey, and bee-keepers' supplies. A. T. DOCKHAM, Box 95, Rt. 1, Eagle Bend, Minn.

SWARTHMORE Golden-all-over, Caucasian, Banat, Carniolan, Cyprian queens. E. L. Pratt, Swarthmore, Pa.

QUEENS. Free list giving safe method of introducing, ready Feb. 15. E. E. LAWRENCE, Doniphan, Mo.

ITALIAN BEES, queens, honey, and ROOT'S bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

FOR SALE.—Root's bee-supplies, wholesale and retail; factory prices; catalog free. Beeswax wanted.
W. E. TRIBBETT, Staunton, Va.

GOLDEN-ALL-OVER Caucasian Banat bees and queens. We book orders for early queens from our best imported breeding stock for honey, with 600 twin mating-boxes. THE SNYDER APIARIES, Lebanon, Pa.

QUEENS.—Improved Red-clover Italians bred for business; June 1 to Nov. 15, untested queens, 60c; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Convention Notices.

The North Texas Bee-keepers' Association will hold its annual meeting at Ladonia, Texas, on the first Wednesday and Thursday in April. All bee-keepers are invited to attend. No hotel bills to pay.

W. H. WHITE, Sec.

The Northern Michigan Bee-keepers' Association will hold its next annual convention at East Jordan, Mich., Wednesday and Thursday, April 10 and 11. Special rates secured at the Russell House, of $1.00 per day. IRA D. BARTLETT, Sec.

The annual meeting of the Connecticut Bee-keepers' Association will be held in the State Capitol, Hartford, room 50, April 6, 1907. Interest in bee culture has been given an impetus through the recent effort to secure good foul-brood legislation, and this meeting will not only give every bee-keeper in the State an opportunity to increase his knowledge of bees and their diseases, but an interesting program has been prepared touching many other important phases of the science of apiculture. A cordial invitation is extended to both ladies and gentlemen. Please bring choice samples of honey, or any thing of an apiarian nature, for the honey exhibit. J. ARTHUR SMITH, Sec'y.
Hartford, Ct.

"HOME AGAIN."

I expect to leave here for Ohio about March 15. Therefore all matter especially for myself should be sent to Medina, Ohio, after you see this.

Osprey, Florida, Mar. 8. A. I. ROOT.

The attention of bee-keepers in the Canadian provinces is directed to the announcement of E. Grainger & Co., Deer Park, Toronto, Ontario, which is found on page 369 of this issue. To avoid the delays so often experienced it is important that bee-keepers living in remote points should send in their specifications to Messrs. Grainger & Co. early in order that goods which are required from the factory may be obtained in ample time for the use intended. So often goods are delayed in the custom-house between the United States and Canada that this makes it the more necessary that Canadian orders be sent early to the dealer who is getting his supplies in the United States.

SECOND-HAND FOUNDATION-MILLS.

We have the following second-hand comb-foundation mills to offer. We give a brief description of each, and shall be pleased to mail a sample of foundation, representing any one or more of these mills, to those interested, on application:

No. 059, 2½x6-inch hex. extra-thin-super mill in good condition. Price $12.00.

No. 077, 2x10-inch round-cell brood mill in old-style high frame, in good condition. Price 12.00.

No. 082, 2½x10 medium-brood mill, round cell, late-style frame, in good condition. Price $15.00.

No. 083 2½x10 medium-brood hex. mill, late-style frame, in good condition. Price $16.00.

No. 084 2x10 medium-brood round-cell mill, old-style frame, in fair condition. Price $11.00.

No. 075, 2x9 hex. brood mill in the oldest-style wood-base frame. Original price of this machine was $80.00. We offer it for $10.00.

TOBACCO DUST.

We have to offer two kinds of tobacco dust used as an insecticide and fertilizer on plants in greenhouse work. A fine dust made in part from ground stems we offer at 3 cts. per lb.; 10 lbs. for 20 cts.; 100 lbs., $1.50; by the case of about 300 pounds, at 1¼ cts. per lb. A better grade, not so fine, will cost 1 cent a pound more than above for a like quantity. Sample mailed on request to those interested.

SEED PRICES ADVANCED.

We find it necessary to revise some prices on seeds from those given in our seed list. Alfalfa seed is advanced to $10.00 per bushel; $5.25 per half bushel; $2.75 per peck; 20 cts. per lb. By mail, 30 cts. per lb.

Crimson clover, $10.00 per two-bushel sack; $5.25 per bushel; half bushel, $2.75; peck, $1.50; 10 cts. per lb. By mail, 20 cts. per lb.

Cow peas, $3.00 per bushel; $1.65 per half bushel; 90 cts. per peck; 1 qt., 15 cts. By mail, quart, 30 cts.

Soja beans, quart, 15 cts.; peck, 90 cts; bushel, $3.00.

REMOVAL OF NEW YORK CITY OFFICE.

We have rented new quarters for our New York office, which we will occupy after April 1. We have some stock in our present location which we will sell at a special discount rather than move it to the new warehouse in Hoboken, N. J. We have 300 ten-frame bodies packed with molded top-bar frames; about 200 Danz. hives packed with gable covers, and sixty dozen one-quart Mason jars. If interested, write to New York address, stating how many you could use, and get best price. Will sell at about 10 per cent off regular prices.

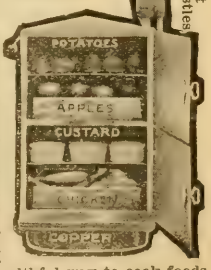
BEESWAX ADVANCED.

We advance our prices on beeswax to 31 cts. cash, 33 cts. trade, for average wax delivered here or at our branch houses. A branch house is one operated in the name of The A. I. Root Co. A general agent handling our goods in car lots is not a branch house; and if you ship to any such, you had better make arrangements beforehand as to what price you are to receive. We can not make prices for such general agents, and you can not hold them to our quotations. We mention this because several have complained to us that they did not receive our advertised quotation when no bargain was made in advance.

DOVETAILED HIVES, SECTIONS, ETC.

of best quality (JOHN DOLL & SON'S MAKE). Extra low prices quoted on all supplies. Let me figure on your order. I can save you money. BERRY BASKETS AND BOXES in stock. Send for 32-page catalog free. **W. D. SOPER, Jackson, Mich.**

$53,700 Made by O-HI-O Cooker Agents in 1905 Selling the **O-HI-O** COMBINATION STEAM COOKER-BAKER. It Whistles



We have many agents making $5 to $10 daily. Write us and we will give you names of agents near by who are making at least $5 daily. We can easily prove that the "O-HI-O" is the best money-maker you ever heard of, and will make you more money than anything you ever sold or are now selling. *Write us at once and we will prove it.*

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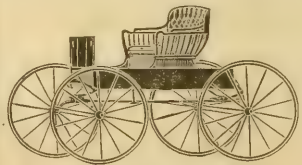

No. 758. Spindle Seat Bike Gear Driving Wagon with ⅞ in. Guaranteed Rubber tires. Price complete, $56.50. As good as sells for $25.00 more.

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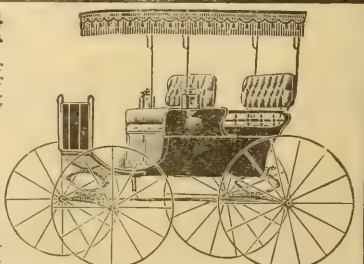
selling to the consumer exclusively. We make 200 styles of Vehicles, 65 styles of Harness. Send for large, free catalogue.



No. 333. Light Canopy Top Trap. Price complete, $78.00. As good as sells for $25.00 to $30.00 more.

Elkhart Carriage & Harness Mfg. Co.
Elkhart, Indiana

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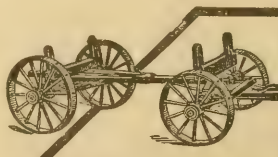
Write to-day for our plan. Positively no notes, nor one cent of money required of free trial of this buggy for 30 days. You can **"Try an Anderton with your money in your pocket."** Let us tell you about our full two-year Guarantee, backed by $25,000 Bank Bond. Write for 140-page illustrated catalog. The "Anderton" line includes Buggies, Surreys, Stanhopes, Driving Wagons, Spring Wagons, Pony Vehicles, Carts, Harness, etc.

THE ANDERTON MANUFACTURING CO., Cincinnati, Ohio.
41 Third Street.

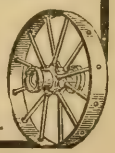


A low wagon at a low price. Handy for the farmer. Will carry a load anywhere a horse can travel.

Low Down Wagons

soon earn their cost on any farm.

Steel Wheels



for farm wagons. Straight or staggered spokes. Any size wanted, any width of tire. Hubs to fit any axle. For catalogue and prices, write to

Empire Mfg. Co., Box 91-H Quincy, Ill.

A New Factory

and also a new firm name, but in the same place with the same management. We have just put in a complete

Weed Process Comb Foundation Factory

of the very latest type, and we are now ready to work up wax for western bee-keepers at low prices. . . We want several thousand pounds of beeswax at once, and will pay top market price for same. Let us hear from any one having wax to offer. .· .· .·

Buck & Wilson, Augusta, Kan.

Butler County

Keep Your

Open!

THERE will be need for many "B" Supplies this season. The past two years have been poor ones. Prospects are good for a honey crop this year. Bees are wintering well. If you are in need of hives, sections, etc., better order soon. Railroad companies are crowded. Freight moves slow these days. Don't wait until the last moment. Send for our 40-page catalog of A. I. Root Co.'s goods, which we can furnish you from here on short notice at a low price. . . . . .

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.

Mr. Texas Bee-keeper:

I should like to talk to you *personally.*

First, I want you to know about my supplies. I handle Root's Goods, of course; for I believe in giving my customers complete satisfaction—for that's better in the long run than low prices. My place of business is on the S. A. & A. P. Ry., just opposite the passenger depot, where I have built a warehouse 40×250 feet, and I have filled it full to the brim, for I handle Root's goods by the carload. This means I can furnish you with supplies with the utmost promptness.

Then, too, I have installed a complete Weed-process Foundation factory. I can turn out 500 lbs. a day. I can work your wax into foundation. In fact, my facilities in this line are not surpassed in Texas.

My can business is increasing by leaps and bounds. That is because of the quality of the goods. It will save you dollars to get my prices. Better write for them to-day.

Nothing pleases me better than for bee-keepers to make their headquarters at my office when in San Antonio. You are always welcome. I have fitted up my office with plenty of desks and chairs, with writing-material, a reading-table, and all the bee journals on hand. Consider yourself invited.

If you haven't my catalog just drop a postal.

I can supply Red-clover and Golden Italian queens promptly.

I am now paying 23c cash and 26c in trade for average clean beeswax delivered here. Save your slumgum. I will buy it. Let me know how much you have, in what condition the slumgum is, and in what kind of an extractor it was rendered, and I will make you price I am paying.

Call or Address

Udo Toepperwein, - San Antonio, Texas

1322 South Flores Street

We are Not in a Trust!

Bee-hives, Sections, Brood-frames, Extractors

Every thing that bee-keepers use at LOWEST PRICES.
Quality the Highest. We've been making them 25 years.

American Bee-keeper

A profusely illustrated practical bee-journal which we have published for 17 years. 50c year. Sample copy and our 1907 illustrated catalog and price list free. Address

The W. T. Falconer Mfg. Co., Dept. G, Jamestown, N. Y.

New Goods - Big Stock

New Warehouse : Root's Goods : Prompt Shipment : Low Freight

Everything for the Bee-keeper at Savannah, Georgia

We are prepared to furnish promptly a full line of supplies; choice new stock just from the factory. BEES and QUEENS. We have large apiaries of fine stock. Book your orders at once, as there will be a heavy demand this season. Catalog sent free. Correspondence solicited.

Howkins & Rush, 124 West Liberty St., Savannah, Ga.

Dadant's . . . . . Foundation

We guarantee it absolutely satisfactory every way.

Ask any dealer who handles our make along with any other, and he will say, "Of course, Dadant's is the best." Ask a bee-keeper who has used our make and he will tell you the same thing. WHY? Because we make the manufacture of foundation our SPECIALTY. We devote our time and energies to making THE VERY BEST COMB FOUNDATION that CAN BE MADE.

It will cost you no more than any other make. Send for free catalog and prices. Early-order discounts on all kinds of goods for the bee-keeper now.

We work beeswax into foundation.
We buy beeswax at all times.
Prices sent on application.

Dadant & Sons, Hamilton, Ills.

Root Goods

for the West

Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS.

My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

Write for estimate with liberal discount for orders sent in now.

Jos. Nysewander, Des Moines, Iowa

565, 567 West Seventh Street

GLEANINGS IN BEE CULTURE

AN APIARY NEAR AREQUIPA, PERU.

VOL. 35 NO. 7

APRIL 1, 1907

THE A. I. ROOT CO.
MEDINA — OHIO

Are you now deciding on the hives you will purchase for this season's use? If so, we ask you to consider the Danzenbaker Hive on its merits as a "Comb Honey Hive." It has stood the test. A booklet telling about it is yours for the asking. We send with it a copy of our 1907 catalog.

We are the Michigan agents for Root's goods, both wholesale and retail. We can save you time and freight expense.

M. H. Hunt & Son,

Redford, Wayne Co., Mich.

The Swarming Season

will soon be here. Are you prepared? Why not order your supplies now, and take advantage of

The Large Discounts

which we offer this month on Bee-supplies? Only remember the

Low Freight Rates

from TOLEDO places our goods in your door cheaper than you can get them elsewhere. We afford you every advantage in both Poultry and Bee Supplies. We sell The A. I. Root Co.'s bee-supplies, Model Incubators and Brooders, Prairie State Incubators and Brooders, Poultry Supplies of all kinds.

Our Large Illustrated Catalog

illustrates and describes our complete line; tells how to raise bees and chickens successfully. . Free upon request.

The Griggs Bros. & Nichols Co.

523 Monroe St., Toledo, Ohio.

APICULTEURS

des pays de langue Francaise.
Nous vous informons que

L'Apiculture Nouvelle

Revue mensuele illustree,

est tiree de:

Gleanings in Bee Culture

augmentee et completee par des collaborateurs Europeens, reconnus comme Apiculteurs eminents.

L'Abonnement d'un an est envoye franco pour tous pays de l'Union Postale, contre l'envoi par mandat poste de 7.50.

Un numero specimen, ainsi que notre catalogue francais de tous les articles de la

A. I. ROOT CO.

est envoye gratuitement sur simple demande, adressee a

Emile Bondonneau,

Agent General pour l'Europe et les Colonies

de A. I. ROOT CO.,

142 Faubourg Saint Denis 142 Paris (10e)

France.

L'Edition Francaise de l'A B C de l'Apiculture est egalement parue.

C. H. W. WEBER

Headquarters for . . .

BEE-SUPPLIES

Distributor of Root's Goods Exclusively at Root's Factory Prices

GIVE ME your orders for the **Best Goods Made.** You will be pleased on receipt of them. You will **save money** by ordering from me. My stock is complete; in fact, I keep **every thing** the **bee-keeper** needs. **Cincinnati** is one of the best **shipping-points** in the Union, **particularly in the South,** as all freight now **goes through Cincinnati.** Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly **free.**

A SPECIAL DISCOUNT ON EARLY ORDERS

I will buy your Honey and Beeswax

I pay **cash on delivery;** or, if you are in **need of honey,** write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of **extracted** or **comb honey.** I guarantee its purity.

Queens and Nuclei

Let me book your orders for queens. I breed the finest **Golden Italians, Red-clovers, Carniolans, and Caucasians.** Can furnish **Nuclei** beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White Sweet-scented Clover, Alfalfa, and Alsike.

C. H. W. WEBER

Office and Salesroom, 2146-48 Central Ave.
Warehouse, Freeman and Central Avenues.

CINCINNATI, OHIO, U. S. A.

Honey Markets.

GRADING RULES.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

The prices here quoted are wholesale, or what the honey brings on arrival.

CINCINNATI.—There is very little demand for extracted honey at this writing, which is only natural, owing to the unsettled weather at this time of the year. However, we are looking forward with interest to a revival of trade as soon as the warm spring days are here. We sell amber extracted honey in barrels at 6¼ to 7½, the price depending upon the quantity purchased. Fancy table honey, in crates of two 60-lb. cans each, at from 8 to 9. There is little demand for comb honey, owing to the lateness of the season. We are now paying 32 cts. cash, 35 in trade, delivered here for choice yellow beeswax.

THE FRED W. MUTH CO.,
Mar. 20. 51 Walnut St., Cincinnati, O.

PHILADELPHIA.—The comb-honey market has been quite active in the last two weeks, and the continual cold weather has kept things moving. Quite a lot of cheap lots have been sent in from the producers, which have had a tendency to bear on the market and weaken the prices somewhat. We quote: Fancy white comb honey, 15 to 16; No. 1, 14 to 15; amber, 12 to 14; fancy white extracted honey, 7 to 8; light amber, 6 to 7. Beeswax, very firm at 32. We are producers of honey, and do not handle on commission.

WM. A. SELSER,
Mar. 11. 10 Vine St., Phila., Pa.

ST. LOUIS.—Since our last the market is in the same condition, and there is no quotable change. Fancy white comb honey, 17; No. 1, 15 to 16; light amber, 15; broken and inferior, less. Extracted light-amber California honey, 7½ to 8; Spanish needle, 8 in 5-gallon cans. Southern, in barrels, is quotable at 5½ to 6; same quality in 5-gallon cans, 6½ to 7. There is none of this description on the market, however. Beeswax firm at 31, for choice pure. Impure and inferior, less. R. HARTMANN PRODUCE CO.,
Mar. 18. St. Louis, Mo.

DENVER.—Owing to continued warm weather the demand for honey has fallen off somewhat. We quote strictly No. 1 white, per case of 24 sections, $3.20; No. 1 light amber, $3.00; No. 2, $2.80. White extracted, 7¾ to 8½; light amber, 7 to 7½. We pay 26 to 29 cents per pound for good clean beeswax delivered here.

THE COLORADO HONEY PRODUCERS' ASS'N.
Mar. 21. Denver, Col.

ZANESVILLE.—The demand for honey continues light. No. 1 to fancy white comb brings 17 to 18, with tendency toward lower prices. Not much call for extracted in quantities. Table honey, 1-lb. jars, $2 20 per dozen, wholesale. Beeswax, wholesale selling price, 40. E. W. PEIRCE.
Mar. 22. 136 W. Main St.

INDIANAPOLIS.—Market on comb honey is very quiet, regardless of the short crop. Fancy white comb brings 16 to 17; No. 1 white, 14; amber, 12 to 13. Best grades of extracted honey bring 9 to 9½; amber, 6 to 7. Good average beeswax sells here at $35 per 100 pounds.

WALTER S. POUDER,
Mar. 18. 513 Mass. Ave., Indianapolis, Ind.

DETROIT.—Market is not very brisk; prices as follows: Fancy white and A No. 1 comb, 15 to 16; No. 1 and No. 2, 13 to 14; dark honey, 11 to 12. Extracted, white clover, 8 to 8½. Beeswax, 28 to 30.

M. H. HUNT & SON,
Mar. 11. Redford, Mich.

ST. PAUL.—Honey supply is limited. Fancy white, No. 1, in 1-lb. sections, new, 15 to 16; No. 2 white clover, in 1-lb. sections, 13 to 14; extracted white, in 60-lb. cans, per case, 9 to 10. W. H. PATTON, Sec,
Mar. 20. St. Paul, Minn.

SCHENECTADY.—The demand continues good for the time of year, and there is still quite a stock on hand. We quote white clover, 14 to 15; No. 2, 12 to 13; buckwheat, 11 to 12; extracted, light, 7½ to 8; dark, 6 to 6½. CHAS. MACCULLOCH,
Mar. 19. Schenectady, N. Y.

CHICAGO.—Best grades of comb honey are salable at 16, but others are neglected. Extracted is slow at unchanged prices. Beeswax sells at 30 to 32.

R. A. BURNETT & CO.,
Mar. 18. 199 So. Water St., Chicago, Ill.

HAVRE, France.—French honey, Brittany, 17; foreign honey, duty paid, 10 to 11; Chilian beeswax, 30.

MARSEILLES, France.—Beeswax, Morocco, 29; Algeria, 29; Abyssinia, 30; Madagascar, 27; Tonkin, 29; Levant, 30; honey, Italian, 20.

LIVERPOOL, by Messrs. Taylor & Co., 7 Tithebarn St. Beeswax, Sierra Leone, 29; Gambia, 30.

Honey and Wax Wanted and for Sale. See Classified Ads. on pages 510–512.

BEE SUPPLIES.

We handle the finest bee supplies, made by the W. T. FALCONER MFG. CO., Jamestown, N. Y. Big Discounts on early orders, let us figure with you on your wants.

MUTH SPECIAL DOVE TAIL HIVES, have a honey board, warp-proof cover, and bottom board, think of it, same price as the regular styles. Send for Catalog.

THE FRED. W. MUTH CO.,

51 WALNUT ST., CINCINNATI, OHIO.

WE WILL BUY AND SELL

HONEY

of the different grades and kinds.

If you have any to dispose of, or if you intend to buy, correspond with us.

We are always in the market for WAX at highest market prices.

HILDRETH & SEGELKEN,

265-267 Greenwich St. 82-86 Murray St.

NEW YORK.

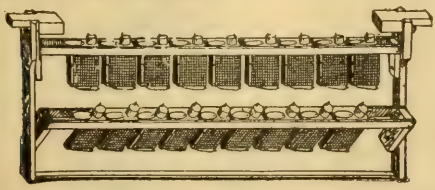
BEESWAX ADVANCED.

From this date until further notice we will pay 31 cents cash, 33 trade, for average wax delivered here or at our branch offices. This is a higher price than we have ever paid before at this season of the year. If any of our readers have any wax to dispose of we shall be pleased to hear from them. Be sure to mark your shipment with your name so that it may be identified on arrival, and mail us shipping receipt with gross and net weight of shipment.

The A. I. ROOT COMPANY, Medina, Ohio.

THE ROOT QUEEN-REARING OUTFIT.

In this outfit are embraced the best points of the best systems in use. It will give satisfaction to the amateur as well as the expert. The cell-cups are made of wood, wax-coated. No melted wax is used in their manipulation, as they are attached to the cell-stick by means of a small nail-point.



The nursery cage combines the features of nursery and introducing cages. By their use a queen can be released on the candy plan or caged in the hive as desired.

In connection with the outfit goes a booklet on queen-rearing—one which ought to put the veriest amateur on the high road to success. Outfit comprises three cell-bars with fifty waxed wooden cells, 1 frame cages (20); one cell-forming stick; one set grafting-tools, and a book on queen-rearing, $4.50. Postage 55c.

Tools for Queen-breeders.

Root cell-cup, with point for attaching to bar, 50c per 100; $4.00 per 1000. Postage 10c per 100.

Same, waxed ready for use, 75c per 100; $6.00 per 1000. Postage 10c per 100.

Titoff wire nursery-cages, 15c each; $1.35 for 10; $12.50 per 100. Postage 1c each.

Frame for holding 20 cages, including cages, $3.00. Postage 22c.

Cell-stick, each 10c; $1.00 per dozen. Postage 1c each.

Transferring-needle, double-ended and nickel-plated, 15 cents. Postage 1c each.

Jelly-spoon, nickel-plated, 15 cents. Postage 1c each.

We can supply, also, fine-pointed lace-scissors with extra large bows, for clumsy fingers, at 35 cents each. Postage 1c each.

The A. I. Root Co., Medina, O.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize

A GOLD MEDAL

at the World's Fair, St. Louis, 1904.

IS THE BEST, CLEANEST, COOLEST, STRONGEST, CHEAPEST, AND LARGEST SMOKER SOLD FOR A DOLLAR.

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to clog **WITH SOOT.**

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

N. E. FRANCE, Platteville, Wis.

GRANT STANLEY, Nisbet, Pa., July 24, 1905, writes: "After giving the Danzenbaker Twentieth Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until the fuel is all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker."

Prices of **Large** 3½-inch Danze. Smokers:
Prepaid—one, $1.15; two, $2.10; three, $3; five, $4.50.
Unpaid—by express or freight—one, $1; six, $4.20.

F. DANZENBAKER, Jamestown Exposition, Va.

TO THE

BEE-KEEPERS OF CANADA.

WE are pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we do not offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

E. GRAINGER & COMPANY,

Deer Park,

Toronto, Ontario, Canada.

CANADIAN AGENTS FOR
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

Established 1873
Circulation 32,000

72 pages, semi-monthly
$1.00 per year

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

Published by
THE A. I. ROOT CO., Medina, Ohio

J. T. CALVERT, Business Manager

POSTAGE IS PREPAID by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 60 cents per year postage.

CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

DISCONTINUANCES.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

HOW TO REMIT. Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of The A. I. Root Company, Medina, Ohio. Currency should be sent by Registered Letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

Foreign Subscription Agents.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

PARIS, FRANCE. E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid, 7½ fr.*

GOODNA, QUEENSLAND. H. L. JONES. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 6/.*

DUNEDIN, NEW ZEALAND. ALLIANCE BOX CO., 24 Castle St. *Per year, postpaid, 6/.*

SPECIAL OFFERS

ALL OF THE FOLLOWING OFFERS INCLUDE *GLEANINGS* ONE YEAR.

			Our Price with GLEANINGS
Sunday School Times	1 yr.	$1 00	
Rural New-Yorker	"	1 00	
Farm News	"	25	$2 85
Holden's Corn Book		15	
Delineator	1 yr.	$1 00	
McClure's Magazine	"	1 00	
World's Work	"	3 00	$3 75
Review of Reviews	1 yr.	$3 00	
Success Magazine	"	1 00	
Woman's Home Companion	"	1 00	$3 60
Or any class A magazine.			
Cosmopolitan or Success	1 yr.	$1 00	
Yachting, or any class B	"	3 00	
Field and Stream	"	4 00	$4 00
Or any class 4 magazine.			
American Boy	1 yr.	$1 00	
Cassell's Little Folks	"	1 50	
Metropolitan Magazine	"	1 00	$3 30
Any class A may be substituted.			
Recreation or Appleton's	1 yr.	$1 50	
Metropolitan Magazine	"	1 50	
Review of Reviews	"	3 00	
Woman's Home Companion	"	1 00	$4 65
Or any class A magazine.			
Scribner's Magazine	1 yr.	$3 00	
Suburban Life	"	1 50	
House and Garden	"	3 00	$6 65
Any class 8 may be substituted.			
Independent	1 yr.	$2 00	
Recreation or Appleton's	"	1 50	
Outing or Reader Magazine	"	3 00	$4 70
Or any class B magazine.			
Ainslee's Magazine	1 yr.	$1 80	
Metropolitan Magazine	"	1 80	
Outing Magazine	"	3 00	$4 50
Or any Class B Magazine.			
Outing Magazine	1 yr.	$3 00	
Metropolitan Magazine	"	1 80	
Harper's or Leslie's W'kly	"	5 00	$6 40
Or Scribner's or Kermaic Studio.			
American Boy	1 yr.	$1 00	
Pearson's Magazine	"	1 50	
Pictorial Review	"	1 00	$3 30
Or any class A magazine.			
American Inventor	1 yr.	$1 00	
Scientific American	"	3 00	
Automobile Magazine	"	2 00	$4 80
Or any class A magazine.			
World To-day	1 yr.	$1 50	
Etude (for music lovers)	"	1 50	
Recreation or Pearson's	"	1 50	$3 65
Or any class 4 magazine.			
Century Magazine	1 yr.	$4 00	
Current Literature	"	3 00	
Cassell's or Appleton's	"	1 50	$7 65
Or any class 4 magazine.			
Putnam's Magazine	1 yr.	$3 00	
Country Life in America	"	4 00	
Good Housekeeping	"	1 00	$7 15
Or any class A magazine.			
Children's Magazine	1 yr.	$1 00	
Etude (for music lovers)	"	1 50	
Appleton's or Pearson's	"	1 50	$3 65
Or any class 4 magazine.			
Harper's Mag. or Weekly	1 yr.	$4 00	
Reader or Outing	"	3 00	
Lippincott's Magazine	"	2 50	$7 40
Or any class 6 magazine.			

ALL OF THE ABOVE OFFERS INCLUDE *GLEANINGS* ONE YEAR.

SEND ALL ORDERS TO THE A. I. ROOT COMPANY, MEDINA, OHIO.

Bees For Sale.

My brother and myself will have about 600 colonies of bees under our management the coming season, and to buy cans in which to store all of the honey that we hope they will gather will cost not far from $200. To secure money for that purpose I have decided to sell a few of the bees here at home—perhaps 25 or 30 colonies.

The bees are all pure Italians; most of the colonies having queens of the Superior Stock. Not a queen will be sent out that would not pass as a breeding queen—such as dealers sell in the spring for from $3.00 to $5.00 each. The hives are 8-frame Langstroth, have been used only two years, and are painted with two good coats of white paint. The combs are all built from full sheets of foundation, and wired at that. In fact, the stocks are strictly first-class in every respect—could not be better—and the price is $6.00 per colony, no more and no less, even if one man should take the whole lot.

I am ready to accept and book orders accompanied by the cash, and when I have received orders for 30 colonies, this advertisement will be discontinued, and no more orders accepted. The bees will be shipped by express, about fruit-bloom time, and safe arrival guaranteed in every respect.

If you wish to stock your apiary with a strain of bees that has no superior, here is a chance to get a tested queen, already introduced, in a full colony, whereby she can be shipped without injury, early in the season, all at moderate price.

To every purchaser of one or more colonies there will be sent, free of charge, the Review for 1907, and all of the back numbers for 1906.

W. Z. HUTCHINSON, Flint, Mich.

BEE-HIVES SECTIONS

Why Buy of Us?

A. G. Woodman: Remus, Mich., Feb. 18, 1907.
The *Lewis Hive Bodies* are far superior, both in material and workmanship, to any I ever bought. As ever yours, E. D. Townsend.

A. G. Woodman, Grand Rapids, Mich. Remus, Mich., Feb. 25, 1907.
Dear Sir:—I use *Lewis Sections* exclusively, there are none better—the only perfect "V"-cut section that has come to my notice. They fold without moistening. E. D. Townsend.

Several Carloads on hand.
Immediate Shipments.

Beeswax Wanted

ADVANCED BEE-VEIL, 50c.
Cord arrangement, silk face; postpaid,

A. G. WOODMAN CO.
GRAND RAPIDS, MICH.

Save Your Queenless Colonies

Introduce a vigorous tested queen. We can furnish them by return mail from our fine Strain of Three-band Italians; queens reared last fall and winter in four-frame nuclei. Choice tested queens by return mail, $1.00 each. Untested queens ready to mail March 15, 75c; $8.00 per dozen. No disease, and satisfaction guaranteed.

J. W. K. SHAW & CO.
Loreauville - Iberia Parish - Louisiana

We are Headquarters for the

ALBINO BEES,

the best in the world. If you are looking for the bee that will gather the most honey, and is the gentlest of all bees in handling, buy the Albino. I also furnish the Italian, but orders stand fifty to one in favor of the Albino.

Prices: Select tested Albino queens for breeding, $5.00; tested Albino queens as they run, $2.50; untested, $1.00. Italians, tested, $1.50; untested, $1.00.

S. VALENTINE, Rocky Ridge, Frederick Co., Md.

Gleanings in Bee Culture

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A. I. ROOT, Editor Home Department
H. H. ROOT, Ass't Editor

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Catalogs Received

We have just received a four-page circular from A. E. Titoff, Iamosa, California, breeder of Italian and Caucasian bees and queens. It will be remembered that Mr. Titoff spent several years with us here at Medina in our own queen-breeding yards, and, being very familiar with both the Italian and Caucasian bees before coming to America, he is well qualified to judge of the merits of good breeding stock. We presume there is no one in better position to furnish Caucasian breeding queens than is Mr. Titoff. We suggest getting his prices.

POTATO PROFITS DOUBLED.

The fundamental scientific principles underlying the successful growing of large and unusually profitable potato crops are simply and admirably stated in the little book "The Acme of Potato Profit," which every one of our readers should have. It takes up particularly the subjects of soil, their preparation, and the planting of the seed—the things which most affect the success of the crop. It tells how to cut down the expense of planting; how to insure a strong even stand; what are the faults of the different methods of planting, and how to avoid them. It tells of the one method of planting that can secure perfect results, and how this is done with the Acme hand potato-planter, at a cost of but one dollar. It all makes a story so interesting and instructive—a story so clearly and simply told that our readers should not fail to read it.

"The Acme of Potato Profit" is sent free by the Potato Implement Co., of Traverse City, Michigan, box 520.

A FEW QUESTIONS FOR POULTRYMEN.

If your fowls are ailing, can you determine from their actions just what the trouble is?

If you can, do you know of a remedy that is absolutely reliable every time?

Can you tell just what causes that particular ailment so as to prevent its recurrence?

Do you know that you are entitled to just so much profit from each fowl, whether you own three or three thousand?

Do you fully understand how to house them, feed them, treat them, breed them and raise them, to realize fully the greatest profit?

How would you like to have, right at your hand, the condensed opinions, the consensus of opinion, of the most successful poultry-raisers of the country as your daily guide in poultry culture?

How would you like to have this opinion of the most successful indexed and condensed, so that you would not have to wade through volumes to get at the meat of the question you may have in your mind?

How would you like to know at once the best form of house, the best breed of poultry for a given purpose and a given locality and climate, the best appliance for a specific purpose, the best of interest for the poultryman?

As this is the season for gapes, what do you know about the matter? What causes this disease? What will you do to cure it absolutely? What will prevent your fowls from having it again? What will cure it without all the trouble and uncertainty of fumes, extractors, and all that nonsense?

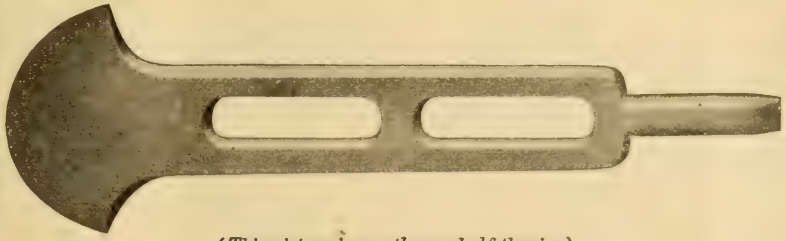
This is how: Look up G. E. Conkey's advertisement in this issue and note the conditions for obtaining Conkey's book on poultry diseases free. It has been selling for 25 cents, and is worth dollars. Send to-day.

The Weekly American Bee Journal is in its 47th Year

Something New=The Ideal Hive-Tool

Bee-keepers have long needed a Tool with which to work among the hives during the bee-season. The Tool shown here was invented by Wm. Muench, a Minnesota bee-keeper, some years ago, but it was not on the market before. We have lately bought this Tool, and all rights, from Mr. Muench's widow, and have had the first lot made. They are ready for delivery now.

Best Hive-Tool



Only 30c, by mail

(This picture is exactly one-half the size.)

DESCRIPTION.—The Ideal Hive-Tool is made of high-grade malleable iron, much like wrought iron, 8¼ inches long. The middle part is 1 1-16 inches wide and 7-32 thick. The smaller end is 1⅞ inches long, ½ inch wide, and 7-32 thick, ending like a screw-driver. The larger end is wedge-shaped, having a sharp semi-circular edge, making it almost perfect for prying up covers, supers, etc., as it does not mar the wood.

What Dr. Miller and Miss Wilson Say of It:

In the first edition (1903) of Dr. Miller's "Forty Years Among the Bees," page 58, he says: "Of all the hive-tools I have tried, I like best the Muench tool." On Jan. 7, 1907, he wrote us saying he thought "just as much of the tool as ever."

Miss Wilson, Dr. Miller's assistant, says this of the Ideal Hive-Tool: "It is an ideal tool. In fact, I don't see how it could be improved upon. I am sure we would feel utterly lost in the apiary without it.....You will have to try one yourself if you want to know its worth."

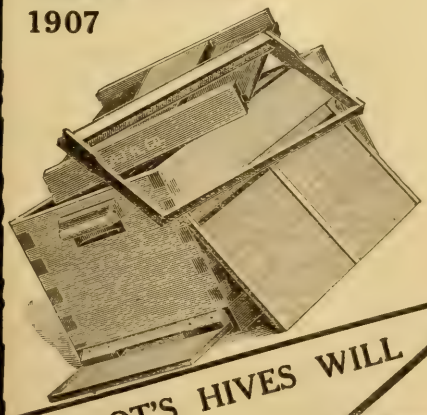
The Ideal Hive-Tool Free to a New Subscriber.

To a **new** subscriber to the **Weekly Bee Journal** for one year (at $1.00), we will mail an Ideal Hive-Tool **free**; or we will mail the Hive-Tool alone for 30 cents (stamps or silver, if more convenient). Sample copy of the Weekly American Bee Journal sent on request; **or a 3 months' "trial trip" for only 20 cents.** Address,

GEORGE W. YORK & CO., 334 Dearborn Street, CHICAGO, ILL.

The Oldest and Only WEEKLY Bee-Paper in America

AT THE CLOSE OF THE SEASON FOR 1907



ROOT'S HIVES WILL OUTWEIGH NEARLY ALL OTHER STYLES.

SEND IN YOUR ORDER NOW.

The A. I. ROOT COMPANY

Syracuse **New York**

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Our Advertising Rates.

Twenty cents per agate line, flat.
Fourteen lines to inch.

SPACE RATES (To be used in one issue)

One-fourth page	$11.00
One-half page	21.00
One page	40.00

Preferred position, inside pages, 30 per cent additional.
Preferred position, inside cover pages, 50 per cent additional.
Outside cover page, double price.
Reading notices, 50 per cent additional.
Cash-in-advance discount, 5 per cent.
Cash discount, if paid in 10 days, 2 per cent.
Bills payable monthly.
No medical or objectionable advertising accepted.

"A Square Deal."

We believe that every advertisement in this paper is backed by a responsible person. But to make doubly sure we will make good any loss to paid subscribers sustained by trusting any deliberate swindler advertising in our columns, and any such swindler will be publicly exposed. We protect subscribers against rogues, but we do not guarantee to adjust trifling differences between subscribers and honest responsible advertisers. Neither will we be responsible for the debts of honest bankrupts sanctioned by the courts. Notice of the complaint must be sent to us within one month of the time of the transaction, and you must have mentioned GLEANINGS IN BEE CULTURE when writing the advertiser.

Gleanings as an Advertising Medium.

The following, from one of our classified advertisers, is one of a good many we get expressing satisfaction with the use of these columns:

Please discontinue my advertisement in GLEANINGS. I have all the replies I wish.
Topeka, Kan., March 23. O. A. KEENE.

We repeat that, if you have a surplus of bees or other stock to dispose of, it will probably pay you to try our classified columns. It is very seldom that we get an unfavorable report from the use of this paper.

GOING TO OWN A "BIKE" THIS YEAR?

Renewed interest is being taken in cycling all over the country, now that high-grade wheels which formerly sold for $75 to $100 can at present be purchased at prices ranging from $15 to $30. Not only are the wheels less expensive to-day, but they are even better, for many new improvements have been added, such as puncture-proof, self-healing tires, and the Coaster Brake, which has done more to revive cycling than any thing else.

This device enables the rider to coast down hill with the pedals motionless. To slacken speed or stop instantly, all that is required is to back pedal. One-third less pedaling is needed, and the wheel is under the rider's control at all times.

To obtain a wheel for ten days, free trial and examination without cost, write the Mead Cycle Company, Chicago. Their large, illustrated catalog is sent free, and they are always ready to engage live, active agents.

Our discounts on **BEE-SUPPLIES** are still in effect.

WE furnish EVERY THING needed in practical bee culture, at lowest prices. We make the DOVETAILED, LANGSTROTH, and ALTERNATING HIVES. The most practical, *up-to-date* hives are the MASSIE HIVES. We make them. Have you seen them? Have you received our new 1907 catalog? It is surely the easiest catalog to order from you ever saw. It is so easy that you can not make a mistake in your orders; a child can order from it as well as an adult. It is something new and entirely different from any you have ever seen. Write us a postal card for it to-day. It is free.

Address Kretchmer Mfg. Co., Council Bluffs, Iowa.
Muscatine Produce Co., Muscatine, Iowa. :: Trester Supply Co., 103 S. 11th St., Lincoln, Neb.
Catalogs issued in German and English.

North Texas . .

. . Bee-keepers

will find Dallas the best point from which to purchase supplies. We have a carload of ROOT'S GOODS IN STOCK, and sell them at the Factory Prices. Don't forget that we can furnish any thing in the way of Field or Garden Seeds, Plants, and Poultry Supplies. Our large illustrated catalog for 1907 free on application. Mention GLEANINGS when you write. . . . . .

Texas Seed and : Floral : Company
Dallas, : : : : : Texas

A Full Carload

of hives, supers, and sections now on the way from ROOT'S FACTORY. When these goods arrive we shall be able to supply your wants promptly and with ALL NEW GOODS. We will carry a larger stock than ever before, of DANZENBAKER hives and supers, and, if you are interested in producing FANCY COMB HONEY, you should write for the pamphlet, "Facts About Bees and the Danz. Hive."

W. W. CARY & SON, Lyonsville, Mass.

Root's Bee-supplies at Root's Prices

But f. o. b. Baltimore instead of Medina. Write for catalog L.

Rawlings Implement Co.
9 and 11 West Pratt St., Baltimore, Md.

1884 1907

New 64-page catalog for the New Year now ready

FOR YOU

Twenty-two successful years manufacturing bee-supplies and raising Italian bees and queens. . . . . Root's Goods in Stock.

J. M. Jenkins
Wetumpka, : : Alabama

Well-bred Queens!

For the purpose of securing an ample supply of select-bred queens, I have engaged an experienced breeder in the South to rear queens for *me only*, and confidently expect to fill orders promptly soon as weather permits mailing. . . . . .

Cook's Square Honey-jar

is the best, cheapest, and most sanitary package for retailing honey. Send for circular and price list of hives, bees, and useful implements. . . . . .

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail. . . . .

MARSHFIELD GOODS

MEANS

Quick Shipment, Honest Goods, Low Freight

Our sections are manufactured from young basswood timber.
Hives are almost clear lumber—they are beauties.
Shipping-cases made strong and substantial, nice, smooth, and perfect.
Send for our free catalog of supplies.

Marshfield Manufacturing Company, Marshfield, Wisconsin, U. S. A.

H. M. Arnd, Prop'r York Honey and Bee-supply Co. (NOT INC.)

Long-distance telephone, North 1559. CHICAGO, ILL. 191-193 East Superior Street.

Carries a full line of new Lewis Bee-supplies, Hershiser Wax-presses, etc. Slightly damaged Poultry and Bee Supplies at greatly reduced prices while they last. Send for 1907 catalog and fire-sale list. :: Beeswax wanted.

W. H. Laws, the Queen-breeder,

wishes to say that he has a number of extra fine BREEDING QUEENS of the Leather or Red-clover Stock that is the equal if not superior to any thing ever offered, and probably the best he has ever owned. To the man who keeps bees for profit, for ease in handling, and returns in honey, these queens are of untold value, to be used in requeening your cross and undesirable stock. Several of my customers write that the queens received from me the past season were the only ones that gave any surplus in their yards. I also breed the Golden Italians, Holy-Lands, and Carniolans, in separate yards. Price of queens, each, $1.00; six for $5.00. Those breeding queens, $10.00 each. Safe arrival and satisfaction guaranteed. A car of bees offered again this season. **W. H. LAWS, Beeville, Bee County, Texas.**

The Early-order Discount!

This is the dull season in the supply line, and we are offering a VERY LIBERAL discount for orders now. We furnish every thing a bee-keeper uses. . . . . Catalog free.

I. J. Stringham, 105 Park Pl., N. Y. City
APIARIES, GLEN COVE, L. I.

A NEW BEE-SUPPLY HOUSE

AT LITTLE ROCK, ARK.

I am prepared to furnish you the best of bee-supplies, manufactured by The A. I. Root Co. Let me send you my catalog of bee-keepers' supplies. Also have for sale the very best strain Italian queens and nuclei or full colony. Satisfaction guaranteed. **W. J. LITTLEFIELD.**

DOVETAILED HIVES, SECTIONS, ETC.

of best quality (JOHN DOLL & SON'S MAKE). Extra low prices quoted on all supplies. Let me figure on your order. I can save you money. BERRY BASKETS AND BOXES in stock. Send for 32-page catalog free. **W. D. SOPER, Jackson, Mich.**

ROOT'S GOODS FOR

Ohio and West Virginia BEE-KEEPERS

At Saving of Freight and Time.

E. W. Peirce, Zanesville, Ohio

Moore's Long Tongue and Golden

Fine select untested queens, $1; 6, $5; 12, $9. Tested, $1.50; 6, $8. Breeders, $3.50. Safe arrival gar'd.

Queens

W. H. RAILS, - ORANGE, CAL.

Same Old Place

is where you get the best of queens; untested, $1.00; $4.25 per 6; $8.00 per dozen. Tested, $1.50; best breeders, $5. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy-Lands, Italians.

The JENNIE ATCHLEY CO.,
Box 18, Beeville, Bee Co., Tex.

Italian Queens

Golden, Three-banded, or Leather-colored. Write for circular to-day. . Prices right. . Queens all right.

Robt. B. McCain, Rt. 1, Oswego, Ill.

Southern . . . . . Bee-keepers!

White Mfg. Co., Blossom, Texas:
Friend White:—Goods received, opened, and put together. I must really give you credit for your workmanship on hives and fixtures. They are really good. Also your foundation excels any I have got in Texas. The bees go to work on it at once, while they sometimes would eat the other foundation down. THOS. F. JORDAN.
McKinney, Tex., Mar. 7.

If you want bee-keepers' supplies of best quality and for the least money possible, you should buy them from the WHITE MANUFACTURING COMPANY. Situated, as we are, right near the great pine belt of North Texas, Louisiana, Arkansas, and Indian Territory, we can secure the best material possible at least cost, thus enabling us to give entire satisfaction. Catalog and price list free.

White Manufacturing Company
Blossom, Lamar County, Texas

Bee-Supplies

It is not how much one boasts of himself, but it's what others say that counts in this world.

If you want the best goods made, promptness and accurateness in the execution of orders, and be your own judge in *A Fair and Square Deal all the way through*, send to us at once. Catalog free.

C. M. SCOTT CO., 1006 E. Wash. St., Indianapolis, Ind.

Boston Headquarters
—FOR—
Bees-Queens-Supplies

H. H. Jepson, - 182 Friend St.

ROOT'S BEE-SUPPLIES
New Goods. Free Catalog.
AT SPRINGFIELD, MASS.
F. R. DANIELS,
'PHONE. 117 FLORENCE ST.

Dittmer's . . . . . Comb Foundation

Why do thousands of bee-keepers prefer it to other makes? . Because the bees like it best, and accept it more readily.

Dittmer's Process . . . . . is Dittmer's

It stands on its OWN NAME and its OWN FOUNDATION —to which alone it owes its reputation and merits. . . We are now ready to make prices for next season for

Working Wax for Cash

and for full line of supplies. WHOLESALE and RETAIL. Free catalog and samples.

Gus Dittmer, Augusta, Wis.

JOBBERS FOR
Central Pennsylvania
. . . for . . .
ROOT'S GOODS.

TRY THE DANZ.
COMB-HONEY HIVE

The Danzenbaker hives I got last season have given splendid satisfaction; in fact, I have kept my bees outside this winter, which is seldom attempted in Manitoba, and up to date they have come through in splendid shape. I think the hive did it.
Yours truly, LAURENCE C. CLARKE.
Morden, Man., March 5, 1907.

Send for catalog. Best shipping facilities in the State.

Frank W. Prothero
Dubois, : : : Pennsylvania

IN THE HEART OF MICHIGAN

Did you know that within one hundred miles of me are over three-fourths of the bee-keepers of Michigan? Are you one of them? If so you will find it to your advantage to write for my new catalog. A full line of Root's Goods at Root's Factory Prices. Hilton's double-walled hives are used more than any other in my State. It has stood the test of thirty years. . . . . I ship goods promptly. Wholesale or retail. . Cash or exchange for beeswax at all times.

George E. Hilton - - Fremont, Michigan

NOW is the Time to Order Your

BEE-SUPPLIES

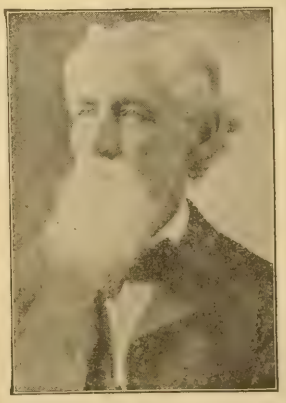
AND SAVE MONEY

IT will cost you only one cent for a postal card to get our **delivered prices on Dovetailed Hives, Sections, Section-holders, Separators, Brood-frames, Foundation, Smokers, Extractors Shipping-cases, etc.** It may mean a saving to you of many dollars. It is the natural advantage we have over others that enables us to make you the Best Price. There are no better goods than ours, and we GUARANTEE SATISFACTION or REFUND your MONEY.

We MANUFACTURE and keep in stock all standard Bee-goods, and can ship promptly.

MINNESOTA BEE-KEEPERS' SUPPLY COMPANY

NICOLLET ISLAND, No. 20. (JOHN DOLL & SON, Props.) MINNEAPOLIS, MINN.



What would be the Condition

of bee-keeping now had not some ingenious bee-keeper invented and made the Bingham Bee-smoker and Honey-knife? Bingham fills orders for thousands of them every year from the foremost distributors of bee-keepers' supplies who say that they like to sell Bingham tools because they always give satisfaction. If you want the best and can't get them near by, you can always get them direct from the original inventor and sole maker of them at regular prices per mail or hundred. It might be a pleasure to have bought so valuable and indispensable a tool directly from the original inventor of them.

Respectfully yours,

T. F. Bingham, Farwell, Mich.

"ROSE - LAWN - QUEENS"

Three hundred select untested Golden and Red-clover, reared in our Southern yards, at $1.00 each; six for $5.00; dozen for $9.00. April delivery. . . Quality guaranteed. Northern reared, May 1st. Caucasians, Banats, Carniolans. Place orders now.

Rose Lawn Apiaries, Lincoln, Nebraska

College View Station

TAYLOR'S STRAIN OF ITALIANS IS THE BEST.

Long tongues and goldens are the best of honey-gatherers; 18 years a specialty, breeding for the best honey-gatherers. Untested, 75 cts. each, or $8.00 a dozen; tested, $1.00 each, or $10.00 a dozen; select tested, $1.50 each. Breeders, the very best, from $3.00 to $5.00 each. Carniolans same price as Italians. Try them. We also sell nuclei and full colonies of bees. Bees in separate yards. Safe arrival guaranteed.

Send all orders to

J. W. TAYLOR & SON, Beeville, Bee Co., Texas.

At St. Louis

On a Line

to all points in the South and Middle West.

Send for our free illustrated catalog of

Root's Bee-supplies

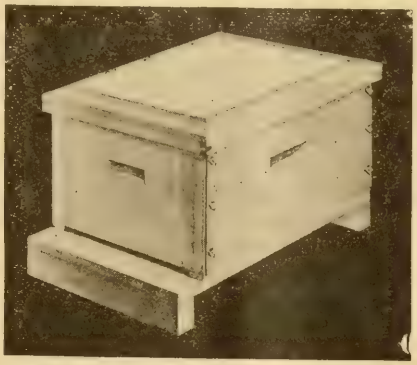
We sell at factory prices.
Send us a trial order.

Beeswax Wanted.

Blanke & Hauk Supply Co.
DEPT. B,
202-204 Market St., **St. Louis, Mo.**

Manufacturers and Jobbers of Dairy, Creamery, Ice-cream, and Poultry Supplies.

THE ELGIN
IS A GOOD HIVE



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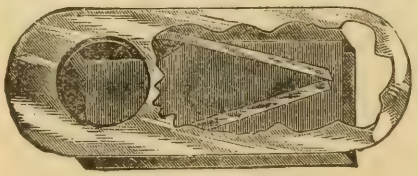

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This book is edited by A. R. Harding, of the Hunter-Trader-Trapper. contains about fifty illustrations and nearly 200 pages. and is divided into twenty chapters as follows:

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IX. Red and Gray.
X. Wire and Twine Snare.
XI. Trap, Snare, Shooting, and Poison.
XII. My First Fox.
XIII. Tennessee Trapper's Method.
XIV. Many Good Methods.
XV. Fred and the Old Trapper.
XVI. Experienced Trapper Tricks.
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MR. WALTER S. POUDER, Indianapolis, Ind. MAARSSEN, HOLLAND.
Dear Sir:—I beg to say that the bee-supplies were delivered promptly, transportation charges to Rotterdam being very reasonable. I am well pleased with the goods, all parts being accurately made and neatly finished. I believe the Danzenbaker hive to be an excellent hive for this country; and if it proves to be so I shall want more soon, and, perhaps, get some of my bee-keeping friends to join me in ordering. With best wishes, J. H. J. HAMELBERG.

When a bee-supply man finds not only his domestic trade rapidly growing, but his export trade as well, it is a sure thing that he is on the right track.

Prompt shipments, care in packing, close prices, and an almost fussy attention to little details, are things that are appreciated the world over. I have been working along these lines for 18 years, and if you are particular about having your orders filled right, and having the goods reach you so that you can put them to use without correspondence and explanations, let me give you that kind of service. I am shipping a great many feeders now, and can take care of any size orders for the "Simplicity," the "Doolittle," the "Boardman," the "Miller," the "Pepper-box," or the "Alexander."

I save freight charges on Root's goods, Hoffman Frames, and Danzenbaker Hives, and always have ready for shipment Dovetailed Hives, Section Honey-boxes, Weed-process Comb Foundation, and other supplies.

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GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests
Illustrated : Semi-monthly : One Dollar per Year
Published by The A. I. Root Company, Medina, Ohio

Vol. XXXV. APRIL 1, 1907. No. 7.

IF BRO. DOOLITTLE will pardon me for interrupting the conversation I would suggest, in addition to the good advice given on page 393, that if Mr. Jones has bottom-boards 2 inches deep he may shove under a frame of sealed honey or a few sections.

SO TRAVEL gives bees vim and vigor for increased gathering, p. 388. I wonder, now, I wonder. How much more would a colony gather if you gave it a wagon-ride and then set it down in the same place again? and for how long would the ride be effective?

MISTLETOE is finely shown in Fig. 2, page 402; but unless specially pointed out many will fail to see it. Look directly over the words "Fig. 2," and about an inch below the top of the picture; do you see those three bunches or clusters on the trees? Well, that's mistletoe.

HEARTY THANKS, Huber, for confirmation, p. 402, of my belief that my tin-covered dead-air-spaced hive-covers are lots cooler under a hot sun than flat wooden covers. And by how much cooler they are under a hot sun, just so much warmer they are when the outside temperature is cold.

NEVER BEFORE were there so many chances to make a fortune by the investment of a small sum of money as to-day, judging by the many glowing ad's of mining and other schemes. The curious part is, that they are all so willing to divide their chances with the dear public when they might just as well keep them to themselves.

E. G. HAND heats his bee-cellar by a small electric heater, *American Bee Journal*, 191. Where electricity is cheap enough why are there not fine possibilities in this? [Electric heat is very expensive. It would cost several times more than any other source of heat, and therefore we should not regard it as feasible in a bee-cellar.—ED.]

"BEE-KEEPERS need not expect any radical change or any rapid improvement in their bees until the cause of the development of the queen is learned, and until mating is controlled (M.)."—*American Bee-keeper.* Rather a damper that, Bro M., so long as the young queens insist on all outdoors for their mating-ground; and pray tell us how knowledge of the cause of development will help us.

MR. HOUSE was highly commended at the Brantford convention for saying that "If honey were 'weeping,' if the temperature of the room were raised to 100 or 110° and kept there for three days, the honey could be redeemed," *American Bee Journal*, page 190. The *honey* will be redeemed, but honey never weeps till it first fills the air-spaces under the cappings, making the comb watery-looking. Will the whiteness of the cappings be restored? Certainly the original appearance will not be restored where there has been actual weeping; but it will be sticky-looking Miss Wilson's plan to overcome this is to give the sections back to the bees until they lick the surface dry—perhaps 15 minutes or so—and this should be done before drying the sections.

MR. EDITOR, you have it pretty square about the commission business, p. 385. The moral of it is that commission business is all right if your man is honest, and all wrong if he isn't. Make a square sale if you can; but there are times when an honest commission man comes in mighty handy. [You are correct. There are certain times when it would be to the advantage of the commission man

as well as bee-keeper to sell on commission. When a commission man is honest, *usually* very little dissatisfaction arises. We say usually, for sometimes an honest man selling on commission is called a knave and a rascal when the facts do not sustain the charge. Time and again we have been called on to act as arbitrator, and sometimes we have decided in favor of the bee-keeper and sometimes in favor of the commission man. In one or two instances when decision was rendered for the latter we were put in the same category as the commission man, both of us being called knaves. That is what we get sometimes for endeavoring to do a favor by acting as mediator.—ED.]

CROPPING out here and there is to be seen an increasing feeling that a bee-keeper should have legal control of his territory to make the business at all stable. Much of it in last *Review*, and the editor says: "No condemnation can be too severe for the man who will crowd in upon occupied territory." Just so; and the same thing can be said of stealing; but we wouldn't think of getting along without a law against stealing. "The time may come," says he, "when these matters will be adjusted legally, but not in our day, and every one ought to do every thing possible to prevent this practice of crowding." Why not in our day just as much as in any other day, except that bee-keepers are not yet awake enough on the subject? Years ago I brought a hornet's nest about my ears by suggesting such a thing as legal control of bee-territory, and stood alone. Now I am not alone, and there are many signs of awakening. When bee-keepers and bee-journals stop frowning upon the moral wrong of crowding, and urge legislation, as in all other matters of right and wrong, it will not take long to have such legislation secured. Thanks are hereby extended to GLEANINGS for views already tending in that direction.

EDITOR A. C. Miller, *American Bee-keeper*, says, "Every State should have a law compelling bee-keepers to color to a dark shade all syrup fed to bees," which "will at once disclose sugar-syrup honey when it is offered for sale." I'll second that, Bro. M., if you will make it black (perhaps a certain proportion of lampblack) or some other distinct color that the bees could by no possibility get from natural sources. Aside from your object it might help to settle some unsettled questions. [The national pure-food law will make it very hazardous business for any one to put out sugar honey. Some chemists say they are now able to detect that product unerringly, and they are right, for we have put them to the test. At first we feared that sugar honey might get on to the market and thus cause distrust among consumers. But later years have shown there is not much danger from that source, even without the pure-food law. We know of two or three cases where bee-keepers have attempted to put out the sugar honey and palm it off as the genuine product from the fields; but they soon found it did not pay, and acknowledged as much to parties who brought the information to us first-handed. There is not the least objection to putting lampblack or any other coloring-matter in sugar syrup, providing such coloring-matters are not injurious in themselves; but the effort to get such laws from our legislators may act like a boomerang, giving the legislature and the public the impression that there is a good deal of such honey on the market. This false impression would affect our markets adversely. In the first place, we question the wisdom of such a movement; and, in the second place, we do not think there is a need for it.—ED.]

"AFTER CLIPPING, open the fingers on top of the frames, allowing the queen to crawl off quietly by herself," p. 392. Don't you fool yourself; if she is an up-to-date queen, and happens to notice that it is a beginner who has been marring her flyers, she will crawl up instead of down every time; and if you don't look out, first you know she will be on top of your hat or left shoulder. Take a leaf or something of the kind, and when she starts crawling up your hand let her crawl on the leaf, and then quickly lay the leaf on top the frames. If the wind happens to be blowing, leaf and all will go —dear knows where—and it will be fun to see the panic you're in until you find that queen again. "Been there?" Of course I've been there. But I don't let that leaf get away nowadays. [No trouble, doctor, at all, if she be held as directed, and so placed that her head will point down between the frames. When the hold is released she will hurry out of sight, as a queen-bee is naturally timid, and, if pointed right, she will go down between the frames rather than crawl up the sleeve—at least we have never had a queen crawl up the arm, much less get lost in the grass after clipping. But perhaps we do not understand the entire method you use.—ED.]

"THERE MAY BE more cool cellars than warm ones, but we can handle a cellar that is too *cool* better than one that is too warm," p. 383. Now you've struck the nail right on the head, Mr. Editor. But the last word has not been said yet. I have seldom met the problem you mention, an outside temperature of 60 or 65, for rarely is there such an outside temperature when bees are in the cellar. But I have had trouble with the outside temperature at 45; and you may count on trouble *whenever the temperature is the same inside and out*, whether that temperature be 30 or 60°. The point is, it is not the temperature so much as the impurity of the air that makes the trouble; and whenever the inside and outside temperature balance there is no ventilation of the cellar. [Elsewhere Mr. Holtermann wishes he might have some sort of clockwork arrangement that would run a fan in the chimney We have been giving the matter some thought, and are of the opinion that some sort of gearwork could be arranged in connection with a heavy weight to run a fan, possibly all night, or at most with three windings a day.

Our electric fan, run by a current from our big electric generator, and by a storage battery nights and Sundays, has been doing wonders in our bee-cellar. We understand that clockwork fans are already made and sold in Europe. We will investigate.—ED.]

PROSPECTS FOR CUBAN AND CALIFORNIA HONEY.

INDICATIONS go to show that in some parts of Cuba, at least, the season has been a failure again. This makes a series of honey failures for the Queen of the Antilles. The probabilities are, there will not be very much Cuban honey in the eastern markets, nor very much, in fact, for those in Europe.

Further indications are favorable for a good crop in Southern and Central California. We urge our California producers to get together and hold up their prices. A few scattering sales at low prices are sure to demoralize the whole market. It would seem that there is no need of doing it this year when California will have no competition in glucosed mixtures anywhere in the United States.

AN APIARY IN PERU.

THE picture on the cover page, of an apiary near Arequipa, Peru, will attract more than usual attention from its novelty. Peru is generally regarded as a very backward country, and it is, unfortunately. But it will be observed some progress is being made along agricultural lines. Alfalfa is the main standby of the bee-keeper, and it was from Peru it was introduced into California. There the farmers are not in a great hurry to get it cut, hence the bees reap a rich reward in that hot, dry, cloudless climate. Though in the tropics, alfalfa grows well because most of the farms are at high elevation in a semi-arid country. The Peruvians frequently keep the stingless bees in a domestic state, but in this case the bees are the ordinary *Apis mellifica*, and it succeeds very well at high altitudes. Not far from this apiary is the astronomical observatory of Harvard University.

TEDDY BEARS IN BEESWAX EXHIBITS.

OUR old friend Mr. Francis Danzenbaker, referring to the illustration showing the Root Co.'s exhibit at the Ohio State Fair, writes us that it was the finest he ever saw. The idea of dipping the plaster bust of a woman into beeswax and surmounting the same on top of a beeswax exhibit he considers almost too good to give away. In this connection he makes a suggestion that is very unique, as well as easy to put into execution.

It is a well-known fact that the bear, the proverbial enemy of the bee, is a good judge of honey as well as a lover of it; that he is not afraid of bee-stings. In that respect he is not unlike the bee-keeper. While his "method" of taking off a crop of honey and "disposing" of the same may be unlike that of some men, the very fact that he knows how to relieve a possibly congested honey market entitles him to no little consideration.

Well, now, Mr. Danzenbaker suggests that the teddy bears that are offered for sale anywhere would make fine subjects if dipped in hot wax for beewax exhibits. And why not? Paste the idea in your hat, and use it at the next State or county fair.

These teddy bears are made in all sizes, and can be obtained at quite a moderate price. Give half a dozen of them a dip in hot wax, and station them around the wax display. They could also help to "set off" the honey as well.

THE INDIANA FOUL-BROOD BILL LOST ON A TECHNICALITY.

THE following, from Mr. Walter S. Pouder, will explain:

> Our measure for a foul-brood inspector for Indiana was lost on a point which none of us discovered till too late. It develops that our mode of paying the inspector is not constitutional in this State. Indiana makes assessments *per value*, but never *per item*. The measure was having smooth sailing, and would have become a law, had this defect been avoided. Our only chance now appears to be in securing a strong membership for our State Association, and at the next General Assembly we may be able to secure an appropriation. The loss of the measuse will be greatly deplored by many interested friends, but none could regret it more than myself. WALTER S. POUDER.
> Indianapolis, Ind., March 16.

The effort, though resulting in an apparent failure, is by no means lost. What Missouri has done, Indiana can do. At the next session of the General Assembly the effort should be renewed.

FOUL-BROOD LAW FOR MISSOURI.

IT will be remembered that, two years ago, the legislature of Missouri passed a foul-brood bill; but the measure was vetoed by Governor Folk on the ground there was no need for it. The bee-keepers of that State, in the mean time, got busy and informed his Excellency of his mistake; so when another bill was passed he signed it, without hesitation.

The first section of the new act provides for the appointment of a State inspector of apiaries who will have jurisdiction over all cases of infectious diseases in apiaries such as foul brood, black brood, and paralysis. The second section provides that, having found a diseased apiary, the inspector will give directions to its owner for treatment. On a second examination, if the disease is not eradicated he may proceed as he sees fit.

The third section gives a legal right to enter any apiary. The fourth section relates to the annual report of the inspector to the governor. The fifth section specifies the rate of $4.00 per day and expenses for the inspector. The sixth provides for the punishment of any person who knowingly sells another a colony of diseased bees, the fine in this case not to exceed $25.00. The seventh section contains the emergency clause whereby the law was put in force as soon as signed by the Governor. If loyally supported, this law will go a long way toward eradicating foul brood from the State.

QUEER NOTIONS SOME CONSUMERS HAVE ABOUT HONEY FLAVORS.

IT has often been our experience in selling honey (and we think other dealers have had much the same) that buyers who are not familiar with the flavors of different honey usually call for white clover for the reason that the name is well known rather than because they know either its flavor or quality. The following correspondence will show how one customer has turned down a good honey simply because he did not know the flavor, and evidently mistook the flavor he wanted for something else. He writes:

Please ship one five-gallon can of white-clover honey, same as we got in September, 1906.

TAYLOR HARNESS AND LEATHER CO,
Bellaire, O., Jan. 19, 1907.

Being out of white-clover honey at that time, we sent this order to one of our dealers, knowing that he was very particular about what he supplies on his own orders or any orders we might send him. February 8 we received the following letter:

We received the white-clover honey (?), and would say it is not satisfactory, as it is either adulterated or something else is the matter with it. We melted a little of it down, and found it very thin with very little honey taste. We will return the same tomorrow, as we do not care for it at any price. We expected to get a pure article from you, and are very much disappointed.

TAYLOR HARNESS AND LEATHER CO.
Bellaire, O., Feb. 7.

To this we answered as follows:

We are very much surprised to get your report of February 7. We were entirely out of clover honey when your order came in, and we sent this to one of our most reliable dealers, and there is no question that is absolutely pure and of good quality, for we have just as much confidence in this dealer as in our own men at Medina. We hope you have not returned it before the receipt of this. If you have, nothing remains to be done. If you have not, please wait until you hear from our dealer who shipped you the honey.

Medina, O., Feb. 8, 1907. THE A. I. ROOT CO.

We wrote our dealer as follows:

Enclosed we hand you a letter just received from the Taylor Harness and Leather Co., with copy of our reply. If agreeable you may take the matter up with these parties direct and oblige

THE A. I. ROOT CO.

The dealer replied as follows, under date of Feb. 11:

Taylor Harness and Leather Co.:—Yours of the 7th, regarding the two cans of honey shipped you January 26th, has been referred to me. The honey in question is white clover, absolutely pure, and well ripened and best quality. I will inclose a signed certificate as to purity, which will apply to this shipment. This house has never handled adulterated goods, and I am able to stand by this assertion.

This honey was produced by a well-known beekeeper of Michigan. I have handled his crop for a number of years, and this is the first time that his honey has not given perfect satisfaction. Your letter does not explain your grounds for suspecting that it is not genuine. I should be very glad to know why you have thus decided. In filling any orders for The A. I. Root Co. we have always considered it very important to send the very finest goods, and that is exactly what we did in this instance. I should be very glad to hear further from you about the matter; but do not return the goods until you get shipping directions from The A. I. Root Co.

Our purchaser finally returned the honey to us, and we sent him another lot. As soon as the returned goods came in we submitted samples to several well-known bottlers of honey, without any information as to why we were making the inquiry, and the following reports have been received:

Your sample of honey came to hand. I have examined and tasted it very carefully. While I hardly thought it necessary to give it a laboratory test, as it seems such an exceedingly fine sample, its specific gravity shows that it was thoroughly ripened before extracting, and its flavor indicates that it is largely from *white clover*, with possibly a trace of alsike clover and a slight tinge of sweet clover. I should consider it *one of the very best samples of honey*, as I place this grade of honey above honey from any other source, in my work. I should be glad to give you any further opinion you may desire upon it.

Philadelphia, Pa., March 7. W. A. SELSER.

In reply to your favor of the 5th we will say that we received the sample of honey some days ago, and that, before we had received your letter, we had pronounced the sample *very fine honey.*

Middlebury, Vt., March 5. J. E. CRANE & SON.

Your sample of honey is at hand. As to its source I am unable to identify it, although it resembles some that I have on hand that was produced in Michigan, and is supposed to be white clover. As to *body, color, and taste, it is excellent*, and is the kind that I like to get for my bottle trade for the fancy grocery trade.

Indianapolis, Ind., Mar. 8. WALTER S. POUDER.

We submit the correspondence, not because it has any particular value, but to show our experience in trying to satisfy a customer that we had sent him some good honey; and as these experiences are quite common with us, and probably with other dealers, we think it may be of some interest to dealers at least.

Under date of Feb. 11 the Bellaire house wrote us again:

We have not reshipped honey yet, as on second thought we concluded to wait until we heard from you. The honey is not good, I don't care how reliable the dealer is. We had a man examine it who was in the honey business for eight years. We do not want it at any price, as we might as well use sugar or molasses. If you haven't white clover, send some of your own alfalfa.

TAYLOR HARNESS AND LEATHER CO.

THE NEW FUTURE FOR HONEY; HOW SOME OF THE CHEAP SYRUPS, FORMERLY COMPETITORS, HAVE BEEN ELIMINATED.

DURING the closing hours of the last Congress the full appropriation for the enforcement of the national pure-food law was passed, the Senate refusing to endorse the Tawney rider that would, to a very great extent, defeat the very object of the new pure-food law. This measure will in time work a revolution in the honey trade, as it will be very hazardous for any person to offer spurious honey for sale in any part of this country.

Bee-keepers can aid Uncle Sam in the execution of this just law by furnishing the officers with information as to where the law is being violated. There are enough readers of GLEANINGS and other bee papers to make it quite uncomfortable for all adulterators, no matter where they have their headquarters, as the law covers the whole United States. We may now regard Prof. Wiley as a benefactor, because his department will prosecute our enemies *free of charge*.

It will take a little time to get the law into working order; but just as soon as it is, bee-keepers may expect better prices for their produce, and in any event there should not be any idea of a return to low prices, no matter how large the crop may be.

According to rulings of the Department of Agriculture, a good deal of syrup which was formerly sold quite freely will be entirely barred in future, and legitimate substitutes for honey will be scarce and rather high in price for some time to come. The bee-keepers can, therefore, stand out for a fair price for their product without any fear, and it is to be hoped none will be so weak-kneed as to undersell those who are attempting to hold up honey prices. This is not the time to talk low prices, and there is no need to. Regarding the outlook, the *American Grocer* of March 6 has this to say:

> Further proof that retailers are more careful as to quality is had in the heavy sales of high-class goods for next season's deliveries. The makers of absolutely pure jams, jellies, catsup, canned beans, peas, tomatoes, corn, spinach, apples, and other vegetables and fruits, are overwhelmed with orders. One firm, noted for the high quality of its products, has been unable to take an order from new customers in several years, and yet it is one of the largest of its kind in the country.
>
> The retailer's trade in preserved foods can be increased by judicious local advertising, the scope of which should include the compilation and circulation of dainty little brochures, folders, and circulars showing the possibilities of different sorts of canned fruits and vegetables. Furnish well-selected recipes for their use, prefaced by a brief description of where the article is grown and the care taken in preparing it for market.

The foregoing applies equally well to honey.

The same authority also states:

> The plea that the poor people want cheap stuff is humbug from start to finish. The palate of the wage-earner is just as sensitive (generally more so) than that of the rich, and the desire for self-gratification is stronger with the poor than those rolling in wealth.

Bee-keepers ought to feel encouraged by these words, and make up their minds to furnish a good article to meet the price. One thing seems certain, good honey will command a remunerative price soon.

HOW THE MASK WAS REMOVED; THE SERVICE PROF. WILEY HAS RENDERED BEE-KEEPERS.

IT is really amusing how the dealers in syrups and general food stuffs are hustling to comply with the national pure-food law. A subscriber tells how he was buying syrup to feed his bees, from a syrup concern in the South. It was branded "pure cane" up till Jan. 1 of this year. On another shipment of the same goods, after that date, the barrel came branded "pure cane and pure corn syrup." Our correspondent immediately raised a protest, as he says, as he was not buying corn syrup and did not want the stuff around. It appears, though, he had been buying the mixture, supposing it to be pure cane. The syrup-dealer, on receipt of his reply, simply wrote him that, since Jan. 1, they were *obliged* to "brand our barrels with what they contain." Then they add, "In future we will quote our molasses, this particular brand, —— cane and corn syrup compound." Our bee-keeping friend for the first time had his eyes opened that he was buying glucose and paying the price for "pure cane" syrup; and the result is, he wants no more of those goods.

Just the other day our grocer told us how the grocery trade was hastening to comply with the provisions of the national law. "Why," said he, "the ordinary oyster crackers have been known to the trade as farina crackers, and we have always ordered them by that name; but since the new food law went into effect that name can not be used any more on those goods because farina forms no part of the cracker. And that is the way it is going," said he. "Every thing nowadays must be labeled just what it is." In general he expressed himself as being very much pleased with the operation of the law, "because," he said, "we know just what we are getting. Before, we *thought* we knew, but we didn't."

No more can injurious preservatives be put in canned goods; no more can glucose be sold as pure cane or New Orleans molasses; no more can glucose be sold for honey. We can scarcely estimate the importance of all this from the standpoint of health. The presiding genius who had very much to do with bringing this about is Prof. H. W. Wiley, Chief Chemist of the Department of Agriculture, and yet there are many who are throwing mud at him. He is loved for the enemies he has made among the erstwhile makers of bogus food stuffs.

PREPARED AND PREDIGESTED FOODS; HONEY AS A NATURAL AND SAFE FOOD.

THERE is a great demand just now for accurate information regarding the physiological effect of different kinds of food on the human system, and consumers generally are only beginning to learn the tremendous importance of the subject from every point of view. To a very great extent people have found out they have been misled, and are now looking for facts which can be relied on. Probably the leading feature of the new century will be the great study of the prevention of diseases in mankind by sanitary measures. Already public opinion has greatly changed, and as yet we have made only a beginning. We do not know just where this agitation will lead us, but we realize it will make for better things.

One thing we feel sure of, natural foods such as honey are likely to come to the top

of the heap, for it is already clear that human nature abhors all "made" or artificial substitutes for real food. There is also a recoil against the excessive use of particular foods which of themselves are all right in moderation—for example, sugar, which the American people eat to excess.

Proprietary or prepared foods would seem to have a hard time of it under the new dispensation, and some we thought well of will have to go because they have no merit that would entitle them to live. In this connection we particularly refer to the foods popularly known as "baby foods," and often spoken of as being "predigested."

Probably honey stands as good a chance as any thing to gain by the new agitation, because, as a food for mankind, particularly for children, it will bear the strictest kind of criticism. It supplies the natural craving in young people for sweets in a way nothing else can do, and it can be shown that much of the confectionery hitherto given to children was simply slow-acting poison. Paraffine, it has been proved, was absolutely deleterious, and much of it has been used in candies. Gelatine is also bad, as likely to carry disease germs, being produced under filthy conditions. Beeswax, on the other hand, is perfectly safe. Perhaps the best thing bee-keepers can do is to let the mothers know that no sweet can equal honey for children. We can rest assured the next generation will entertain a very high opinion of honey. It can, for example, be pointed out that, while honey is a highly nutritious article of food, it leaves no residue to distress the kidneys, spleen, or bowels; and practically all of it is digested and used up by the body. It is also free from bacteria of a pernicious type, and it is, in fact, an antiseptic, so that it carries no contagion. Physiologically speaking, then, honey is practically a perfect food.

AMERICAN AND EUROPEAN FOUL BROOD; A QUESTION OF FACTS AND NAMES.

IN the *British Bee Journal* for Jan. 31 appeared an editorial taking issue with Dr. White and Dr. Phillips, of the Department of Agriculture, on the subject of brood disease. The editor, Mr. Cowan, has given this subject of foul brood, from the standpoint of a microscopist, considerable time and study. His statement, therefore, will command more than ordinary attention, and we are pleased to place it before our readers.

We are indebted to the Department of Agriculture in Washington for the receipt of three pamphlets which have just been issued by the Bureau of Entomology, and which relate to brood diseases of bees. In view of the widespread distribution of infectious brood diseases among bees in the United States, and the importance of the industry in that country, the government has printed these pamphlets so that bee-keepers might learn to distinguish the diseases as they appear. Notwithstanding that there is legislation in many of the States, and foul-brood inspectors are visiting apiaries, destroying and curing colonies, Mr. E. R. Root, in an editorial in GLEANINGS for December 15, 1906, says: "There is no use trying to disguise the fact that bee-diseases in many parts have been getting the upper hand of us, and now the authorities at Washington are giving us practical aid."

The first pamphlet relates to "The Bacteria of the Apiary, with special reference to Bee-diseases," by Dr. G. F. White, expert in animal bacteriology in the Biochemic Division of the Bureau of Animal Industry. This paper was prepared by Dr. White as a thesis in part fulfillment of the requirements for the degree of doctor of philosophy at Cornell University in June, 1905. The pamphlet is a purely technical one, and describes the work done in the laboratory by Dr. White, and the conclusions he comes to. So many investigators have found different bacteria in bees, and have tried to ascribe foul brood to some other microbe than *Bacillus alvei*, that it is not astonishing to find that Dr. White has added a new one to the list. There are two diseases in the United States that have hitherto been known as foul brood and black brood. Until now it has been supposed that foul brood was the same in all countries where it has been investigated, and that *Bacillus alvei* was always present as a cause or result of the disease; but now Dr. White tells us that this microbe is not found in American foul brood, but is present in every case of black brood, and that the microbe of the former is a new one, which he has named *Bacillus larvæ*. Therefore to distinguish between them he calls black brood European foul brood.

The next pamphlet, of five pages, is entitled "The Brood Diseases of Bees," by Dr. E. F. Phillips, expert-in-charge of apiculture during the absence of Mr. Benton. Dr. Phillips says there are two recognized forms of disease of the brood, designated respectively European and American foul brood, which are particularly virulent. He then describes the symptoms and characteristics of each disease. That there are two forms of foul brood, a mild and a virulent one, has long been admitted; but we are certainly not yet prepared to admit that these differ from American foul brood upon the slender evidence adduced. The symptoms and characteristics of American foul brood as described by Dr. Phillips correspond with those of foul brood as we have it here, and such as we found in the United States when we first visited the apiaries at Medina in 1887. We have since that time had the opportunity of seeing specimens of foul brood in the States and Canada, and in every case the symptoms were similar. Slight variations occur, but there was the distinctive ropiness and unpleasant odor which can be compared to bad glue. We have also seen many specimens from different parts of Europe and Africa, always with the same characteristics.

Our first acquaintance with black brood, or "New York bee-disease," as it was at that time called, was made some years ago in California. This was sent from New York State by Mr. West, State bee inspector, and on examining it we at once saw that it differed from what we called foul brood; for, although the outward appearance of the comb was similar, the distinctive ropiness and odor were absent. Notwithstanding that our experience with foul brood was pretty extensive, and dated back more than thirty-five years, this was the first time we had come in contact with black brood. It was entirely unknown to us except from descriptions in the journals, and not a single sample had been sent to the *British Bee Journal* office for diagnosis. Last year, however, we began receiving from time to time specimens of dead brood differing in a marked degree from any we had previously seen in this country, and which corresponded in nearly every particular with the description given of black brood, and they at once reminded us of that we saw in California. Black brood is of quite recent occurrence here, and we naturally hesitate to accept the statement defining it as "European foul brood," or the assertion of Dr. White that it is caused by *Bacillus alvei*. To say the least, it is quite possible that Dr. White has made a mistake, just as others have done, and has cultivated one of the numerous saprophytic bacteria found in bees. It appears to us that the most important test has been omitted; and until that has been made successfully our judgment must be suspended. The test we allude to is to prove that the disease can be reproduced in healthy brood from a pure culture of Dr. White's *Bacillus larvæ* showing the characteristic symptoms of foul brood—that is, the ropiness and odor. We know that this was done by Mr. Cheshire with *Bacillus alvei*, but we can not see that Dr. White has hitherto been able to reproduce the disease with his microbe. Until this has been done the investigations and the conclusions arrived at are of very little value so far as solving the question is concerned.

This we referred to Dr. E. F. Phillips, of the Department of Agriculture, Washington, D,

C., asking him if he would like to reply to it. This he does in the following statement.

Dear Mr. Root:—I notice that the writer of the editorial in question says that "European foul brood," or "black brood," is of recent occurrence in England. I should hesitate very much in taking exception to a bee-keeper of the high standing of Mr. Thomas Wm. Cowan; but in Cheshire's portion of the paper on "Foul Brood" in the *Journal of the Royal Microscopical Society*, 1885, part of the description fits "black brood" much better than it does the ropy type of disease which we call "American" foul brood. Cheyne, who really did the work, describes the one sample used by him as watery, which does not apply very well to the ropy type of the malady.

Mr. Cowan says, "There are two forms of foul brood, a mild and a virulent one, . . ." but we are not told in any of the scientific literature with which I am familiar in which one of these we are to look for *Bacillus alvei*, nor do I know of any ground for the belief that the two diseases are but varieties of "foul brood caused by one specific bacillus.

Attention is also drawn to the fact that American foul brood is of much more general occurrence than European foul brood, a fact which no person will be inclined to call in question.

The possibility that Dr. White has cultivated a non-pathogenic saprophytic bacterium under the supposition that it is the pathogenic bacillus of American foul brood is suggested; but since Dr. White is the first and only bacteriologist who has attempted to investigate the non-pathogenic micro-organisms of the apiary, this may well be considered a criticism of small weight. Other investigators have been satisfied to leave the normal invisible flora of the apiary unknown, and we are justified in the belief that on this very rock have they been shipwrecked. At any rate, Dr. White expresses the belief that the results of Howard, Mackenzie, and Harrison are false because they did no work in non-pathogenic forms.

According to Dr. White, *Bacillus larvæ* is found universally in diseased larvæ of American foul brood, and in not a single instance has he found it in the numerous normal combs which he has examined, nor has it been found on healthy adult bees or in the intestine of normal adults. He assures us that it is universally present in every case of American foul brood examined by him since he first used the media made of bee larvæ, and never present in any of the normal material examined. This to a bacteriologist or even to a layman is rather good evidence of the pathogenic nature of the bacillus in question.

The principal criticism in Mr. Cowan's editorial, I shall quote: "It appears to us that the most important test has been omitted; and until that has been made successfully our judgment must be suspended. The test we allude to is to prove that the disease can be reproduced in healthy brood from a pure culture of Dr. White's *Bacillus larvæ*." This test has never been made by Dr. White, and the desirability of such a test is, of course, evident. The criticism is, however, somewhat misleading, for the reader might be led to the belief that such a test is usually applied in the study of micro-organisms supposed to be pathogenic. I believe I am safe in saying that this test can not be applied in many cases, nor is it considered neeessary in all cases by bacteriologists. The uniform occurrence of a specific micro-organism in disease, and its uniform absence in normal conditions, while not as absolute as the Koch test referred to, is proof of the greatest value. *Bacillus larvæ* grows only in a special medium, and there are many difficulties met with in the preparation of the cultures. A careful reading of Dr. White's paper will show that he specifies merely the fact that *Bacillus larvæ* is uniformly present, and lays no claim to having made the test called for by Mr. Cowan. The author further says, "We know that this was done by Mr. Cheshire with *Bacillus alvei*," but we are not told what the effect on the brood was, it being assumed by Mr. Cheshire all through his work that there is but one disease of the brood in the class which he calls "foul brood." I, therefore, can not agree in the belief that "until this has been done the investigations and the conclusions arrived at are of very little value so far as solving the question is concerned."

While I have undertaken to defend Dr. White's work in the face of Mr. Cowan's criticism, I do not wish to be understood as believing that this whole subject is now complete. On the contrary, I can not but believe that the field is just opening up, and much more bacteriological work must be done before we are even on a good working basis. We now have a good start, and I hope the work may be continued at no late date. E. F. PHILLIPS.

Washington, D. C., Feb. 21, 1907.

Mr. Abram Titoff, for many years a bee-keeper in Russia, came to America to study bee-keeping. He spent about a year and a half at Medina, and during that time he so thoroughly acquired the English language (he could not speak a word of it when he came here) that he delivered an offhand address before the National Bee-keepers' Association in St. Louis in 1904. While Mr. Titoff was here he had an opportunity to see samples of both black and foul brood; and during his residence in California he doubtless has made the matter a further study. He raises a decided protest against calling black and foul brood, American and European foul brood, in the following language:

It seems that some Americans are under a wrong impression concerning foul brood in Europe. Both kinds—the old-fashioned (American) foul brood, and the black brood (European) are found there, where they have the same peculiarity and effects that they do in this country. I have seen hundreds of cases of both kinds of the disease in Russia. The black brood (European?) is not very prevalent in Russia; but foul brood (American as you call it) is quite common, and does much damage to the apiaries.

Neither disease is peculiar to America; and although American bee-keepers might in time become accustomed to the inexact terms, "European" and "American," readily distinguishing between them, these terms would always be confusing to a European. To distinguish clearly between these two types of disease I would suggest the use of more scientific terms —such as those employed in Russia. There the black brood is spoken of as the "benign" foul brood. What is here known as the "American" is called the "malign" foul brood. I do not know what adjectives could be better adopted here in this country; but I am thoroughly convinced that it is a mistake to call one kind "European" and the other "American."

Los Angeles, Cal., Feb. 12. ABRAM TITOFF.

To correct a misapprehension on the part of Mr. Titoff we may state that neither Dr. Phillips nor Dr. White has ever claimed that American foul brood was peculiar only to America, and the European to Europe. On the contrary, their published statements go to show that both kinds are found in both continents; but they gave the name "European" to black brood because Cheyne and Cheshire, both Europeans, were the first to discover the bacillus that caused it. They applied the name "American" to foul brood in this country because, up until within a few years, it was the only brood disease of a contagious character known here, and because an American first discovered its bacillus.

The question, after all, simmers itself down to this: *If* there are two distinct brood diseases, it is important that legislation that applies to foul brood may apply to both diseases here under consideration. If both diseases were from the same microscopic form of life the difficulty might be overcome by calling one "benign" and the other "malign" foul brood. But Dr. White declares, and external evidence seems to bear out the assertion, that the two diseases are entirely distinct. If this is true it is not a case like varioloid and smallpox, nor even a mild and virulent form of foul brood both from the same microbe, but two separate diseases each originating from a distinct germ.

RAINS IN CALIFORNIA.

As is well known, Southern California is so well in the north-trade-wind belt that it is likely to get all too little rain. In the winter months we swing to the north of this, and so get our scant rains. In the region of Claremont we get, on the average, a little over fifteen inches of rain. If this comes scattered along through the season we are sure to have very prosperous years. This season we have had already more than our average, and yet we are still to have our best month, that of March, when, as the records show, we get our greatest rainfall. The sage and other honey-plants are pushing forward very fast; and unless the season is very damp and cold we may almost surely count on a generous honey-flow. I think that, in all the thirteen years I have been in this section, we have never had a season that promised so much for the bee-keeper as does the present one. We may expect a great harvest along all agricultural lines the coming fall and summer.

CALIFORNIA FOR LUNG TROUBLES.

I have so many inquiries regarding the salubrity of this section that I feel sure the facts in the matter will be of much interest to the readers of GLEANINGS. There is no question that the pure dry atmosphere of Southern California, together with the equable temperature, are greatly preventive and as surely curative of many pulmonary troubles. I know of many who came here with serious troubles, who to-day are among our strongest and most valuable citizens. They are not now "one-lungers," whatever they may have been when they first came. From what I have observed since I came here thirteen years ago I feel sure that incipient tuberculosis, with reasonable care, can not stand this climate, but will in almost every case succumb to its sanitary influences. The same is true of asthmatic troubles. It must be said, however, that one who comes here with consumption must not think to return after the cure is wrought. In rare cases that may do, but generally it is followed with a relapse, and with each recurring attack the cure is less rapid and certain. In cases of asthma the dry air further from the coast is found more helpful. I have known persons who could not stop at all with any comfort at Long Beach, but who were entirely comfortable at Pasadena, though the latter is so near by. Others could not stay at Pasadena, while they were free from trouble at Redlands or Riverside; and one man who could not stand Riverside was all right at Coachella.

The past two weeks, right in the heart of winter, have been like the best of May and June in my old Michigan home. This is a glorious climate, and one feels to thank God every day of the year for such a home and such a climate. The world knows none better.

GLANDS AND SECRETION IN INSECTS.

Few of us who have never given the subject of secretion special study or attention realize its importance in the animal economy. We appreciate muscular activity, and so muscles command respectful consideration; we know the great importance of nerves, and so the word *nervous* begets appreciative consideration; we know the immense importance of good air, and so lungs and respiration always interest us; such expressions as "blood tells," and "the heart as the seat of life," show that we know well the importance of circulation among life's processes. Do we all as fully realize the great part that secretion plays in the animal economy? Do we realize that every stage in the digestive process not only is attended with glandular action, but depends wholly upon it? Milk, which is so very important as a food product, and which is the nearest approach to a perfect food of any single substance known, unless it be the food given to larval bees, is exclusively a secretion.

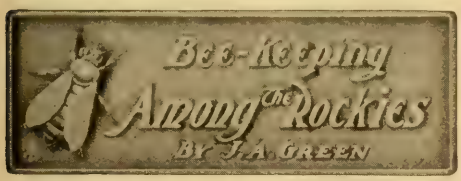
Glands, what? Glands, the agents of all secretion, are simply membranes with blood on one side and cells on the other. These cells have the power of selecting from the blood the elements of the secretion that they are to form, and to manufacture the secretion from them. The liver is the largest of all the glands, and, as a gland, has two very important functions. It secretes the bile and the liver sugar. The pancreas and the stomach are great glands which play a very important part in digestion.

Among insects we have in the silk-moth larva, or caterpillar, an example of an animal where glands are enormously developed. The silk-glands are really modified salivary glands, which are developed for a specific purpose, and which are, perhaps, the best example of excessive development for a special end or purpose to be found among animals.

GLANDS AMONG BEES.

We should expect to find among animals with such varied functions as are possessed by our honey-bees exceedingly interesting examples of glands and of the formation of secretions. Nor are we disappointed. Honey itself, as we know assuredly, is digested nectar, and the digestion is accomplished through the action of the secretion from the large racemose glands of the head (upper head glands) and of the thorax, which empty their product through a common duct which ends at the base of the tongue. Thus, as the nectar is quaffed from the flowers it is

mixed with this abundant secretion and converted into honey. The pollen, the proteid food of bees, is also acted on by another copious secretion, that from the lower head glands, and is converted into the "chyme," already referred to as a very perfect food. This forms the basis, doubtless, of the royal jelly; and if this is what is fed to the queen it must be a very admirable food, else it would not give such vigor as the queen possesses, for she lays nearly twice her own weight of eggs each day when at her best. The wax is also the product of glandular action, from the glands along the under side of the abdomen. The work of these glands, when the bees need much wax, is something tremendous. At such times the worker bees eat much and exercise little, and the full energy is given to wax-formation, and the results are as just mentioned. Nor is this all; for the poison of the bees which they use so effectively when they sting is also a secretion, which is formed by large racemose glands situated close to the poison-sac, near the tip of the abdomen. I believe that we are safe in claiming for our bees three phases of development that are unsurpassed by any other animal, even not excluding our own species—one the varied secretions, and exceeding glandular development, just pointed out; another the varied physiological development, for I know no other animal that does so much as do bees; and the third, the wondrous structural development without which the high functional performance would be quite impossible.



Some of the honey-dealers can not see any chance for a rise in the price of honey through the operation of the pure-food law. Are they looking for a chance to make a little extra profit themselves?

At the time this is written, the report comes that a pure-food law, strengthening the national pure-food law, has just passed the Colorado legislature, and is only awaiting the governor's signature. Colorado legislators are all right. Remember that Colorado already has a special pure-honey law.

Bee-keepers ought to have a great deal of sympathy with other industries that are attacked in the newspapers, since we have seen for ourselves how cruelly unjust and untruthful such things may be. It is easy for the careful and unprejudiced reader to see that many of these newspaper reports are simply sensational lies, or, at the best, badly exaggerated, and it behooves us to withhold judgment in many matters until we have information more reliable than mere newspaper report.

Some people have curious ideas as to the amount of honey that plants yield. "The Jay" tells us of those who thought his crops of honey came from his geranium-bed. Our lawn is bordered by some very fine roses, from which we call our place "Roselawn," and on several occasions people have shown a serious belief that these roses had a great deal to do with the crops of honey we secure.

THE SEASON.

We have had a very mild winter here, almost no cold weather at all; 18 above zero was the coldest I noticed, and most of the time the bees were flying every three or four days. As a result of this mild weather the bees are wintering very well; and if they do not use up their honey in brood-rearing they are likely to be in very good shape for an early harvest. Every thing is further advanced than usual at this season. Some of the soft maples were in bloom Feb. 15th, and wild mustard the 24th. Peaches, apricots, and almonds have been reported in bloom in sheltered places about the same time, and the bees will soon be humming on all kinds of early bloom.

HIVE-STANDS AND TOADS.

Dr. Miller's plan of making concrete prisms to support bottom-boards, keeping them up off the damp ground, is doubtless good and will add much to their life by keeping them from rotting. One objection I would have to any such arrangement is that it would make a good shelter for toads. In some places here, toads are very plentiful and do a great deal of damage to the bee-keeper because of the number of bees they eat. On account of this, and for some other reasons, I want a hive-stand which, while keeping the hive itself a few inches above the ground, is perfectly tight all around. Even with these, and with the ground kept clean between the hives, toads come into the apiary in such numbers in the evening that in some apiaries I find that these hive-stands must be so high that toads can not reach the alighting-board. I have been wondering if it would not pay me to make a toad-tight fence around such apiaries.

AN ENEMY TO BEE-KEEPING.

I took a walk a few days ago to look up some of the sources of honey supply in the neighborhood. As I walked along the banks of the great irrigating-ditches, or down in their beds, dry at this season, I noticed some places where the sweet clover grew luxuriantly along the banks of the large canals and the laterals that ran from them, while in other places the ground was bare of every thing except weeds and the shrubbery of the desert. The reason for the difference was

plain to see. Where the sweet clover grew, the stock was fenced off; but wherever cows, whether in pasture or running loose on highway or range, had access to the banks of the ditches, the sweet clover was eaten down to the roots and never had a chance to grow sufficiently to live through the first winter. When I considered how large a proportion of our honey crop came from these thin lines of sweet clover along the irrigating-ditches, and thought how many miles of ditch there were where it would thrive if it only had a chance, I was more than ready to concede that one of the greatest obstacles to successful bee-keeping in this country is the cow.

HONEY IN BUTTER.

Like Dr. Miller I have wondered why W. K. Morrison should want his mixture of honey and butter frozen. If the mixture was not stiff enough to suit him, that point could be easily regulated to suit the season by using honey more or less candied. Whether so large a part of honey as fifty per cent would suit many would be a point that could be determined only by experiment. But an old, well-tried, and perfectly practical method of combining honey with butter is to add a somewhat smaller quantity at the time of making. This is said to be quite common in Europe, especially in Switzerland. We have used the plan in our family for several years, and like it very much. Mrs. Green adds about an ounce to four or five pounds of butter as it is being worked. An effect you might not look for is that it permits the removal of a much larger percentage of buttermilk, which in itself improves the flavor and keeping quality of the butter. Add to this the aroma, flavor, and preservative qualities of the honey, and you have butter that not only tastes much better but also keeps better than that to which honey has not been added —at least that is our opinion; and, judging from the fact that others are very glad to get any butter we may have to spare, at the highest retail price, it is at least good butter. Of course, adding honey will not make good butter out of poor, but it seems to me that it would improve it in any case. I have been intending for a long time to mention this in GLEANINGS, but other things got ahead of it. I am much obliged to our new editor for bringing it up. It is a good thing. Try it, all you butter-makers.

HIVE-TOOLS.

A couple of hive-tools are illustrated in GLEANINGS for March 1. In going about the country inspecting bees I have come across a great variety of tools of this description, some of which are fearfully and wonderfully made, evincing a great deal of thought and labor on the part of the inventor. I have never yet seen one of these complicated contrivances that I would be content to use myself in regular work. The practical bee-keeper can not afford to carry a kit of tools with him, but must select something that is not burdensome to carry, and will combine as many good points as possible.

My favorite tool, and the only one I use among my own hives, is made by taking a butcher-knife like that illustrated on page 315, and breaking the point square off at the widest part of the blade, just where the notch begins in the illustration. This end is then ground to a short bevel on one side. For prying apart hives, supers, or frames, for scraping hives, bottom-boards, or the tops of frames, and for general lightness and convenience, I know of nothing equal to it. I have found the cheaper butcher-knives, those selling at from ten to twenty cents apiece, really more satisfactory than higher-priced ones, as they are not so likely to break when used for prying. The butcher-knife tool is hardly stiff or strong enough, though, to handle Hoffman frames, taking them as they average here; so in my work as bee inspector I always carried as my only tool one made from one of the thin leaves of a broken buggy-spring. Grind the thin end down to a chisel edge straight across. Grind one of the edges to a knife edge for about three inches back from the end you have sharpened; round the blunt end off nicely, and you have a tool that can be comfortably carried in the hip pocket, and that can be depended on to pry apart any thing about a bee-hive, and without breaking as many frames as will be done by any of those tools which are intended to hook under the end of the top-bar. The hive-tools made of cast metal, of which several have been put on the market, with their thick blunt edges, are an abomination when it comes to prying apart hives and supers.

THIN OR EXTRA THIN FULL SHEETS OF FOUNDATION.

I am afraid the editor is giving bad advice when he says that a full sheet of foundation should be "thin" and not "extra thin," page 307. I believe it is against the interests of bee-keepers to use any other than the thinnest foundation possible, especially when in full sheets. That tough septum which is found in a great deal of comb honey made on thick foundation has helped along wonderfully the belief that comb honey is an artificial product, which belief, most of us will agree, is one of the worst things that ever happened to our industry. If "extra thin" foundation can not be used when the section is entirely filled, then we had better let that plan alone. I use "extra thin" foundation in sheets that come pretty near filling the entire section. Sections are about 4 inches inside, and the sheet of foundation that I prefer to use in them is 3⅞ square. After being fastened, the lower edge of the foundation is about ¼ inch above the bottom of the inside of the section. With this space I have had no trouble with foundation buckling, and there will be scarcely over one section in 500 in which the comb will not be well attached to all four sides. With a space much less than this, there may be some trouble from buckling. The foun-

dation must be carefully put in so that it swings clear from the sides. If not put in square, one corner of the sheet will be crowded against one side, which may make a crooked comb. While it takes careful work to put these large sheets of foundation in properly, I think it is much less work than to use a smaller sheet with bottom starter, while it gives almost as good results.

It is unquestionable that some method must be used that will secure combs well attached to the section all around if we are to have honey that will ship safely. I have never seen any comb honey built from starters only, or even with large sheets, that did not nearly fill the section, that did not have a considerable number of sections that were really unfit to ship, and that would break down in shipping. This not only disgusts the honey-dealer but compels him to ask a larger profit, thus reducing consumption, or else compels the honey-producer to take less for his product. Claims and complaints are made to the railroads when honey is broken in shipment, and, whether they pay these claims or not, they give them a good excuse for maintaining high freight rates on honey, the burden of which must fall on the producer.

CONVENTION REPORTS.

It will not be long before we have a new departure in reporting convention proceedings of value. Where hive manipulations or other operations of a somewhat intricate nature are described, the one preparing the address should have the power to take photographs (at cost) of these operations, and hand copies in at the convention.

AN INTERNATIONAL CONVENTION.

Could there not be in the United States a truly international bee-keepers' convention? Such a meeting should be of profit to the bee-keeping world, and with it there should be an international exposition of honey and apiarian appliances and apiarian views, and the vegetation from which the nectar is gathered. Surely our various governments would help such an undertaking.

CONVENTION PROGRAM.

The place for a convention should be selected at as early a date as convenient, then those interested can concentrate their energies on working up an interest. Next the invitations to those who shall take part in the proceedings should go out early so these can put their best efforts in preparing material for the subject in hand. On every hand there is too little effort to make a convention a success. My observations go to show that, where reason is used in selecting the time and place for a convention, if failure there be, it is generally due to a lack of thorough and united work to create an interest.

SCANT AND IMPROPER STORES.

At the above convention a discussion took place which went to show that, if carefully done, the feeding of sugar syrup during winter may do no harm; and when dysentery in winter quarters is the result of improper stores, or if there is a shortage of stores, the feeding of sugar syrup may do much good. O. L. Hershiser has, during the past winter, fed over the cluster in inverted jars, the mouth being covered with a thin cloth, 25 lbs. of sugar to 10 lbs. of water, with 2 lbs. of honey added, and a teaspoonful of cream of tartar.

Mr. Alex. Taylor gave an instance where a man fed in saucers shoved under the cluster. The man fed the bees regularly, and the bees came out in first-class condition. The writer related his experience in feeding one colony two parts of sugar to one of water. The stock had dysentery from improper stores. The result was satisfactory so far as he could judge. Since the convention, some more have been fed, apparently stopping the disease. The great difficulty, however, is to keep the stores warm. The convention appeared to consider that ideal conditions could be obtained by feeding some sugar syrup in the fall. This the bees would use first when in winter quarters and then turn to honey.

LOCALITY.

In the *British Bee Journal* report of the British Bee-keepers' Association conversazione, Mr. Cowan (the chairman) stated that the Italian bee had not proved as satisfactory as the English (black) bee. Objection was, thirty years' experience had taught him that English bees were much better suited to their own climate than the others, which began work too early in the spring, while the natives stayed at home and saved themselves from the perils of the English weather, which decimated the foreigners. The latter also reared brood much earlier than English bees, and therefore they consumed more honey at a time when that commodity was obtainable in the fields. Observation from so high an authority is worth quoting. It may be that the British climate gives a long-drawn-out spring, such as we rarely have. The reasons given above, all point to qualities we prize. Again, Mr. Cowan states, "Carniolans were more satisfactory here than any other foreign bee." On page 145 of the same journal, Humble Bee states, under "Nuptial Flight," "The Carniolans are stronger on the wing, and would be more likely to mate a young queen. I succeeded in bringing them down to the ground by the dozen, or even to my hand, by the attraction of a young unmated queen

that I allowed to fly from the end of a fishing-rod, detained by a fine thread and noose round her body; but a knot has to be made in the noose so that it should not pull tight and injure her. As she flew in the air thus thus detained, it was a curious sight to see the flock of drones that gathered round her. I can not help thinking that in this way something might be done as to special mating."

There are many in America who will endorse all that has been said in the above of Carniolans. That experiment with the fish-pole and line *bates* all I ever heard of.

SPRAYING FRUIT-TREES WHILE IN BLOOM.

J. L. Byer, under "Canadian Beedom," rather boasts that over here in Ontario we have long had a bill to prevent the spraying of fruit-trees while in bloom. It was passed so many years ago that he doesn't know whether the time was before or after he (Mr. Byer) was born, but *I* am pretty sure it was one or the other. I can, however, go him one better. Fruit-growers now look upon any fruit-grower who sprays, or, rather, would want to spray, at such a time, as densely ignorant of what is best for his own interest.

It is condemned by every horticulturist in the employment of the various departments of agriculture. The following question appears in the Feb. 21st issue of *The Farmer's Advocate*, and is answered by H. L. Hutt, Professor of Horticulture, Ontario Agricultural College, Guelph, Ont.:

Please tell us in a few words how far the pollination of flowers, fruits, and grains is dependent upon the agency of the bee. C. W. L.

The pollination of flowers, fruits, and grains is too large a subject to be disposed of with a few words. However, to be brief, I may say that most of the flowers and fruits which have large blossoms are largely dependent upon the bee and other insects for distribution of the pollen. The common honey-bee is one of the most valuable agents in this work of pollination. I have frequently noticed that some of the most productive orchards in this Province are those in which the growers make a practice of keeping a few hives of bees, or where bees are kept in the near vicinity. There are, however, many species of wild bees, as well as other insects, which are active in the distribution of pollen.

With regard to grains, I may say that corn is largely dependent upon the wind for distribution of pollen, which falls or is carried by the wind from the tassel at the top of the plant to the silks at the end of the ear. Investigations here have shown that rye is also, to some extent, dependent upon the wind for pollination, whereas most of the other grains, such as wheat, oats, and barley, are self-fertile. The red clover is largely dependent upon the bumble-bee for pollination, although it was claimed by some bee-keepers a few years ago that, with the introduction of the Italian, Cyprian, and Holy Land races of the honey-bee, these would be able to work upon the deep flowers of the red clover as well as upon the shorter flowers of the white clover, but I doubt if experience has proven that any of these strains of bees have proboscis long enough to reach the deep flowers of average-sized red-clover blossoms. H. L. HUTT.

The District Bee-keepers' convention, held at Brantford during the closing days of January, was a very decided success Friends of bee-keeping would like to see half a dozen of such held in various sections of the Province during the winter months. There was much instruction for everybody; no rivalry as to any thing; and if more of the grants to local societies were used in this way the Ontario Bee-keepers' Association would feel disposed to grant the local societies more money; and the Ontario Minister of Agriculture, the Hon. Nelson Monteith, would feel disposed to give, and I feel sure he would give, the Ontario Bee-keepers' Association more of an annual grant. The time has probably well nigh passed when such money will be used simply to enrich in the local societies each member to the extent of a queen or a subscription to a bee-paper, as has been done in the past. In Norfolk Co., among those who did hard work in bringing bee-keepers to the convention we had Messrs. E. Trinder, Lee Beaupre, and Dr. Wm. Burt, all extensively interested in the success of bee-keeping.

GETTING BEES READY FOR THE HARVEST.

"You remember, Mr. Doolittle, that the last time I was here we got no further than the first looking-over of the bees in early spring, fixing them so they had stores enough to carry them to the time when pollen became plentiful, and now I have come over to have you go on with the matter to where the bees are ready for the honey-harvest from white clover. Let us suppose that pollen is now abundant, and we are ready to work further at the bees, thus starting them on the road to success as much as possible. What is the first work to be done?"

"The first work is to see that all colonies have plenty of honey and a good queen."

"How much would you call plenty of honey when pollen first becomes plentiful?"

"I try to have the amount for each colony twenty pounds at this time of the year; and if some of the colonies have more than this, no harm is done at this stage when brood-rearing is to go on rapidly."

"But suppose some of the colonies do not have that much, how is the matter to be brought about?"

"I bring this about by saving up combs solid full of honey from the season previous; but where a person has not thought of this matter till spring is upon him, then he may have to resort to feeding; but let me assure you that combs of honey are as good for a colony as feeding, if not better, and there is far less work about such feeding than where liquid feed is used. But there need be but one year, and that the first, without these combs of honey; for after that any person can save enough combs of honey during the honey season to use the next spring for this purpose of having each colony rich in stores during April and May. Having the combs of honey, set in what is needed to give each

good colony at least twenty pounds; and in the absence of them this year, feed till all have that amount."

"I see. I saved about 100 pounds in combs, thinking that would be all I needed, and it may. If not, I will feed. You said something about a good queen. How am I to tell if this or that colony has a good queen?"

"By the looks of the combs that have brood in them. At this time of the year you may find brood in five or six combs. The brood in these combs should be in compact form, with eggs on the outside of the outside combs to the brood-nest (not brood-*chamber*, remember), and all the cells within this circle of eggs being occupied with one egg in each."

"Is that the way you tell?"

"Yes. I have noticed for years that a poor or failing queen does not lay like this, but 'scatters' her eggs all about, some cells having no eggs in them, and some with brood all the way from the egg to that nearly mature. A good queen will so deposit her eggs that there will be but very few empty cells among her brood, so that we often see the center of the frame, having sealed brood in it, and on the outside of this, larvæ—those just ready to seal next to the sealed brood, and waning in size from these toward the outside of the comb till we find those just hatched, and from these just hatched larvæ on outward the cells all full of eggs till the outside circle of eggs is reached. Such a comb tells at a glance that the queen in that colony is a good one; and a glance at a comb having brood of all ages scattered all through this comb with many entirely empty cells mixed in tells just as plainly that such queen is of little good as the mother of a colony from which we are hoping to secure a good yield of section honey."

"Suppose when I examine I find such poor queens, what then?"

"My advice would be to send south for queens to replace them, leaving the old queens in with their colony till the new ones come."

"Could I not save money by raising such needed queens myself?"

"Not at this time of the year, for it is the spoiling of a good colony to set it to raising queens by taking away its queen now; and any other than a good colony would only turn out so poor queens that they would be little better than the one you were desirous of superseding."

"I see. What next?"

"There is little more to be done now, more than knowing that all colonies have a good queen, and stores to the amount of at least 20 pounds; and I generally leave them alone from this till apple-trees blossom, when the apiary is to be gone over again."

"What is done when the fruit-trees bloom?"

"The first work now is to see the queen in each hive and know that her wings are clipped, so that she can not go away with the bees to parts unknown, if you do not happen to be on hand just when the swarms issue."

"How do you find the queens? This is the hardest work I have to do."

"In the first place you want to sit or stand with the back to the sun."

"What difference does that make?"

"All the difference between not finding the queen half the time when facing the sun, and finding nineteen out of twenty in two to three minutes after opening the hives, with the back toward the sun. Then when you take a frame out of a hive, instead of looking at it the first thing, look on the side of the frame next to the one you have in your hand, which is still in the hive, for 49 out of every 50 queens will begin to run around to the dark side of the comb they are on as soon as the light strikes them. If you do not see her on the first good look at the face side of the comb in the hive, then look for her on the comb you are holding. If not seen, take out another frame, looking on the comb in the hive first every time, and then on the side of the comb opposite you that you are holding. In this way any queen is easily found, unless you smoke or jar the hive till the bees are stampeded—in which case you might as well shut up such a hive and leave it while you are finding the queens in four or five other hives, when you can come back to the stampeded one again, with as good a chance of success as if nothing had happened."

"Well, I think that will be of help to me, for I had paid no attention to which way the sun was, nor have I done any thing but look at the frame I held in my hand each time."

"What more can be done now, depends upon how you wish to work your bees."

"What do you mean by that?"

"If you are to put on upper stories, this is the time to do this, with all strong colonies; and if you are to put the sections on without any further preliminaries, all the really strong colonies are now ready for such."

"Do you think that I had better try to work for section honey in fruit-bloom? I thought it better not to put on the supers till after swarming, as these supers would hinder the bees from swarming."

"It the supers hinder the bees from swarming it might be a good hindering; but as a rule they make little or no difference along this line. What you want is to get the bees at work in the supers as soon as possible; and the supers now on the hive allow the bees to cluster in them, and they will often make a start on them during fruit-bloom, storing honey in them, so the queen has more room in the brood-chamber, and giving plenty of honey to tide over the dearth of nectar we usually have between fruit-bloom and white clover. Remember that plenty of honey for brooding purposes is one of the great essentials at all times previous to the flow from clover; and failing here you will fail of the best results."

"You spoke of putting on upper stories instead of the sections at this time. What did you mean by that?"

"These are often put on so that the bees

will get into the habit of working above the brood; and when the honey harvest arrives, take off these upper stories and put on the sections, which the bees will immediately enter, as they have been used to working in upper stories."

"Do you think there is any thing in that?"

"Yes."

"But the bees store what they gather in those combs, do they not?"

"Yes, and in doing this the queen is given all the room in the combs below, so that she fills a larger space with brood, which gives a greater working force of bees in the fields during harvest. Of course, a queen-excluding honey-board is used to keep the queen in the brood-chamber."

"What becomes of the honey stored in the combs in the upper story?"

"It is generally extracted, but the publishers of GLEANINGS will send you a book that will tell you how it can be put into the sections by the bees, and thus advance your prospects of a greater yield of section honey than by any other plan I know of. This part would be too long to add to our talk to-day."

Gleanings from Foreign Fields.

BY W. K. MORRISON.

Honey market in Berlin, Germany, ordinary extracted, 30 cts.; comb honey, 37½.

In Barcelona, Spain, wax is quoted at 32 to 35; honey of Aragon, wholesale, 7; honey of Catalonia, 6½.

THE HONEY MARKET IN TUNIS (BIZERTA).

	Honey rec'd.	Highest price.	Lowest price.
July.	25,032	18 cents.	17 cents.
August.	125,151	16 cents.	11 cents.
Sept.	67 362	16 cents.	11 cents.
	217,545		

The Journal d'Agriculture Tropicale gives the prices of tropical wax as follows, per lb.: Sierra Leone beeswax, in Liverpool, 30 cts.; Madagascar beeswax, in France, 31 cts.; Tonkin beeswax, in France, 30 cts.; Japanese vegetable wax, in France, 29 to 30 cts.

According to *L'Apiculteur* the following prices are for large amounts of wax F. O. B. boat or wagon in Belgium, per pound: Benguella, West Africa, 32 cts.; Zanzibar, East Africa, 32, Portugal, 33; Algeria, in loaves or squares, 33; British India, probably dorsata, 28½; Cuba, 33; Mozambique, Portuguese East Africa, 33; palm wax, white, from Brazil, 45; the same, yellow, 45.

We quote the following from *L'Apiculteur* concerning the prices of honey and wax in France. The very best quality of extracted honey, wholesale, 20 cents. In Brittany the price is less—16 to 20. Wax, in Brittany, 30 to 35. At Havre foreign honey is about 10 cts. Wax, at Havre, is 35 cts. Morocco wax at Marseilles is 30 cts.; Algerian wax at Marseilles is 31 to 32 cts.; Levant wax at Marseilles, 32 to 35 cts.; Aden wax at Marseilles, 34 cts.; honey, very best French extracted, at Marseilles, 20 cts.

In *L'Abeille Bourguignonne* a honey-dealer advertises honey for sale, wholesale, at these prices, per lb.: Finest French honey, 21 cts.; second quality, 20; third quality, for feeding bees, 16; Chilian honey, 18; honey chocolate in squares, 30. It may be remarked that honey chocolate seems to be popular in some parts of Europe. Probably honey in bricks with a flavoring of chocolate would sell in this country, now that the pure-food law is in force.

At the meeting of the bee-keepers' associations of Germany, Austria, and Hungary, held in Loben, Austria, last fall, a resolution was passed asking the governments of their respective countries to "retain the word honey" for the product of the honey-bee, and not allow the word to be applied to any artificial production or imitation. There is good sense and economic judgment behind this resolution.

Some of the German bee-keepers are recommending milk and honey for the children. One paper has an article on the subject, so laudatory as to be positively alarming. However, there may be something in this, as we know both buttermilk and honey have very valuable properties, and a combination of the two ought to be good when we come to think of it. We know they mix something with the buttermilk in Kentucky. As GLEANINGS is a temperance paper we can not mention names; but in all the other States honey would be a better ingredient.

L'Apiculture for January calls attention to the pure-food law of France, passed April 1, 1905, which in its main outlines resembles the law passed by our Congress, June 30, last year. But the power to enforce the law is vested in the Secretary of the Interior. The latter seems to have the power to call on all public officials to help him administer the law. There are 15 laboratories charged with the detection of adulteration or misbranding of all alimentary substances. The editor sagely remarks that the subject of adulteration is of great importance to honey-producers.

Mr. Halleux, in *L'Abeille et sa Culture*, states that the retail price fixed by the local federation of bee-keepers for Condroz, Hesbaye, and Luxembourg, Belgium, is at the rate of about 20 cts. per lb. He also states the price is not excessive, as the price in Berlin is higher — 33 to 37 cts. At Bremen comb honey is worth 30 cts. per lb.; and at the market in Reichenberg, Bohemia, good

honey is 35 cts. per lb.; and at Montreux, Switzerland, the price of honey is actually 60 cts. per lb. He says the latter is for a very fine honey which is rare, and eagerly sought for by purchasers. We should like to know something about this honey—what flower does it come from?

Some time ago the French held an interesting exhibition of colonial productions at Marseilles, with a view to showing what the different colonies could do; and one of the most interesting features was the exhibits of honey and wax. French Indo-China did not exhibit much; but Madagascar and Reunion did, as bee-keeping in both islands is interesting. The great colony of Algeria did not seem to do much; but Tunis made an excellent exhibit, and carried away several gold and silver medals. We do not usually consider Tunis much of a bee country; but it is, and practically all of Africa is a sort of bee-keepers' paradise—no "wintering troubles" there.

The French paper, *Journal d'Agriculture Tropicale*, has an article on the culture of sunflowers, in its January issue, which is worth reading. No one seems to make a success of cultivating sunflowers but the Russians, who, in the government of Saratoff, cultivate it in large quantities profitably. It is also cultivated to some extent in Bokhara. It is said the amount of oil secured from it there averages 21 per cent, but that is from varieties specially selected for the production of oil. The residue is, of course, valuable for feed or fertilizer, just as cotton-seed meal is. Where the conditions are favorable the sunflower is popular with the bees. If there is any place where sunflower culture will ever prove a success in this country it is Kansas. The article mentioned states that the yield of seed is greatly increased by applying a dressing of nitrate of soda. Probably the only reason sunflower culture does not succeed in this country is because we do not have time to study its peculiarities and culture.

In *L'Apiculteur* for January a bee-keeper living in Tunis raises the question for scientists to answer: "What is granulated honey?" He thinks its analysis is somewhat different from that of liquid honey, and he instances the fact that old honey is different from new honey by chemical analysis. This matter will probably come up before the National Pure-food Commission sooner or later. One thing we are sure of, only a part of the honey really granulates: the other is frozen or held in suspension by the granules. Slowly melt a quantity of solid honey, and the dextrose and levulose can be separated very readily. The latter runs away from the dextrose, which is in the form of finely granulated sugar. The writer of the note has evidently studied honey somewhat, for he states that honey two or three years old has lost all its sucrose (cane sugar) by inversion. He evidently thinks freezing or granulation causes a similar change; but, does it?

L'Apiculteur remarks "Hum" to the assertion that the Arab race of men are famous for their vigorous physique, and that they prefer honey as a sweet in their food. As a matter of fact, the Turks, Arabs, and Syrians are splendid specimens, many of them, in rugged physical ability. In the Southern States, Cuba, Haiti, San Domingo, Jamaica, and elsewhere they may be seen carrying heavy loads all day long beneath a broiling sun, and that, too, in a moist atmosphere. They eat but little meat, and seem to prefer bread, dried fruits, sugar, honey, and similar foods. It has been proven, also, in European army maneuvers, that sugar is an excellent food for soldiers on the march in heavy marching order. This is contrary to general opinion, and even to the teachings of science. Honey is even better, as it requires practically no digestion, and is taken up rapidly by the human system. Honey leaves practically no residue, and therefore the stomach, spleen, kidneys, and liver are untaxed? Do you see the point?

LAYING QUEENS.

Is it Practical to Have Two or More in One Colony During the Summer Season?

BY E. W. ALEXANDER.

[If a beginner or some old bee-keeper unknown were to write along the lines in the subjoined article the average apicultural editor would be inclined to turn it down and say that such writer had, perhaps, better get a little more experience before wading out so far into deep water. But Mr. Alexander is no novice in the honey business. His annual crops go up into the carloads, and his experience covers a lifetime. He has given us a great many valuable hints. We hope, therefore, that the reader will not be ready to exclaim "Impossible! absurd! nonsense!"

If our correspondent had said any thing about perforated zinc separating each laying queen from every other one in a separate hive-body or hive-section, the scheme would not seem to be such a departure from common knowledge and practice. Perhaps he does use it; if so he does not say so. But even a plurality of queens separated by zinc in two or more hives has proved to be a failure with some. As it is, we hope our correspondent will not drop the matter right where it is, but go more into details; for most of us have come to believe that is impracticable to have more than one queen in a hive except in a few instances where Nature apparently is departing from her usual rule and allows mother and daughter to work under the same roof.

If any other correspondent has succeeded along these lines of plurality of queens in one hive, without zinc

to keep them apart, we should be pleased to hear from him. Now having said all of this we will let Mr. Alexander do his own talking, for he is quite competent to defend his position.—ED.]

Yes, I think it is. With the ever pressing desire to increase our surplus we are anxiously looking for new methods whereby we can secure strong full colonies early in the season in order to take advantage of any flow of nectar that may come. This has caused us to do some experimenting along the line of keeping two or more laying queens in one colony. For several years we have known that laying queens will never sting each other if they can possibly get away from one another. This fact caused us to try some experiments along this line, with the following results:

First, a great increase in the amount of brood was noticed in these hives; in fact, they were so full of brood that but few cells were left for honey or pollen; and when extracting-combs were put on top a very large surplus was easily obtained. This fact alone was enough to encourage us in testing this method still further. Then another result from our experiments, so far as we have gone, is that we have never had a colony with two or more laying queens show any desire to swarm.

This is something we can not understand, as we expected these strong full colonies to be the first to swarm. In order to see if we could force one full colony last summer to swarm, we put 14 good laying queens into it at one time, and in about two weeks we examined it and found the 14 queens we had put in two weeks before, and their own queen all in harmony together, with nearly every cell in their combs containing brood; then during the rest of the season we used this colony as a queen-nursery. Sometimes we would take three or four queens from it to use in other colonies, and occasionally we put in five or six at a time, and none were ever balled or stung. In fact, there was no queen injured in any way in that hive during the season. I have seen three or four on the same side of a comb crawling among the bees, and whenever they would touch each other they would start quick in an opposite direction.

When Dr. Lyon was here last summer he tried to get a photograph of these queens; but they would run from each other so quick that he could not catch them in a photo.

VIRGINS RECALCITRANT.

Now, don't think that you can handle virgin queens in this way, for you can not. They will sting each other or a laying queen as soon as they come together. There is not much you can do with virgin queens until they are fertilized and commence laying; then their desire to sting other queens is all gone. I have often kept two or three laying queens under a common drinking-glass on the work-bench for a number of days without their trying to sting each other.

The worst feature to overcome in giving our colonies two or more laying queens is in knowing how to introduce them safely.

Last summer my son Frank discovered the most practical method of introducing queens that I have ever heard of—a method whereby over 90 per cent are safely introduced and laying within 18 hours from the time the parent queen was removed. He wants to test this method still further another season before giving it to the readers of GLEANINGS; then if it still works as well as it has with us in the past there will be no trouble in giving our colonies as many laying queens as we may desire. If so, it will be another advance made in modern bee-keeping.

I can already see several advantages in keeping two or more queens in one colony. First, in requeening we would have to remove only the oldest queen. Next, our hives would be kept very full of brood, which would give us strong colonies, and there would be no more complaint about our bees storing too much honey in the brood-nest. Then, for some unaccountable reason, it does seem to prevent the desire to swarm; and with colonies that contain nearly twice the usual working force we certainly would secure a much larger surplus. Our experiments so far along this line have been so encouraging that I expect to test it thoroughly another summer. I really enjoy testing and working out new methods, and I am thankful I have sons who can fill my place when I am gone. The young honey-producers of the future can not afford to remain long in the ruts we older men have made, but with renewed perseverance they must push forward until they have made great improvements over many methods now in use.

In the above I have given our experience so far as we have gone on this subject. Had my health last summer been so I could have tested this more thoroughly as to its bearing on natural swarming I should have done so; but as it was, I could do but little. To me it does not look reasonable that, to increase the number of queens in a hive, would in any way prevent the colony from a desire to swarm; but still it is barely possible that it may.

A particular friend of mine has been anxious for me to give our experience on this subject to the public, so that others could test it also this coming summer; otherwise I would not have written this article before another fall, for I have always made it a rule to write nothing but what I was perfectly sure was fact, and for that reason I desired to test this whole subject another summer before making it public. I expect this new method, in common with some others I have given, will be tried in a bungling way by a few bee-keepers so that there will be no possibility of its being a success in their hands. Then these parties will be the first to send in their reports condemning the whole thing. But, fortunately, this class is but small, and is daily growing less. This is encouraging; and when we all do the best we can we hope to leave the world the better for our having lived.

Delanson, N. Y., Jan. 17.

SOME NEW YORK STATE BEE-KEEPERS.

When to Practice Shook Swarming; Gathering Sweet-clover Seed.

BY D. EVERETT LYON.

Among the progressive and successful bee-keepers of New York is Mr. Aaron Snyder, of Kingston, a producer of large crops of strictly fancy comb honey. Mr. Snyder's success is not altogether due to the location, which is a good one, but rather, also, to the fact that he uses up-to-date implements and keeps abreast with modern methods.

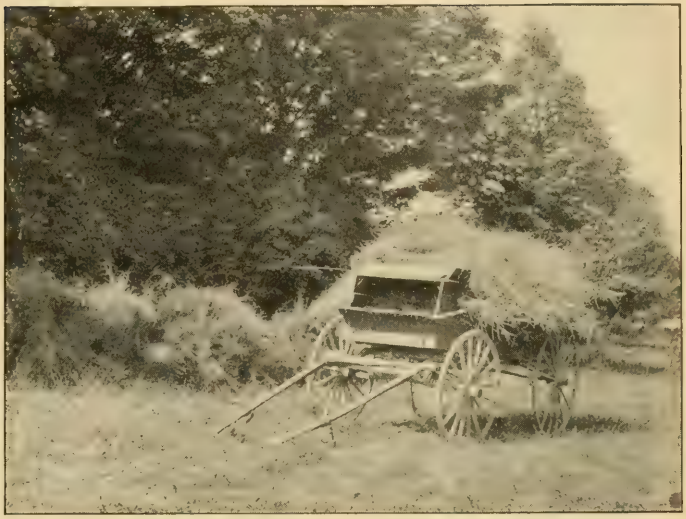


FIG. 1.—A LOAD OF SWEET-CLOVER HAY NEAR THE APIARY OF THE SNYDER BEE AND HONEY CO., KINGSTON, N. Y.

The Snyder apiaries, aggregating about 400 colonies devoted exclusively to comb honey, are scattered in four yards varying from three to ten miles from home. Assisted by his son Frank, Mr. Snyder looks over every hive once a week during the honey-flow.

This, with him, is a necessity in order to prevent too much swarming. As soon as he finds a colony preparing to swarm he cuts out all cells; the next week, when he visits that colony, if preparations for swarming are found, he cuts out all cells again. The next week, if he finds queen-cells started he at once makes a shaken swarm, which settles the swarming business with that colony for the season. He thinks it bad practice to continue cutting cells more than twice; and if the colony is extra strong, one cutting is preferable. He advises against shaken swarms, however, unless the colony is determined to swarm, although he concedes that for some and in certain localities it may be better than his plan of cell-cutting.

The bee-forage, while not over-abundant, is of a continuous character when it is started, so that the bees have access to white and sweet clover, basswood, goldenrod, buckwheat, and some blue and white aster.

The buckwheat does not form such an important part of forage as the sweet clover, not being grown anywhere near as extensively as further up in the State; but the sweet clover of both the white and yellow varieties grows abundantly, especially near a meadow country about 1½ miles from home.

Mr. Snyder had just arrived at the home yard with a load of sweet clover for seed, when I called upon him, which is seen in Fig. 1. A part of the load is still on the wagon.

From the above statement it will be seen that, though there is no basswood or clover rush of honey, and that soon ending, still the varying plants furnish a more or less continuous flow. It is not surprising, therefore, that the apiaries average about 75 lbs. of comb surplus to the colony, the total output of which was about 22,000 sections. In fact, most of it was harvested late in August when I called,

FIG. 2.—TEMPORARY COMB-HONEY-STORAGE CRATES MADE OF CONDENSED-MILK BOXES.

and I was pleased with the manner of its temporary storage. Shallow boxes, in which canned condensed milk comes, were used, holding 34 sections each, and these were tiered in the storage-house—see Fig. 2.

HOW TO GET THE SECTIONS IN THE OUTSIDE ROWS CAPPED OVER NEARLY AS WELL AS THOSE IN THE CENTER

Mr. Snyder discovered a plan by which he was able to get the sections in the outside row capped over almost as readily as those of the center, and that was by putting cleats, about ⅝ inch thick, up and down on the inside on one side of the super, then when filling the super he put in a fence separator first (that leaves ⅝ space outside the fence), then a row of sections, then a fence, then sections, and so on till full; then with the super-springs it makes every thing snug and nice, leaving another ⅝ space outside the last fence, these outside spaces being considered valuable, and claimed that, by so doing, it allowed the bees a larger space between the fence and the super side in which to cluster, which, with the added heat at that point, prompted the bees to cap more readily. Certainly the outside combs were as fancy as the others, and the proof of the pudding is in the eating.

The honey and hive house is a part of the barn, while a small horse-car out of commission, resting beneath the shade of a very large Norway spruce-tree, constituted a handy repair-shop in the home apiary.

FIG. 3.—MR. SNYDER FINDS THE TENT INDISPENSABLE AT CERTAIN TIMES.

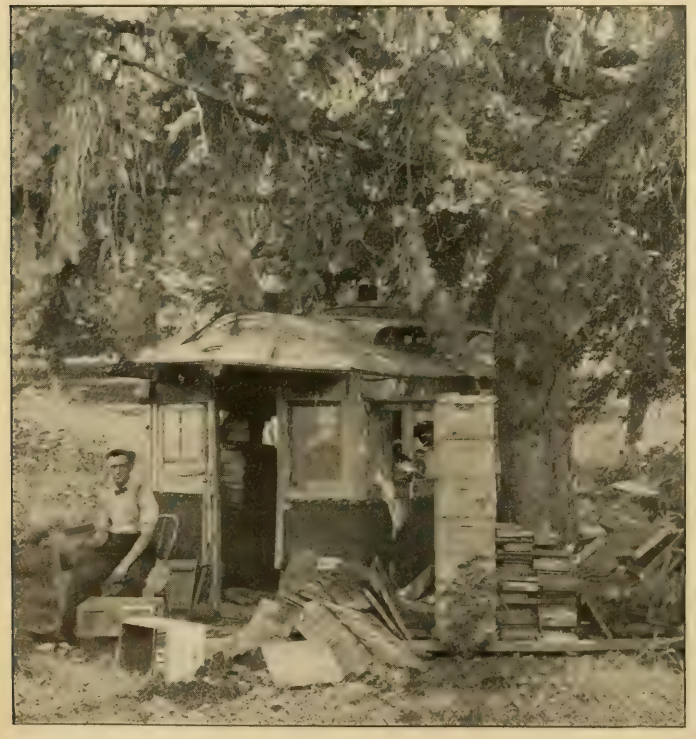


FIG. 4.—AN OLD HORSE-CAR MAKES A GOOD STORAGE-SHED.

Mr. Snyder finds the tent indispensable at certain seasons, and uses it much, but he prefers one a third larger than the ones usually cataloged.

A wheelbarrow and combination tool-box and seat, as seen in Fig. 5, are considered indispensable.

In the matter of rendering wax from old combs Mr. Snyder extracts nearly every ounce of wax; and when he gets through with the slumgum it is fit for the ash-heap.

The character of the press is seen in Figs. 6 and 7, and it does its work thoroughly.

Personally Mr. Snyder is of medium height, tipping the beam at 210 lbs. He has never drank a glass of liquor nor a glass of beer. He bubbles over with geniality and good-fellowship. The writer was made thoroughly at home, and enjoyed the hospitality so characteristic of bee-keepers.

Mr. Snyder not only keeps bees because they are his bread and butter,

but also because he loves the little fellows. New York bee-keeping has for several years suffered the setback that came to many parts of the State some years ago when black brood devastated so many yards; but with such men as Mr. Snyder, Mr. Alexander, and a host of other royal good fellows of the Empire State doing so much in and for apiculture, it won't be long before bee-keeping will be more largely carried on than now.

The outlook for bee-keeping in New York was never better than now.

Rye, N. Y.

[It is gratifying to see the similarity between this press and the one which we have used so much. The construction is very much the same, even to the round can or tub, although our can is made of heavy tin while this one is of wood bound with steel hoops.

Last summer Mr. Snyder sent us four barrels of slumgum, saying nothing about the method which had been used for rendering the wax. We found that it was so clean it would not pay to work it over. Now we see that this slumgum was from a press very much like the one we were using.

There is no question about the value of this unheated press, which is practically the same as the Hatch press. The extremely low cost, the great capacity per day, and the beautiful color of the wax, are all points well worth considering.

The scheme of putting an extra fence between the outside rows of sections and the sides of the super has been used generally in nearly all fence supers. It is a good plan just the same.—ED.]

HONEY-CROP REPORTS.

Can Accuracy be Secured?

BY CHAS. H. CARGO.

The reports of the honey crop and its condition as the season progresses is a very desirable item to all bee-men, and especially to those who are largely interested. The changing of a cent in market value means very large sums, especially to heavy dealers, and an unnecessary slump in the market caused by misgivings as to holdings generally is a factor which ought to be eliminated.

There is probably more honey produced than is generally supposed, and any normal increase will only keep pace with the growing demands of a growing nation.

The weighing of single hives has proved its value, but it lacks giving a proper average for a whole apiary or a whole county. To solve this difficulty bee-men interested in such things can use a weighing-beam with ice-hooks mounted on a tripod, or any wheeled contrivance that may be convenient, and need only to wheel from hive to hive, and weigh as many hives as will give a fair average. But I am not fully persuaded that a single hive from each apiary will not give accurate results. Here is the reason:

We are not interested in any one man's yield, and are really weighing specially selected hives from all the bees in the State. Now, if 100 hives are weighed semi-weekly in Ohio, and these hives are situated in all sections of the State where there are good flows of honey, and where there are poor,

FIG. 5.—MR. AARON SNYDER, HIS WHEELBARROW, TOOL-BOX, AND A PART OF HIS APIARY AT KINGSTON, N. Y.

FIG. 6.—THE SNYDER WAX-PRESS AS IT IS ACTUALLY USED.

where the bees are doing well and where they are not, will not these 100 hives give a final result of accuracy equal to that of weighing the same number in one apiary? And will not the good and bad reports be necessary, actually necessary, to get the proper average?

While admitting one hive is not an accurate quantity, because it can represent only a limited area, and may even be misleading, still in 100 colonies will not the test prove its value? The National Bee-keepers' Association could do nothing to increase its prestige and popularity more than to take up the question of combining with the excellent service of GLEANINGS' honey-crop reports, and furnish its members a monthly report, say from May to September, of statistics thus compiled. My idea of these reports is based on that followed by the government in certain lines, and the reports would read something like this:

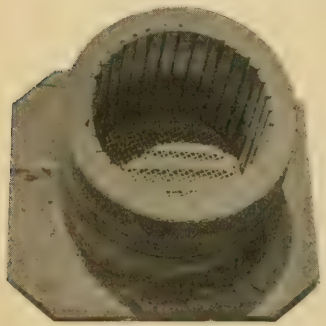


FIG. 7.—THE WOODEN TUB OF SNYDER WAX-PRESS.

Locality.	Principal honey-flow for fortnight	Hives weighed	2 weeks gain	Season's gain	% of Av. crop
Ohio	White clover	100 lbs.	800 lbs.	5000 lbs.	80 %
Estimated hives in State			.....	.....	....

Now given the number of hives in commercial yards, and the yield of the State is approximately arrived at for market purposes.

Another point, some hives will not do well, and some will be abnormal. How about these? Simple enough. They represent a factor present in all beeyards, and properly go right into the report, because they are representative of just the conditions we are trying to arrive at. They are not misleading, but tend to higher accuracy.

Charleston, W. Va.

[GLEANINGS will be pleased to coöperate with any intelligent movement that may be inaugerated to help along a line of effort suggested by our correspondent.—ED.]

YELLOW AND WHITE SWEET CLOVER AT DR. MILLER'S.

Their Value to Him.

BY DR. C. C. MILLER.

Last summer our cow-pasture was perhaps one-fourth covered with sweet clover. It grew rank, but the cow didn't seem to care for it. Still, there was so much of it that it would hardly be noticed if she ate quite a bit. But the grass was also luxuriant and abundant, and she evidently preferred that. By and by there came a dry time, a very dry time, and pastures were brown. Then it was that the sweet clover showed its value. It remained cheerfully green while the grass about it was dry and parched. It had, however, run up to six feet and more in height; and if you stop and look meditatively at a solid mass of sweet clover six feet high you'll realize that there's a lot of feed in it. Gradually it was reduced in height (although, of course, the cow didn't eat from the top down) until finally it was reduced to a height of two feet or so, as you will see by Fig. 1 from a photo taken Sept. 3, 1906. Compare this with the height of the single stalk in Fig. 2, which was taken the same day. But the comparison is not entirely fair, for No. 2 grew on rich low ground that had the wash from the elevated ground surrounding, and this stalk growing alone was especially selected on account of its unusual height. I was afraid the slender top might not show in the picture, so I held a dried weed beside it at the same height. From the ground to the top was just nine feet. I may have seen taller sweet clover, but I'm sure that's the tallest I ever measured.

That the cow does not eat it down lower

FIG. 1.—A PASTURE OF SWEET CLOVER NEAR THE HOME OF DR. C. C. MILLER, MARENGO, ILLINOIS.

than shown is a good thing, for each plant is bushy, throwing out fresh growth on all sides as fast as eaten off, thus furnishing a constant supply of tender growth until freezing weather. It also makes it of greater value for the bees, for the fresh growth is always blossom growth, and if you had been present at the time the picture was taken it would have reminded you of bees working on buckwheat.

Some one will say: "But I thought you told us the honey crop of 1906 was an entire failure with you; and if the bees were so busy on sweet clover why the failure?" My dear sir, a pasture-field for a single cow is not a very large field of operation for a yard full of bees. To be sure, that was not the only sweet clover within reach, but the road commissioners took care that not much of it should be allowed to blossom on the highways. Yet some credit should be given to sweet clover and cucumbers, for, besides having the hives heavy with honey for winter, I had some combs filled that I have stored away for next spring. Just wait till I go down cellar, and I'll tell you how many there are. . . . There are 248, most of them full, and from that down to half full.

I count those combs much the same as so much white-clover honey in sections. I'll tell you how. The hives are, I think, heavy enough so that the bees would go through till clover harvest without any feeding. But at the opening of the harvest there would be a good deal of empty space in the brood-chamber, and that space would have to be filled before the bees would devote much attention to the supers. Now if I take away combs that are empty, or nearly so, replacing them with these reserve combs, don't you see that every pound of such honey thus given means another pound of white-clover honey in the sections? Besides, it's a "dreadful" comfortable feeling to know that you are fully provided against any contingency if any colony in spring should be short of stores.

I have always thought I didn't care for yellow sweet clover, because it comes two to four weeks in advance of the white, right when white clover is doing its best. But last season made me change my mind; for white

FIG. 2.—LUXURIANT GROWTH OF SWEET CLOVER AT DR. MILLER'S.

clover didn't do its best, although blooming abundantly; and if the yellow is an unfailing yielder the same as white sweet clover (and I suppose it is), then the yellow would come in very handy.

In the eyes of the general public, sweet clover is a very noxious weed whose first encroachment must be carefully watched, lest it get a foothold and spread persistently and promiscuously. The great objection in the eyes of the bee-keeper is that it is so hard to get a stand of it. I have tried several times to get a solid field of it, but have not yet succeeded. This cow-pasture comes the nearest to a success of any thing I've had, and I did not try to get a stand there.

I'd like to have a solid field of it so I could have some hay that was nothing but sweet clover. My stock care more for it dried than green, and I suppose that is the general experience. The horses care more for it than the cow, but other cows may care more for it than ours.

DEMONSTRATION OF LIVE BEES AT FAIRS.

How to Get Twice the Market Price by Advertising; the Advantage of Permanent Customers.

BY G. BRUNDAGE

At the last Orange Co. fair I had an exhibit of honey and live bees. The first day, as we were fixing up the exhibit the general superintendent said, "Why, are you going to have live bees here in this flower-tent? I think you will have trouble—don't think it will work—every one will get stung to death." But I told him that, although showing live bees in a tent was new work for me, yet I had handled a few bees, and I would assure him that there would be no trouble, and no one stung, and, further, that I would promise him if any one were stung I would remove the bees at once. Not one person was stung in the whole four days. Well, it did not take me long to get some nice comb honey over to the general superintendent's tent, and also some to the superintendent of the flower-tent where I had my exhibit. After that we were shown every courtesy.

MISS EMILY TOMPKINS, WHO, WITHOUT VEIL OR GLOVES, HANDLED BEES IN A CAGE AT THE COUNTY FAIR.

I had a one-frame observatory hive, an eight-frame hive, a Pearl Agnes hive, and a twin mating-box all with bees and queens. These were all in the wire-cloth tent. Many people were around all the time, and we were nearly flooded with questions. Sometimes a dozen would be talking all at once — in fact, we were nearly talked to death. It is no small job to manage such an exhibit and explain all the details pertaining to bees, honey, and queen-rearing. I was very fortunate in securing the services of a talented young lady, Miss Emily Tompkins, whose photo is shown herewith, as she appeared at the fair. She would go out among the crowds of eight or ten thousand people, then go into the bee-tent and handle the bees, with bare head and arms. Ladies outside would say they would not go in there for thousands of dollars; but this young lady had the will power, and a very level head, and did not mind it at all. Every old bachelor would stop and say,

with a knowing wink, "Miss Honey, how much is this honey?"

In regard to the business part of the enterprise I would say that I consider it a very good and profitable advertisement—at least I found it so. I sold a good lot of honey at the fair, and the end is not yet, as I have received lots of orders and complimentary letters from people who saw my exhibit. One man bought fifty pounds for his own use.

Be sure to deal fairly with all, and your trade will grow each year, and you will not have to ship your honey to the glutted city markets for five or six cents per pound. Your friends the farmers, and your city cousins, will pay you three times the money. It does one good to see the children's eyes get big when you go into a house with a nice pail of that sparkling sweet. Not long ago I went to a home where there were three little girls, and gave them a quart jar of extracted honey; and do you know, friend Root, it did me more good to see those three pair of eyes glisten than to sell five hundred pounds? The mother told me a few days afterward that they never tasted any thing like it—in fact, did not know the taste of good honey; and these are well-to-do people. She told me they bought some honey a few years ago, but it was a very poor thin sort of sour stuff, and they had never bought any since. But she said they wanted more of mine—you see another customer for life. So, my bee-keeping friends, the secret of my selling is in giving some away. I suppose I give away not less than five hundred pounds in the course of a year, and it is a better advertisement than any gained by the use of printer's ink, as every pound will be sure to bring more and more customers every year. But you must produce good thick rich honey, ripened on the hive, and not that thin artificially ripened green stuff that has to be sold from four to six cents per pound. I always get from ten to thirteen cents for all my extracted honey, so one ton is worth about two and one-half tons of that four to six cent stuff that is shipped to the wholesale market. I am getting more retail trade each year, and sell hundreds of pounds from the house to the farmers. I also have some retail trade in New York and in two others States, New Jersey and Connecticut. The customer always pays the express. As I said before, if you sell the right kind of honey these customers always have friends who will be sure to want some the next year, so it makes an endless chain. Some take as much as fifty pounds. I ship the most of it that goes a long distance, in tin pails. For the retail grocery trade I use glass packages in one to three pound sizes.

Salisbury Mills, N. Y.

HOLTERMANN'S CONCRETE BEE-CELLAR AND WORK-SHOP.

[We have before urged the very great advertising value of making live-bee demonstrations at county fairs and at other public gatherings. We have seen the evidence of

this so repeatedly in our own experience we wonder that more bee-keepers do not avail themselves of the plan instead of shipping their honey off to the big cities where it comes into fierce competition with the honey sent in by other bee-keepers.

GLEANINGS offers its congratulations to the young lady who is brave enough to go inside a wire-cloth cage and handle live bees before a crowd.—ED.]

THE WINTERING PROBLEM.

An Ideal Bee-cellar; Some Ventilating Problems Neatly Solved.

BY R. F. HOLTERMANN.

[When we called on Mr. Holtermann last January we naturally had a curiosity to see his new mammoth bee-cellar which he had recently constructed, and which he believed was about as complete and perfect in all its appointments as any thing that had ever been constructed. The opportunity to see it was gladly accepted. We have inspected a good many of the bee-cellars in the United States and Canada, but we are free to say that we have never run across any thing more unique or nearly perfect in its general arrangement than this combined extracting-house, work-shop, and bee-cellar underneath. The whole structure is made of solid concrete—that is to say, the foundation walls as well as those above ground are made of cement and sand poured into wooden forms a good deal after the manner of those described in our issue for November 1, page 1363.

Mr. Holtermann does not say any thing about the very roomy work-shop and extracting-room in the story above ground. This has a large stove, all the modern appliances for extracting and liquefying honey, and a few necessary tools for making and putting together supplies. Mr. H. thus describes the cellar. —ED.]

AN INTERIOR VIEW LOOKING DOWN THE AISLES OF THE HOLTERMANN BEE-CELLAR.

The individual bee-keeper can understand and solve the wintering problem only as it is studied in all its bearings. If individual stock and variety of bee, stores, and their nature, position, and previous treatment, the manner in which the bees are protected during the autumn and winter are not taken into consideration in coming to conclusions, but little progress can be made when we seek to detect the effect of winter repositories under certain conditions. Temperature and moisture undoubtedly play an important part in the question; but the one who considers this alone is like the man who builds a fine house upon an unknown foundation. We as bee-keepers jump too much to conclusions, and then spend our reasoning powers and energies in defending ground perhaps hastily and injudiciously taken.

INDIVIDUAL AND VARIETY.

The variation in individual and breed has long been recognized by breeders in other lines of live stock. The mountain sheep and the Down each requires certain environments to be at its best. So with bees. I am satisfied that no one variety of bee will do best under all conditions. In our northern winters we require a bee with a strong constitution. Long confinement requires good digestive and assimilative powers and a nervous temperament not easily upset. A nervous strain may bring on diarrhea. Irritability, as a rule, is not an indication of nerve strength

What can be done by selection in breeding corn and other crops can be done by selection in breeding bees; but if done, the microscope, the finely balanced scale and accurate measure, the chemist, and the winter repository, with facilities for controlling temperature during long periods—these, combined with patient investigation, will determine what points do bear on successful wintering and bee-keeping, and what are ideal conditions at which the bee-keeper shall aim.

STORES.

So far as I know, we want abundance of stores, free from germs of fermentation. I believe that bees are and can be successfully wintered on honey rich in pollen; yet this

pollen, particularly in the early part of winter, is undesirable, and a feed of granulated-sugar syrup in the fall for the center of the brood-chamber is desirable where the bees are long confined in winter quarters. The stores should be kept covered by the bees, thus preventing granulation and the absorption of germs and moisture. Empty combs outside of the cluster, stores within, is what we want rather than that which is too often the case —the opposite condition.

FALL PROTECTION.

Years of observation and reflection has convinced me that bees are better in winter repositories as soon as we have reason to believe that cold penetrating weather has arrived. This, with us, is about Nov. 15. A week or two out in the cold may do more harm than can be undone by a later flight.

HOW PROTECTED.

The above is important, and generally does not receive adequate consideration. There should be sufficient ventilation through the hive to carry from the bees and stores the foul air and moisture, and yet not carry away an unnecessary amount of heat. To do this the coverings should not be air-tight, and yet they should be sufficiently warm to keep the air and heat from passing through more rapidly than to carry out the object heretofore mentioned. I use an unsealed cloth; and, upon this felt cloth, felt paper, old carpet, tea-box matting, or chaff cushions

VENTILATION.

Bees respire. In that excellent address of Mr. S. D. House, delivered at the late Brantford convention, and already reported in GLEANINGS, he gave the result of a series of experiments reported by eminent men. Under the most favorable conditions for quiescence the bees gave only three to five respirations in three to five minutes. No animal, be it man or beast, can breathe without, in the act, consuming oxygen and emitting carbonic-acid gas. If the air is foul the system suffers; up to a certain point the respiration and circulation increase. This law is as fixed as that the earth revolves about the sun.

We may say, "My bees get no systematic ventilation," and be correct. My stock of cattle may live by browsing and feeding where they can during the winter; the conditions may be so they will do fairly well without my care; but live stock must get their feed, and bees must consume oxygen. As we value our reputation let us desist from saying winter repositories require no ventilation. Bees have blood; that blood circulates, and bees breathe through openings called "spiracles," carrying air even to the substance of the brain and nerves. These organs being there, intelligent thought should for ever preclude us from claiming that it is not requisite that winter repositories with bees do not require to be ventilated.

It is a matter of whether that process of ventilation can be seen and noticed, and is under control, or not. No ordinary house or cellar is ever air-tight. If the bees are quiet, and respiration at the minimum, and the number of hives limited, probably, in an ordinary cellar, there is generally enough circulation without special means. When winds are high, and the temperature outside lower than that inside, ordinary cellars generally have too much ventilation with correspondingly rapid and injurious changes in temperature. But when calm, and the outside and inside temperature about the same, then the lack of system and the want of regular intakes and outlets, with *power* to move the air, is felt by the bees, even if not by the bee-keeper. In my cellar there is a system of ventilation, and by means of fire in the bee-house above, or by means of fire in the center compartment, 5×5, Fig. 1, two stove-pipes discharging into the chimney F, Fig. 1, I can get a current of air up the chimney. Then through openings on the north and south side, at the base of the chimney, the foul air is drawn from the bottom of the cellar, and a change of air is maintained. I should like to see a fan in the chimney, run by clockwork and weight, or some other inexpensive power.

TEMPERATURE AND LIGHT.

Observation leads me, until I know more at least, to prefer a temperature of 42 to 45°. Darkness as absolute as we can secure it is, I am sure, the desirable condition.

QUIET AND ODOR.

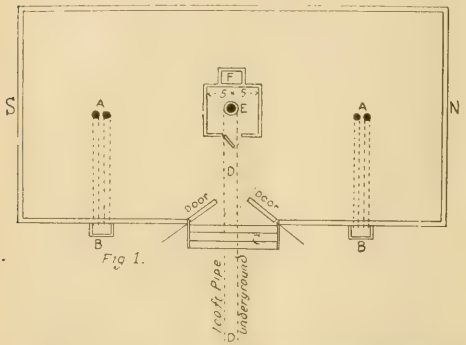
Bees may become accustomed to many things; in fact, I believe *they may be trained* to a greater extent than many admit. We can, however, make no mistake by securing as absolute quiet as possible, and I aim at this as to vibration, noise, light, and odor; no liquefying of honey, and no rendering of wax is allowed in the bee-house above while the bees are in the cellar below.

DESCRIPTION OF CELLAR.

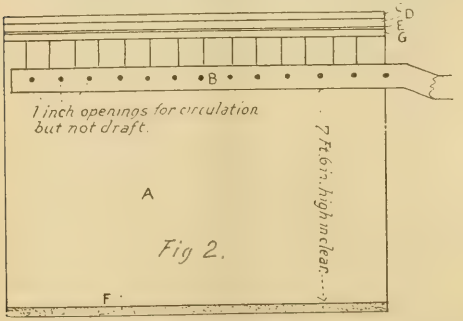
The bee-house illustrated is of concrete, and even the chimney is of this. The chimney has a cowl on top of it, with its back to the wind to assist in getting a draft. On each side of the chimney is a box ventilator projecting through the peak of the roof. This is 12 in. square, with a slide to regulate the amount of air passing through. These shafts enter the cellar at the ceiling above, and are for warm weather. The building is 50 ft. long by 25 wide. The cellar walls are below the level of the ground, the object being to get a more uniform temperature in the ground, and less liability for moisture to condense on its walls.

The ceiling of the cellar, to secure uniformity of temperature and prevent condensation, has, as seen in the upright-elevation plan, Fig. 2, G, a tongue-and-groove floor; C E, felt paper; D, air-space; C, tongue-and-groove floor; F, the floor of the cellar, is concrete. The only openings from the outside into the cellar are seen in Fig. 1. From B to A are two glazed waterlime-jointed tiling, coming above ground just outside of the bee-house at B B, the wall going down 8 ft. into the ground; then passing under the cellar wall

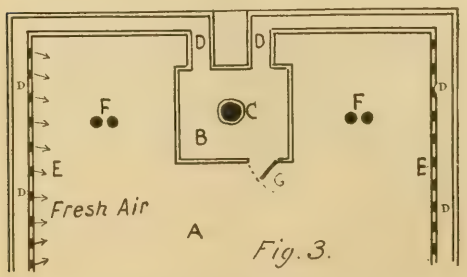
and floor, entering the cellar at points A, A. Then there is a stairway, C, which is covered by two doors at the level of the ground, and again closed from the cellar by two doors. Through these doors the bees are brought in and out.



Ground plan of cellar. Inner compartment, E, has solid concrete walls extending to ceiling. Opening E communicates with a sub-earth ventilator, D. When in-rushing air is too cold a fire is built in the stove, tempering the air, when it passes upward to the ceiling, passing into the square box wooden flues shown at D D D D, in Fig. 3, where it is distributed to every point in the cellar.



Perpendicular elevation of bee-cellar, showing the square box ventilating-flue with its one-inch holes as shown in diagram 3.



Horizontal plan showing scheme of ventilation. Room B has solid concrete walls to prevent danger from fire from the stove at C. Under the stove is the sub-earth-ventilator opening that supplies fresh air, which, if too cold, is warmed and then forced through the distributing-flues D D D D, which are perforated by one-inch holes. The flues D D are closed at the ends, and all air must pass out at the holes indicated by the arrows. F F are ventilators carrying foul air and moisture by means of flues extending through the roof.

D is a 12-inch glazed pipe with waterlime joints 8 ft. under ground. This enters the cellar in the compartment E, a coal-stove standing over this opening. In this compartment, if the air is not sufficiently tempered by its passage under ground it can be warmed before it passes into the cellar.

In Fig. 3 the system of distributing fresh air is shown. The illustration is not quite correct as to the central compartment, however. B is supposed to be the same central compartment as E in Fig. 1, and the distance between it and the west wall should be greater. At the top of this compartment, on the west side, are pipes, D, D, D, which carry the fresh air to the north and south end of the cellar, E E respectively being the north and south ends. From there through many one-inch openings (see arrows also, in B, Fig. 2, and the method of turning the corner of the wall), the fresh air is evenly distributed through the cellar and carried off in a more or less foul condition through openings in the bottom of the chimney F in Fig. 1, and at ventilators F F, in Fig. 3, said ventilators showing through the roof on either side of the chimney shown in the exterior half-tone view of the cellar.

I have a curtain this winter on the north, south, and west walls, and find it assists in equalizing the temperature. This winter I have had more or less of air passing through all the air-passages, yet have kept a sufficiently high temperature half the time without fire.

Two years ago I darkened all the windows in the bee-house above, and partially opened a trap-door which leads by means of a stairway alongside of the center compartment to the cellar floor. This, however, gave too rapid variations in temperature and was abandoned. During the last strong gale, with the wind reaching a velocity of over 60 miles an hour, in 24 hours a change from 59 to 12° was experienced; and with no change in the dampers in the ventilators there was a variation of only 2½° in the cellar.

In visiting my cellar, Mr. Editor, you noticed that the stocks of bees in the twelve-frame Langstroth hives were powerful large clusters of bees hanging under frames with full capacity. This, of course, has an influence on the number of bees found dead on the floor. Again, the bottom-boards on my hives are pretty clean of bees; but up to Jan. 23, by measure I swept 1¾ bushels of dead bees from the floor.

Brantford, Can.

[As we go into the shop above we lift a large trap-door, light a candle, and descend into the lower regions. All is quiet, save now and then a little zip, zip of a flitting bee lured by the light of the candle. The air feels about 45. It smells fresh, notwithstanding there were from 400 to 500 colonies in the cellar. There were but few dead bees on the cellar bottom, and at the time of our visit one could go all over the cellar without stepping on a dead bee. Mr. Holtermann showed us the inner compartment where the stove is located, and which is used for tempering the air when necessary as it comes in from the sub-earth ventilator. Notwithstanding it was a cool brisk morning, and our ears tingled in the open air, even after a brisk walk, the air in that inner compartment

where we came in had been sufficiently tempered through its underground passage, so that no artificial heat was needed. It is in only extremely cold weather, we believe, that Mr. Holtermann finds it necessary to warm the air, and perhaps at other times when the circulation is sluggish. We followed the course of the ventilating-flues designated by D, D, in Fig. 3, C; and on pushing the candle up to one of its one-inch openings we could plainly see by the deflection of the flame that the air was pushing out. The long course of these ventilators clear around the cellar, closed except at the one-inch opening, distributes the air evenly over the entire cellar.

Mr. Holtermann omits to draw attention to the ventilating-pipes sticking up through the roof on either side of the chimney. These, if I remember correctly, extend down through the ceiling of the cellar to within about a foot of the floor. Their purpose is to assist the chimney-flue to carry out the foul air. On going outside of the cellar we could see the white frost at the top of the ventilators, showing that the foul air was continually passing out, the moisture collecting and freezing into a white frost.

This cellar is one of the largest in the country, being exceeded, perhaps, only by the mammoth bee-cellar of E. W. Alexander and that of the late Capt. J. E. Hetherington. The extensive bee-keeper may well copy after the general plan of this; for on the principle that the proof of the pudding is in the eating of it, this cellar certainly does its work.

It should be remembered, also, that Mr. Holtermann is an advocate of large and powerful colonies. It is one thing to keep a cellar sweet and nicely ventilated with weak or moderate-sized colonies; but when we put some 400 or 500 twelve-frame rousing big ones in, we all admit we have a different problem to contend with, and yet this cellar takes care of them.

We respectfully suggest that this journal be laid aside, or marked, so that late this summer or fall, when one is ready to begin his cellar, he can have something definite to work on.—Ed.]

DEEP VS. SHALLOW BROOD-CHAMBERS.

The Value of Courtesy in Criticisms.

BY C. P. DADANT.

Mr. Editor:—When I replied to your request in stating the reason of my preference for deep brood-chambers I had no idea of starting into a discussion. I expected to have my say and be done. But several of our good bee-keepers have jumped on me, and I feel that I want to say a few more words before I drop the subject.

It would appear from the article of Mr. Chambers that the shallow hive is of such great advantage that it is forcing the manufacturers to handle it in spite of themselves. He perhaps forgets that, over twenty years ago, Mr. Heddon invented a shallow-frame hive which was drummed and advertised all over the country, for which Mr. Heddon even secured the approval of Mr. Langstroth, in his declining days, when he had no longer any apiary practice, and that, in spite of all that, the Heddon-hive supporters may probably be yet counted with two figures. If I judge of the number of shallow hives now in use by the amount of comb foundation sold for such shallow hives, it is but a very low per cent (less than two) of the number of colonies in existence among progressive apiaries. Yet the shallow hive was recommended long before the movable frame made its appearance, as I said in a previous article, and the main claim made for it was the ease of manipulation.

Of the many advantages claimed for these hives, one looms up most conspicuously—the greater ease in handling and transporting the hives. Shallow hives are more desirable for migratory bee-keeping. I do not do any migratory bee-keeping, neither do 999 out of every 1000 bee-keepers. They are easier to transport from one spot to another, but I do not transport hives. We have hives which have stood in the same spot for twenty years. I think but little more of moving a hive than a house, and I have never had need of a hive which could be packed around like a trunk.

The foundation is easier put into a shallow frame. I know this to be a fact, for we use shallow frames for our supers; but putting foundation in frames is done only once in 25 or 30 years. If the foundation has been well put in, it will not need to be changed for a lifetime. Shallow frames may be extracted more readily, because the knife runs across them more readily. That is true, and that is why we use shallow frames in our supers. But we rarely extract honey from the lower story of our large hive. There is no need of it.

It would appear that the difference in opinion comes from the difference in methods of manipulation. Our opponents would have us think that they have the better way because they handle hives; we would have them think that we have the better way because we do less handling of hives, therefore have less hard work.

We are told that, if we wish to give room, we have to put in one additional frame at a time, while they double the size of the hive at one operation. We, too, can double the size at one operation (if we choose to do so); but we have the resource of enlarging only a little at a time if we see fit.

I don't relish the idea of hunting a queen by shaking the whole swarm out. I can do it faster by lifting a frame or two. Neither do I like the idea of helping a weak stock by giving them a full story of brood from a powerful colony or a full case of honey. I prefer a more gradual help.

But the matter which has the most weight in my mind is the greater amount of brood secured from a queen on deep frames. Mr. Chambers calls this an entirely unproven assertion. It may be to him. It is not to me.

He says, "I deny that this style of laying is maintained throughout the season." That is true, and the reason of it is that the bees put honey or pollen here and there, and destroy the harmony of the brood-laying. But if Mr. C. will examine as I have done, he will find that at no time is there so large an amount of brood as when the regularity of laying is kept up. This is not difficult to understand by any one who has watched the queen in an observation hive, and has noticed the deliberation and slowness of her actions. Time is lost, much time is lost, when she does not follow a regular course in her laying.

And, please, do not tell me that you can rear stronger colonies than I do by our methods. Mr. J. M. Shuck, of Des Moines, who was an advocate of reversing hives, sent us his foreman once to win us over to his methods because, as they said, they could rear more brood by inverting than by any other method. The foreman came, stayed two days, and went away, won over to the Dadant methods.

Mr. Bondonneau, the editor of the French GLEANINGS, "*L'Apiculture nouvelle*," when he made a trip to the United States, some three or four years ago, showed great astonishment at the strength of our bees, and said to me that he had not anywhere seen such strong colonies as he saw in our apiary.

In summing up, allow me to thank those friends who do not agree with me for the courtesy of their criticisms. If we can't agree as to size of hives we can at least agree to be pleasant, for it is worse than useless to discuss by abusing one another, as I have seen it done in some other places.

Later.—I am in receipt of the Feb. 15th number of the *Review*. In this paper Mr. Hutchinson, who has at one time been in favor of the horizontal Heddon hive, and who also argued in favor of manipulating hives instead of frames, shows a decided preference for the deeper frame, and I desire to quote his last words, with which I concur completely: "My plea is for simplicity in hive-construction—for plain simple frames, without projections or staples, without any excrescences whatever. Then I would hang them in a hive that is equally simple. I believe—yes, I know—that all these 'fixings' that are put upon frames and hives are a needless expense and bring no recompense."

Hamilton, Ill.

[We wish to indorse particularly the sentiment "If we can not agree as to the size of hives, we can at least agree to be pleasant, for it is worse than useless to discuss by abusing one another." That sentiment we hope all our correspondents will carefully keep in mind. We will not allow, if we khow it, any thing but courteous and friendly criticism in these columns, and we believe that our pages in the past bear pretty fair evidence of this. Some correspondents, when they get involved in a controversy, feel inclined to ridicule and abuse an opponent. Ridicule is never argument, and abuse is out of place in modern journalism. Let us disagree; let us argue, if need be; but let it be courteous, with a disposition at all times to recognize and acknowledge the good points made by our opponent. Good discussion with an honest square difference of opinion should and does bring out a lot of truth, and for that reason our columns are open to all such —ED.]

HOW TO GET MORE HONEY FROM THE CLOVERS.

How to Destroy the Clover Midge; Furnishing Seed to Neighboring Farmers.

BY WM. M'EVOY.

This is the all-important line to put the work on, and yet it is the most neglected of any. The basswoods are fast disappearing, and less alsike clover is being grown; and, this being so, every bee-keeper should help to improve his own locality by getting a certain amount of alsike-clover seed sown every year, as by so doing he will get larger yields of this choice honey, which sells for the highest price in all markets.

The nearer the fields of clover are to the bees, the larger the yields of honey will be. Mr. Arthur Quantz, of Langstaff, York Co., had fields of alsike clover only a few rods from his bees, and he took over 260 lbs. of extracted clover honey from several of his colonies, and this in 1906, an off year when the crop from clover was almost a complete failure in many parts of Ontario. Mr. Alexander Donaldson, of Binbrook, Wentworth County, had fields of alsike clover only a few feet from his apiary, and secured by far the largest crop of section honey from clover of any man in our province in 1906.

I mention these cases to show that it is not how far bees will go for honey, but how close we can have them to the fields of clover, that counts every time.

Feeding off red clover up to the 20th of June, or mowing at that time, destroys the whole of the first brood of the clover midge; and when the second crops heads out there will be little or no midge to injure the heads, and then nearly every head of clover will come into full bloom; and if the weather conditions are right then, Italian bees will gather a good deal of honey from the second crops of red clover.

In September, 1905, I extracted over 3000 lbs. of pure red-clover honey after giving the bees plenty to winter on. This honey was a light amber in color, and good in flavor, and sold for the same price as the honey gathered from white clover. My bees being Italians, they worked well on the second crop of red clover, which was not injured by the midge in my locality in 1905 on account of the first crop being cut early.

In 1906 red clover was not cut soon enough in my section to destroy the first brood of clover midge; and when the second crop was ready the midge started in with full force, and practically ruined it for both seed and honey. The controlling of the red-clover

midge will result in more seed for the seed-grower and more honey for those who keep Italian bees near it.

For many years I have made a practice of looking closely at larvæ to see how the bees were feeding it. Some was very poorly fed in colonies where the bees had every chance possible to do better, and in others I found the brood much better fed where the chances were not so good. The differences in these cases were in the bees. I found the pure-bred Italians the best of any race at feeding their brood, and also best at gathering honey from red clover. I am not in the queen business, and have none for sale.

Woodburn, Ont., Can., Jan. 24.

[This is a good time of the year to get the farmers to sow alsike and red clover in the vicinity of the bee-yards. We go so far as to offer seed of alsike *free* to the farmers within a half or three-quarters of a mile of any of our yards. Our old rule was to give the seed at half price. At present we are inclined to believe it will pay us to furnish the seed free, especially alsike.—ED.]

BEE-KEEPING IN NEW ZEALAND.

Prospects there Not Great.

BY A. E. DEWAR.

On page 1488 of your issue for Dec. 1, 1906, appears a copy of a letter from the editor of the *Waikato Times*, referring to what purports to be a statement by Mr. Hopkins, our venerable Government Apicultural Expert. While I agree with the opinion expressed as to Mr. Hopkins' peculiar suitability to occupy that position, I can not believe that the facts and figures given were ever expressed by him, and I can not allow the article to go unchallenged. The general impression which it is intended to convey appears to be that New Zealand is a bee-keepers' paradise, only awaiting the influx of a number of cute American bee-keepers who will reap a rich reward. Now, the sooner this illusion is dispelled the better, as I am sure that a bitter disappointment would await the large majority of persons who journey to this country with the hope of making a living by apiculture. I say the "large majority" advisedly, for I am not a pessimist, and know that there are some localities where a respectable livelihood could be made by bee culture; but even in these districts the seasons are uncertain, as you also find them in America, especially when clover is the main source of supply (I think Dr. Miller will agree), and some other culture should be combined with bee culture to help tide over the bad seasons.

No one knows better than Mr. Hopkins the extreme difficulties to be met with in New Zealand; but under his supervision, with the enforcement of legislation dealing with foul brood and other diseases, and the adoption of modern and scientific methods, the condition and results of the industry will materially improve. He would be the last person to suggest the publication of an article which would have the effect of inducing immigration to New Zealand on misleading statements, as he knows that there are numbers of capable bee-keepers in this country who would be pleased to reënter the business if local conditions warranted them in so doing.

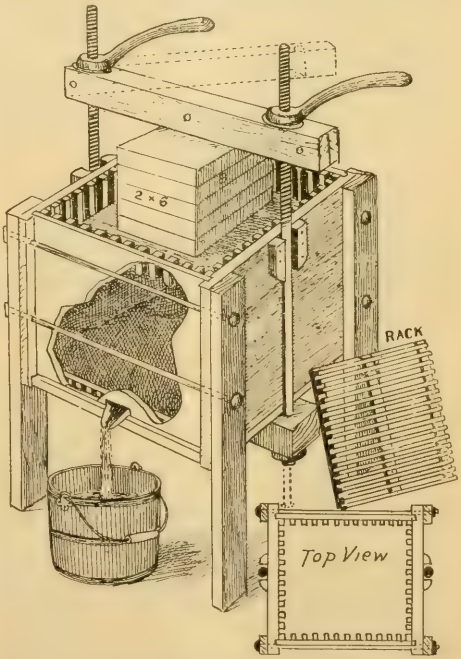
Auckland, N. Z.

AN UNHEATED WAX-PRESS.

How to Construct a Press Entirely of Wood.

BY JOHN LOCKWOOD.

The drawings shown herewith make the construction of my wax-press plain. To begin rendering wax, first put the cleated rack into the bottom of the press. Take a burlap sack that is big enough to hold 100 lbs. of bran and rip the seam in one side and the bottom. Spread this burlap sheet over the press; push it down in and see that it fits well into the corners, letting the edges hang out over the top. Now take a whole sack and put it into the press with a hoop in the

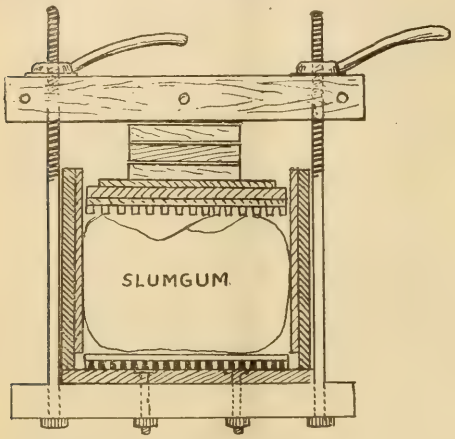


JOHN LOCKWOOD'S UNHEATED WAX-PRESS.

top to hold it open. Now dip into your tub, full of boiling comb; take the hoop out of the sack; push it down with a stick to make it fit on the bottom and in the corners. Fold up the mouth of the sack and the sheet over it. Put the follower on, with the blocks on top. Swing the cross-bar over and push the screw up through the hole in it. Put on the handle and turn both handles down, one at a time.

After the wax is pressed out, take off one

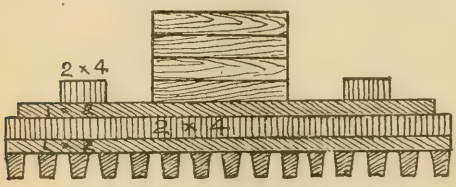
handle; let the screw slip down even with the top of the press and unfold the first burlap so it hangs over edges. Now get hold of the top of the sack and pull it up some so it



CROSS-SECTION OF LOCKWOOD'S WAX-PRESS.

can cool a little. Then empty out the slumgum, put the sack back, and fill it again as before.

To boil the comb, use a four-hole stove with all the lids off. Put on a big tub containing two buckets of water, and add the



CROSS-SECTION OF FOLLOWER.

comb as it boils, until the tub is nearly full. The water and free wax flow out of the press immediately, leaving only the slumgum to press.

Brigham, Utah.

[The construction of this press is good, and it ought to give satisfactory results. It will be seen that it is on the same principle as the Hatch press in that it is unheated, the comb being melted up with water in a large boiler and then dipped into the press lined with burlap.

As outlined in our two articles on the subject of wax-presses, we are very sure that one pressing, as described, would not remove more than 85 or 90 per cent of the wax, leaving 15 or at least 10 per cent waste. Since the publication of the two articles, many letters have come in which have led to many further tests, all of which have proven conclusively in our estimation that one pressing in any form of an unheated press can not be relied on to get all of the wax. We would suggest, therefore, that our correspondent take the refuse that has been through the press once and put it through the same treatment again, comparing the amount of wax obtained from the second rendering with that obtained from the first.

Many presses similar to this one are used all over the world, but we doubt whether there are many producers who use this method that run the refuse through the second time, for it looks so perfectly clean after being pressed once. We would urge all such, however, to try at least a second melting, for we think at least 10 per cent more wax will be obtained. After the second rendering there will not be over 2 per cent of waste, as we have proven.

It would seem desirable, if the body of this press above described were to be so deep, that it be only about half filled with melted comb at a time, otherwise the cheese will be so thick that too much wax may be left, even after two renderings.

Some years ago Mr. F. A. Salisbury, of Syracuse, N. Y., used a press made entirely of wood, and closed at the top to prevent all escape of heat. His idea was that, in this way, the refuse would not cool so quickly, and he would, therefore, have more time to get the wax out; but we are of the opinion that, even in such a press, closed at the top to prevent loss of heat, one pressing would still leave a good deal of wax. We have made a number of experiments with the ordinary Hatch press, with the exception that a jet of steam was introduced so as to keep the press and its contents very hot. We found that, even under these conditions, one pressing would not get all the wax by any means, leaving almost as much waste as when no steam was introduced. It is true that, with a press heated in this way, the slumgum can be taken out, shaken up, and pressed again, and that this operation can be repeated a great many times until the waste is reduced to a very small amount; but this actually takes more time than it does to melt up the refuse again and run it through.—H. H. ROOT.]

PARTHENOGENESIS.

A Recognized Phenomenon Among Plants.

BY JOHN H. LOVELL.

Relative to the statement in GLEANINGS, page 163, "the man who can prove that plants reproduce themselves generation after generation by the principle of parthenogenesis should have a monument erected to his memory," some of your readers may be interested to know that parthenogenesis is a well-known and generally recognized phenomenon among plants. It will probably be found described in all the larger text-books on botany. By parthenogenesis among plants, as among animals, is meant the development of a new individual from an unfertilized egg or spore. It should, of course, be carefully distinguished from vegetative multiplication by bulbs, cuttings, offshoots, etc. It is also entirely distinct from hermaphroditism where

both sexes occur in the same flower or in the same animal.

Parthenogenesis is not uncommon among the seaweeds, or algæ (*Chara crinita, Spirogyra*), and fungi; it is unknown among the mosses, but is of common occurrence among the ferns. It was first discovered in ferns by Professor Farlow, of Harvard University, in *Pteris cretica*

Among the higher or seed plants, parthenogenesis has been observed in *Antennaria alpina, Thalictrum purpurascens*, etc. There is good authority for stating that, by cutting off the tops of young flowers of taraxacum it has been shown that normal seeds are produced parthenogenetically. Many species of *Hieracium* also set seed without undergoing pollination. Many other examples in the plant world might easily be cited, but the above are doubtless sufficient.

By the remark, "There is no pollen produced by the basswood or linden," I presume that it is intended only to state that pollen does not occur in sufficient quantities to prove attractive to honey-bees. There is, however, doubtless more than an ample supply for fertilization and the production of seeds. This is certainly true of the European linden. Hermann Müller, the foremost authority on the pollination of flowers, states that he has seen numerous flies both sucking honey and feeding on the pollen. While he observed thousands of bees resort to the flowers for honey, he found none with pollen in their baskets. When bees can procure nectar they rarely stop to gather pollen. On flowers which have the honey more or less concealed, it is not uncommon to observe the larger bees sucking honey, while the smaller wild bees (*Andrena, Halictus*), whose tongues are not long enough to permit them to do likewise, are collecting pollen.

Waldoboro, Maine.

F. L. SLADEN'S BOOK ON QUEEN-REARING IN ENGLAND.

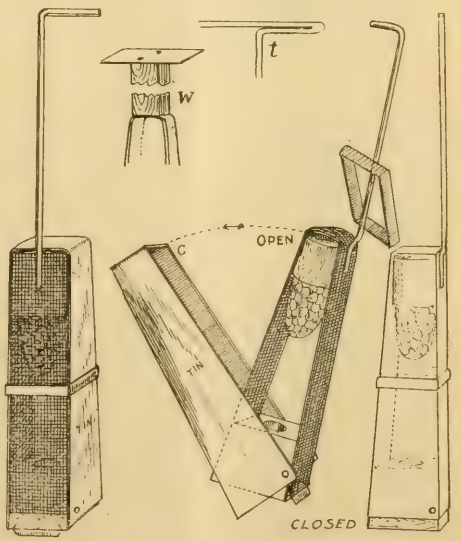
BY W. K. MORRISON.

Books (or, rather, booklets) on queen-rearing are like the autumn leaves in Vallambrosa—they come thick and fast; and it is a good sign, too, for the accurate and careful breeding of queens tends to produce a decided improvement in our present races of bees. England has been rather lethargic in this department of apiculture, but makes some amends by the publication of the above little work on the subject. The English bee-keepers are mostly opposed to the breeding of foreign races of bees, which is rather odd, seeing the same country excels in the breeding of all kinds of horses, cattle, sheep, swine, poultry, rabbits, cats, dogs, cavies, canaries, etc. The principal authorities over there are pinning their faith to the ordinary black bee, and this may account for their failure to secure great results in the honey season. There can not be any doubt that the judicious crossing of races of bees, and also the blending of desirable characteristics, is a work calling for our highest praise and ungrudging support. This is particularly true when the queen-breeder has some scientific knowledge and a wide experience of bee-keeping to begin with, as Mr. Sladen had. He also visited the United States, and investigated thoroughly some of the most up-to-date queen-rearing yards in this country.

In addition he also visited India to observe the different species of bees in that country. The result is an interesting monograph on the breeding of queens. The subject-matter describes the plans and practices of a queen-breeder such as we are used to in this country, hence we need not quote from it. The chapter headed "Races of Bees" will be agreed to in the Western Hemisphere, but it seems doubtful if English bee-keepers will subscribe to it. But we wish Mr. Sladen every success in his effort to popularize the new races. The chapter entitled "The Honey-bee in India" is worthy of attention, because it helps us to a better understanding of the value of *Apis dorsata*.

There is also an account of "a scent-producing organ" in the abdomen of the worker honey-bee, which ought to interest a good many. The organ described is situated between the fifth and sixth dorsal segments of the abdomen, and was first noticed by Nassanoff, of Moscow, in 1883, and described by Zoubareff in the *Bulletin of Apiculture*. Zoubareff thought the excess of moisture contained in nectar might be voided by this gland.

There is also an account of some of the enemies of bees found in South Africa.



SLADEN'S IMPROVED NURSERY-CAGE FOR QUEEN-CELLS AND VIRGIN QUEENS.

Mr. Sladen resembles some of our own breeders in that he soon discovers a new short cut to success, and, by way of supplement, has published an article, giving his latest

methods, in the *British Bee Journal* for March 22, 1906. The principal feature of this communication is what he terms "Sladen's improved nursery-cage for queen-cells and virgin queens."

Here is his description of the cage:

My improved nursery-cage for the hatching of virgin queens and for holding them until they are distributed to the nuclei is illustrated in the cut. The ripe queen-cell is held in position by the wire-cloth sides, which can be easily adjusted to grip securely queen-cells of any size. The cage opens on a new principle, which makes the insertion or removal of the queen-cell or of food for the queen expeditious and easy. The cage hangs between the combs some distance from the top by the stout wire shaft, the bent portion of which rests on the top-bar of one of the frames. The pupa, or queen, is thus kept warm between brood, and this is very important in the cold nights of May and June. The cage itself is of the smallest possible size, so that a number of them can hang side by side between two combs without widely separating the combs, and one or more of the cages can be inserted or removed on turning back the quilt without lifting out a frame. The part *c* may be made of tin plate or of celluloid. With the latter material the queen and queen-cell can be easily seen inside the cage while it is closed. At *t* and *w* are shown different kinds of shafts.

This cage can be used, if required, as an introducing-cage. The candy-hole is covered with a tin slide, which, when pushed to one side, enables the bees to liberate the queen by eating through the candy.

Mr. Sladen deserves great credit for his enterprise and courage in attempting to inculate better breeding methods for bee-keepers in England. The book bears the imprint of the *British Bee Journal* office, London, England.

MANAGEMENT OF OUT-YARDS IN MICHIGAN.

How to do Without Queen-excluders; Wide Spacing in Extracting-supers; More About Sectional Honey-houses.

BY E. D. TOWNSEND.

Since Mr. H. H. Root's write-up on page 1241, 1906, of his visit here last summer I have received several communications with a list of questions to be answered—so many, in fact, I am convinced there are many interested in this out-yard question, and that more particulars are wanted along this line. This letter is a fair sample of what I have received:

Dear Sir:—The article on your extracted-honey methods in out-apiaries was very interesting to me, especially the clause on excluders. I had this year an accidental confirmation of your views. Early in the season, on about 20 colonies I put on second stories without excluders, instead of with them, as I always have done, because I desired the queen to lay all through both bodies, so that I might make new colonies later. To my surprise the second stories, when I went to look at them the next time, were full of capped-over honey with almost no brood at all in them; and as that didn't suit my original purpose, and since I was too busy to do any lifting-up, I put on a third story *above*, and still had almost no brood at extracting time above the brood chamber. I am going to put out another 200-colony apiary next spring, and I think I shall save myself the cost of excluders and the bother of handling them and taking care of swarms If extracting is done at the out-yard, a little brood is not much of a setback any way. Heretofore, from my out-yards I have hauled home the supers full of honey, freed from bees by escapes, and returned the empty ones the following spring, letting the bees at the home yard clean them up after extracting. But I think I will try my next out-yard with a cheap extracting-house and no excluders at all.

Now a question. If only light frames are used (as I do) in a ten-frame body, don't you think the thickness of such extracting-combs will have a tendency to discourage the queen from using them? Have you had experience in that connection? It seems natural that it would. It is true that, if actually much pressed for additional cells, the bees might cut the combs down to proper depth; but the tendency would seem to be to stay in the regular brood-chamber, with regular spaces and cell depths, as long as possible. I shall give your plan a trial next year in the new apiary. I have always thought excluders an absolute necessity, but long saw that they were a great bother and interference with the best work of the bees.

W. M. JANES.

Mr. Janes' 20 colonies were worked just the same as we have been working about half our colonies for several years. The secret of swarm control in the production of extracted honey is in giving the second story before the bees begin to think of swarming.

This practice gives the queen an abundance of room to lay before and during the fore part of our honey season; then, later, after the main breeding season is over, by giving third and subsequent upper stories *on top*, the queen is crowded down into the lower story at extracting time, for you will remember we do not extract our white honey until a week or ten days after the season closes. This leaves the honey on the hive clear through the season, and gives us beautifully flavored, rich ripe honey. But were we to extract during the honey-flow, as some do, or raise up this second story and place our third story *under* the second, then the whole plan would get a black eye, for, quite likely, we should find our brood-nest in the top story, and the brood-nest bare of both honey and brood, at the close of the season.

I said above, put *all* upper stories on *top*. While this is our practice, it's not absolutely necessary, for there will be practically no brood in the third and subsequent upper stories given, so if one sees fit he can lift the third story up and place the fourth between the second and third story, if the colony needs more than two additional stories; for by this time the queen is back in her original quarters, the brood-nest; and as the main breeding season is now over she will not bother the upper story any more during that flow.

We have two yards where queen-excluders are used. All our extracted-honey colonies are in 10-frame L. hives, with excluders over these 10-frame bodies. We have excessive swarming about one year out of three. I can hardly explain why this is so; but all who have kept bees long, find that, certain seasons, our bees are more inclined to swarm than others. It is these excessive swarming seasons that put a damper on excluders, and set us to studying out some system to do away with excluders and the accompanying excessive swarming, and still have our upper stories practically free from brood at extracting time, and the nearest I have come to it is with the system outlined above.

In regard to thick combs in the upper stories discouraging the queen from going above, this has been tried quite extensively. While it does sometimes seem to discourage her, at other times it does not appear to do

much good, as it is very easy for the bees to cut these combs down. If this thick-comb idea would work, and keep our upper stories free from brood, we could hardly afford to adopt this system. One reason would be, and a very good one too, is that honey stored in these great thick combs would hardly be equal, as to quality, to that stored in natural-thickness combs. When I say "natural-thickness combs" I mean those the thickness of brood-combs, or a little thicker, say 1⅛ inches, spacing from center to center. We have an exhibition of honey, etc., at our State convention each year, and we usually have a little honey there to show. Now, to produce this "show honey" we place full sheets of foundation on some of our strongest colonies, and let them draw them out as they fill them, then leave them on the hive clear through the season, and as long after as we dare to for fear of getting inferior honey mixed with it during our full flow. Of course, it has been capped over all this time, but it is getting better all the time.

I presume that, by this time, some one is beginning to think that, as foundation for our comb honey is always drawn out as filled—that comb honey ought to be much superior to extracted. This is not so, as our comb honey, to meet the demand, and bring the top price, must be taken off the hive just as soon as capped, or it will be travel-stained. This means a few cents per pound less to the producer; while the extracted is left, say a month longer, on the hive, it gets very thick and delicious—much superior to comb.

We use eight combs in our ten-frame upper stories to extract from, and we are making all our frames ⅞ inch thick clear around, otherwise the same as the L. brood-frame. This is 1⅛ inches, spacing from center to center. When we uncap we use a long uncapping-knife and *cut deep clear* down to the ⅞-thick frame. You see we have lots of material to cut off—so much that there are hardly ever any uneven combs but that are uncapped the first time over; then we got lots more wax; and then when we are through our combs are only an inch or so thick, which thickness we much prefer to any thing thicker.

Dear Sir:—I wish to bother you with another question. That extracting-house pictured on page 1242—please give me dimensions of, and some of the details of building. Is that plank for outside wall tongued and grooved, or plain plank? Is it planed, or rough as first sawed? I see it says the building is not troubled by mice. Does the tar paper prevent that by its odor, or is the house made mouse-proof? Is there any ceiling overhead, or is the roof made bee-tight and no ceiling needed? Is it large enough to store all supers, etc., during winter? W. M. JANES.

Our 12×16 sectional honey-house is built as follows:

The foundation is in two sections, 8×12 feet, scant, in size, and is built of 2×6-inch material, placed 16 inches apart, with a 2×6 spiked on the ends. The floor is of matched material; the sides and the roof-boards are planed on both sides. I suppose it could be made of rough inch stuff, but it would not work so well, neither would it be as light to move as planed material. The sides and ends of the house are built separate, and are held together at the corners by means of bolts. The posts are 5 feet 10 inches. The roof is one-third pitch. A part of our houses are shingled, and part tarred roofing, and each half of the roof is built separate. The frame-work, except the foundation, is all of 2×4-inch material planed down to 3½×1½ inches, as this is heavy enough for this size of building, and makes it lighter to handle. The rafters are three feet apart. The frame for the sides is three 16-ft. and two 5 ft. 10-inch pieces of 2×4. When nailed up, the three long 2×4's furnish a plate, a sill, and a girth. Now, this girth is placed exactly the right distance from the plate so that the window will just fit in between, and slide, on the shop-window plan. We used to buy glass sash for these windows; but experience teaches us that a board window is better to move; and in the hot season, when the houses are in use, we do not need them shut, only night or rainy weather; so now we make them without glass, and depend on opening them for light, etc. Then the opening is covered with wire cloth on the outside to keep the bees from getting in. A window of this description is built on each side, a little in front of the center, which brings them in the part of the building where most of the work is done. This makes a light airy room that is a pleasure to work in compared to some of the small dark dungeons I have seen some bee-keepers use.

A 2 ft. 8 in. by 6 ft. 6 in. paneled door is placed in the center of the front end. The frames for the ends are built similar to the ones for the sides, with the addition of a gable end built at one-third pitch. The end rafters of the roof rest on the gable ends. The siding is put on up and down, and projects down one inch below the sill, so that the water will not crawl in under upon the floor. The siding on the gable end also projects up enough to cover the outside rafter, so as to give a more finished appearance. The corner posts are set in such a way that, when the building is set up, the flat sides come together. This makes it hold together better.

After the house is set up we paper the sides, ends, and the roof between the rafters with roofing-felt fastened on with lath, being careful to cover all the cracks, etc., to exclude bees. So far we have never seen a mouse or ant in one of these tar-paper-lined houses. This felt roofing is nothing more than a high grade of tar-paper, and when first put on has a strong tar smell that disappears in about 60 days.

To Mr. Janes' last question, "Is it large enough to store all supers, etc., during winter?" I shall have to answer no if he means a 200-colony yard. This size will do very well for a 100-colony yard, and there will be room for every thing during winter, although it's a little crowded when our upper stories and every thing are in. We have one 200-colony yard, and use two of these 12×16 houses at this yard, and get along all right.

Remus, Mich.

SYSTEMA AGRICULTURÆ.

A Review of a Bee-book Printed 220 Years Ago.

BY R. B. HOUGH.

I have before me a quaint old volume entitled "Systema Agriculturæ; the Mystery of Husbandry Discovered," etc., by John Worlidge, Gentleman, printed in London in 1687, and in it are several pages devoted to bees and bee-keeping. Thinking the readers of GLEANINGS may be interested in knowing what was being done in these lines 220 years ago I will make a few extracts from it for your columns; and, as illustrative of the antiquated diction, use of capital letters, etc., I will quote them just as I find them, excepting as regards the obsolete forms of letters, which your compositors would hardly be prepared to duplicate. The author states that "There is no Creature to be kept about our Rural Seat, that affords unto us so much variety of pleasure as the *Bee;*" and in speaking of the nature of bees, "Idleness is so detestible a Vice amongst them, that they will not admit of it, nor tolerate it in any (save their sovereign), but every one is continually busied either abroad in collecting their Food, or at home in building Combs, feeding their Young, or some other employment." They have "no single property in anything they do or get; for whatever they gather, all have a part; if any be injured the other will revenge his wrongs, although to the loss of their lives. Their labour is not compulsive, every one acting his part voluntarily, and seemingly contend and endeavour to outvie each other in their nimble and expeditious Voyages, where they so mightily lade themselves, that many times their decayed Wings are not able to support them home." "There can be nothing kept more advantagious than an *Apiary*, according to the Stock or sum you lay out. Many a Countryman hath raised a sufficient Livelyhood only from these laborious Creatures: We need produce no Precedent for it; it is so usual, *Virgil* also seems to hint as much, where he saith:

I saw an old Corycian, who enjoy'd
Few Acres, not for Pastorage employ'd;
Nor was it for Corn or Vineyard found;
Yet were his Thorns with Silver-Lillies Crowned;
Here you could Vervain and rich Poppy find,
That wealthiest Kings be equall'd in his mind:
To him huge Swarms his Bees first pregnant brought,
And full Combs with Rivers of Honey fraught.

After telling desirable features to be considered in the location of an apiary the author advises to set small trees near by so that the bees "may pitch at swarming time near at home, and not be in danger of being lost for want of a lighting-place."

In speaking of hives the author tells us that those most commonly used were made of wicker-work or straw bound with bramble, but adds that they "may be made of Boards, either of an eight-square form joyned together, or bound with Hoops like a Milking-pail, flat on the top," and "In these Hives of Wood may be made several Glass-windows—not only for your observation of their work which you may with much facility and delight perceive—but that the Bees may have the more light; a principal help and encouragement in their Labours." The windows ought to be provided with shutters, but "leave such always down during the Summer that are from the Sun-wards."

He also mentions "Glassen-Hives" as invented by one William Mew, and quotes the inventor in the following: "The Invention is a fancy that suits with the Nature of that Creature; they are much taken with their Grandeur, and double their Tasks with delight. I took (saith he) Fourteen Quarts out of one of the Transparent Hives, double their quantity of others; they quickly paid me their Charges with their Profit," etc. "They serve only to give me an account of the daily Income, and a Diary of their Negotiations: whereby if I spend (saith he) half an hour after Dinner or Supper, I know what hath been done that day; can show my friends the Queen's Cells, and sometimes her Person, with her Retinue."

The author then recounts several efforts in trying to "intice and inforce Bees without Swarming out of their own Habitations into new Hives," but then as now the bees seemed to have ideas of their own in such matters and he was unsuccessful.

After telling of the premonitory signs of swarming he continues: "When the Swarm is risen, it is the usual custom to play them a fit of Mirth upon a Pan, Kettle, Bason, or some such like Instrument, upon pretence to gather them together, and make them settle; which Custom seems to be very Ancient, as *Virgil* witnesseth;

——Make a shrill Sound,
And beat the Cymbals of the Goddess round.

While he mentions this as the usual custom he has little confidence in the efficacy of noise in making the bees settle.

"When your swarm hath made choice of lighting-place, you shall quickly see them knit together, in form of a Cone, Pine-apple, or Cluster of Grapes. When they are fully setled, and the Cone hath been awhile at the biggest, then Hive them."

"First make choice of a Hive proportionable in bigness to your Swarm, that the Bees may go near to fill it that year; but rather under-Hive a Swarm than over-Hive them."

"Then rub the Hive with sweet Herbs, as Thyme, Savory, Marjoram, Balsam, Fennel, Hysop, Mallows, or Bean-tops, etc., and with a Branch of Hazel, Oak, Willow, or any other of the aforesaid Herbs, but rather of the same Tree whereon the Swarm lighted, wipe the Hive clean, and dip such Sprig or Branch into Meath, or fair Water mixed with a little Honey, or with Milk and Salt, or Salt only, and therewith besprinkle the hive.

"Then having first drank a Cup of Good Beer, and washed your Hands and face therewith, or being otherwise defended, if the Bees hang upon a bough shake them into the Hive, and set the same on a Mantle or cloth on the ground, as is usual; or you may

cut off the bough if it be small, and lay it on the Mantle or cloth, and set the Hive over it, which is the better way."

The necessity of the drink of beer becomes more apparent when we consider that the use of smoke for subduing the bees had not yet been thought of, and the odor of one's breath after drinking beer seems to have been effective in driving away the bees. In speaking of the means of defense against bees he says: "In these several ways of dealing with bees, it is good to defend one's self as well as may be against their stinging, which to some persons proves very troublesome, especially if they are uncleanly, or have any ill scent about them; therefore with caution must they be tampered withal. Some only drink a Cup of good Beer, and find that sufficient; others wash their hands and face therewith, which proves a good defence: I have gone amongst them in their greatest Anger and madness, only with a handful of sweet herbs in my hands, fanning about my face, as it were, to obscure and defend it. Also if a Bee do by accident buzz about you, being unprovided, thrust your face amongst a parcel of Boughs or Herbs, and he will desert you. But the most secure way of all, and beyond the completest *Harness* yet published, is to have a Net knit with so small Meshes that a Bee can not pass through, and of fine Thred or Silk, large enough to come over your Hat and to lie down to the Collar of your Doublet, through which you may perfectly see what you do without any danger, also having on a good pair of Gloves, whereof woollen are the best." R. B. HOUGH.

Lowville, N. Y.

[In our opinion the "good beer," so far from preventing stings would, if any thing, have the very opposite effect. We don't know from "experience," but we do know (as admitted by our author) that strange or peculiar odors (peculiar to the bees) sometimes induce stinging. We have no use for beer in any manner or for any purpose, and would not, therefore, indirectly encourage its use in bee culture.

We have many old bee-books, and some of the practices of those olden days are exceedingly ludicrous, judged from our present knowledge and experience. We perhaps will make some extracts from some of these other works.—ED]

THE reader will have noticed by our last issue that we have begun to quote the honey markets of London, England, and Havre, France. We are establishing connections by which we hope to secure absolutely correct prices at which honey is sold in those markets. We are getting these quotations because it will have a tendency to open an outlet for California and Southern honey in good years when our Eastern markets might all be flooded.

CASE'S METHOD OF CURING FOUL BROOD; A CORRECTION.

In your footnote, March 1, page 321, you say that "The old bees, after being moved, would go back to the old location, *and, not finding their hive, go into some one near by*, thus having a tendency to spread the disease." Now here is just where you make a mistake. If you will read carefully you will find that the bees from the treated colony are on the old stand marked ♀, and that if any bees come back from the stand marked they will find their sisters galore glad ♀♀ and ready to welcome them: this *prevents* their going to other stands near by.

I should have said that the hive left on the old stand (the one first indicated), and that contains the swarm, natural or shaken, should be made to look exactly like the one removed, so that all bees returning from ♀♀ instantly recognize it as home.

W. W. CASE.

Frenchtown, N. J., March 8.

[We accept the correction.—ED.]

HOW A TIMID BEE-KEEPER CLIPPED A QUEEN.

Being somewhat afraid to make my first attempt at clipping a queen I devised the following plan, and succeeded without getting a sting. I wore my regular gloves; but instead of catching the queen in my hand I placed a wire queen-cage over her (a simple wire-cloth box with a wooden slide to go into the open end. She crawled into it at once, and I slipped the cover on and laid down the cage until I had finished moving the brood-frames. Then I stepped away from the hive a short distance, removed my gloves, lifted my veil, and let her run out on my lap, when I held her with one hand and clipped her wings with the other. Then I placed the cage over her and she entered, and I took her to the hive. It was not the queen I was afraid of, but the bees all about her on the brood-frames. I am going to try Mr. Doolittle's method with most of my bees. I saved one colony by Mr. Alexander's method. It had dwindled to a handful, except that my bees had been out of the cellar a month before I learned of it.

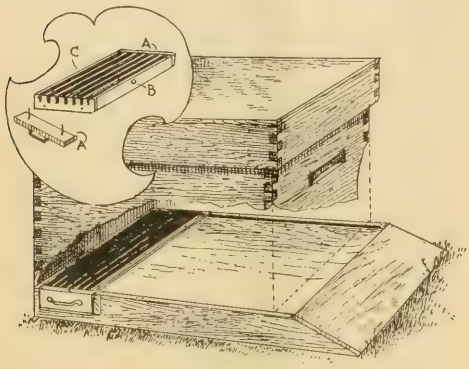
Neenah, Wis. MISS DORA M. HANSEN.

HOW TO MAKE ALEXANDER FEEDERS.

On page 1256 you publish an article by Ira Shockey, of Long, W. Va., illustrating a modified Alexander feeder which he constructed. I don't know any better feeder

than the Alexander. Modifications of the same may be found practicable from some apiarists, but the idea of using a bottom-board feeder is carried out by the Alexander feeder very well. I appreciate Mr. Shockey's principle of using fixtures in bee-keeping, which the apiarist can construct himself without great expense. I follow this principle myself, and have also constructed an Alexander feeder of my own, and used it during the last season with great success. In the following I will show how I made and used it.

In 2×4 planed-lumber pieces of any length I have cut out 4 grooves, ⅝ inch wide and 1¾ inches deep (the planing-mill charged me 2½ cts. per ft. for the lumber and all). From this grooved lumber I cut off pieces the



width of the bottom-board, and close the grooves on the head-sides by nailing on a piece of a ½-inch board. To have a communication between the four grooves I bore with a ½-inch bit a hole across from one side at the bottom of the grooves, and close the hole from the outside with a cork. This feeder I insert in a box, which I attach to the back side of the bottom-board, just large enough so that the feeder can slide in it, and be worked like a drawer. The hive rests with its back side on this box, so that the bees have access to the grooves. When feeding the bees I have simply to pull out the feeder an inch or two, pour in the syrup, and pull back again. This can be done in less than one minute per colony, and robbing can not take place. A. SCHELLING.

Burbank, Cal.

[The plan here spoken of is simple and practical. Instead of boring a hole through one side and plugging with a cork, why not use a short chisel and cut a notch in the center of the grooves. We would advise coating the inside of the feeder with hot beeswax.—ED.]

THE WEST QUEEN-CELL PROTECTOR AS AN INTRODUCING-CAGE; CEMENT HIVE-COVERS.

In the Aug. 15th GLEANINGS N. D. West tells how to use his spiral-spring cage for an introducing-cage. We have used it for such for years, and like it best in some respects. We get the long feed-cups or shells, and grind the bottom off on an emery-wheel and fill the tube with ordinary queen-cage candy —that's all the difference. If the bees liberate their queen too soon, and attack her, the first bee in will be killed, and so on until no more bees can get in, neither can the queen get out. We have had them do this trick a good many times, without doubt saving the queen's life.

A CHEAP UNCAPPING-CAN.

For uncapping-cans we get 50-lb. lard or cotosuet cans, punch the bottom of one full of holes, set it on top of another, and there you are, only 10 cts. each.

Here is a cover we are using, warranted not to rot, warp, nor blow off. It's just cement and sand, 1 to 3, made in a form about ¾ inch thick. Of course, you will protest that they would be heavy. They weigh 16 lbs. for a ten-frame. I am told that they could be made of cinders broken fine as well as sand. I think fine wires or wire cloth might be built in, then they could be made thinner. We have a lot of chaff hives with the outside covered with galvanized iron. I like them, and they are cheap. EUGENE MANNING.

Trumansburg, N. Y.

[Those cement hive-covers may be a good thing. It is possible they could be made thinner by a reinforcing of coarse wire cloth. The new metal lath would be cheaper and better for the purpose. If some one has tested this out, let us hear from him.—ED.]

SWEET CLOVER; WHY IT WON'T GROW ON CULTIVATED GROUND.

I notice, page 1048, the failure which Dr. Miller and A. I. Root had in getting a good stand of sweet clover on cultivated ground. I think I can tell you where they failed.

Sweet clover does not grow on cultivated ground, for two reasons. First, because in such ground the soil is so loose that it freezes out and drowns out. I saw this proven by some cultivated land which had lain idle for three years. The first and second year the sweet clover took hold, but always died out. The third year it wintered fairly well, and will probably do better in 1907.

The second reason is that the original stalk lives two years; hence if it is not allowed to go to seed it will be gone at the end of two years. RAY MCQUISTON.

Independence, Kan.

THE ALEXANDER CURE FOR BLACK BROOD NOT SUCCESSFUL.

I sent you last fall a sample of diseased brood. You pronounced it black brood, which proved true. You wished me to try the Alexander method, and report. This spring half of my bees were affected with the disease, and so were the neighbors' affected. We sent for foul-brood Inspector Strooms, and he said the Alexander method

was a failure because the spores are in the honey, which is true. I gave the Alexander method a thorough trial, and it is a perfect failure. Clean hives and foundation will effect a cure. S. J. SNYDER.

Aurora, N. Y., Sept. 28.

[We are very glad to get this as, the truth is what we want, let it cut where it may. We should be pleased to hear from any others who may have given the plan a trial. One or two reported that they were successful with it. Now let us hear both the unfavorable as well as the favorable reports.—ED.]

DO NOT BIRDS CATCH DRONES PRINCIPALLY?

On page 40 is an article entitled "How to Combat Bee-birds." It has been my lot to presume, through information from various sources, that bee birds catch only drone bees and do not molest those from which a sting would likely result. I have not as yet had either occasion or opportunity to put the matter to a test. Will GLEANINGS either sustain the presumption or correct the mistaken view, if error it be? M. L. R. EDMUNDS.

Brandon, Oregon, Jan. 21, 1907

[While large numbers of drones are caught by the birds, yet there is plenty of evidence to show that *both* bees, and, in a few instances, queens are taken. An examination of their crops after the birds were shot have shown the crushed forms of drones and worker bees. In some instances stings have been found in the inner walls of the crop. In some cases the birds, especially the king-birds, catch their victim by the waist or thorax, crush it to death, and then swallow. We have seen this act repeatedly, and the deftness with which a king-bird will catch a bee on the wing is enough to command wonder and admiration; but the admiration at least changes to revenge until the shot-gun puts an end to the "sport." —ED.]

THE STRENGTH OF AN ALFALFA FLOW; THE EFFECT OF CLIMATIC CONDITIONS.

I wish to respond to your request in regard to honey in alfalfa. Nine years ago I placed a strong colony on my scales, and the result was from 1 to 7 lbs. per day, or an average of about 1¾ lbs. per day. Two different days during the summer it was cloudy and sultry, the first day only 96 in the shade; that night the scale hive registered 6½ lbs. A few days later, another sultry day, and the scale hive registered 7 lbs., convincing the writer that climatic conditions regulate the flow of nectar to a great extent. Living, as you know, where there are miles of alfalfa, it is very seldom that I got even enough alfalfa to whiten the combs from the first cutting, which is usually very heavy. We usually get our best yield from the third cutting. Much depends on the amount of water. If plenty of water for irrigating, the apiarist is sure to be disappointed—that is, if he thinks he is to get a large crop. The short stunted alfalfa is the kind that produces most nectar. When the climatic conditions with a moderate use of water are right it would be very hard to overstock an alfalfa-range. WM. LOSSING.

Phœnix, Arizona.

[Mr. Lossing is one of the most extensive bee-keepers in Arizona. The editor remembers well the very pleasant visit he spent in his place some years ago. His whole family at the time of our visit, including his two daughters, were helping him in the garden. These girls he said were equal to any two men.—ED.]

CARNIOLAN AND CAUCASIAN BEES—DIFFERENCES BETWEEN.

There is more or less confusion between the Carniolans and Caucasians. Will you give me, as definitely as possible, a description of each breed? C. G. CHEVALIER.

Baltimore, Md., Dec. 31, 1906.

[Nothing has been published as yet that goes into an exact differentiation between Carniolans and Caucasians, so far as we know. As a matter of fact, the two races are very similar in characteristics and general markings. The Carniolans, probably, are slightly less gentle, a trifle larger, and in general color of a bluish cast rather than of a brownish black as are the Caucasians. This latter race is quite inclined to chink large wads of propolis in the hive and between the frames at certain seasons of the year, while the Carniolans are almost entirely free from it. Caucasians, again, are not much better than black bees in repelling moth-worms, while the Carniolans, on the other hand, seem to be the equal of Italians in warding off the pest. In other points the two races are very much alike, and the average person, probably, would not see much difference between them.—ED.]

ANOTHER USE FOR THE BAILEY HIVE-LIFTER.

In your issue of Sept. 1, 1906, appears an article from me regarding the hive-lifting device I use to such good advantage in my apiary; but I did not mention how handy it was in placing bees in their winter clamps on summer stands.

I simply place the lifter over the hive and raise it sufficiently high to admit a clamp. Then I gently lower the hive into place. One man performs the operation easily, and bees are not disturbed in the least. I then place a block on each side of the hive-entrance and lay a piece of board on blocks sufficiently wide to fill the space between the hive and the clamp, thus forming a passage for bees to go out and in if required. Pack the space between the hive and clamp tightly with dry forest-leaves, and cover up for winter, the space between the hive and clamp being about 4 inches. I have found this plan very satisfactory, and, when done properly, bees will winter better than being inside, JOHN BAILEY.

Bracebridge, Ont., Dec. 31, 1906.

Go to the ant, thou sluggard; consider her ways, and be wise.—PROV. 6:6.

I think we might learn many valuable lessons from the lower forms of animal life if we would take the pains to study them and get intimately acquainted with their habits and ways. The text I have chosen is not exactly what I wanted; but it comes so near it I think it will do very well. If we should take out the word "ant" and substitute "chickens" then it would fit exactly.

One of the valuable lessons I have learned is contentment and thankfulness—yes, enthusiasm—with just such an environment as God has seen fit to give us. A chicken when only two days old begins to be happy and enjoy himself. He is delighted with any sort of surroundings; and when he gets up in the morning he says by his actions, as he flops his little wings, "Hurrah, boys! now for some more fun! We are going to have another *whole day* to run about and find things, and *grow*." I told you about one of them that was determined to have me for a mother, and would always be between my feet, etc. Well, he pestered me so much when I was busy that I used to "dump" him into a little pen hardly a yard square that held young chicks just from the incubator. This, of course, didn't suit; but when he found "what couldn't be cured must be endured" he "got busy" teaching the new chicks how to drink, scratch, etc. He had run with the hen just long enough to get an idea of how she managed; and when he found he could not have a mother himself he decided, apparently, to be "little mother" to the baby chicks, and straightway began making believe he was their "natural born mother." I laughed and laughed at his antics. When it came night he tried to cover some of them with his diminutive wings, and mimicked very well the mother's quieting "cr-r-r-r," which means, "Now be quiet, all of you, and go to sleep like good chil—chickens."

When they were all old enough to go out I almost laughed until I cried to witness his assumed dignity as he led and instructed his flock. I *almost* cried from different emotions when his flock, all but one, died in the coal-oil "epidemic." He is alone now, and a sight of him rejoices my heart while I write; but if you should get a glimpse of him (only half feathered out) you might conclude, as Mrs. Root often says, that it doesn't take *very much* to make *me* rejoice. Now for our lesson No. 1.

Is there any reason, friends, why *we* should not rejoice when we get up *every morning* at the life God has set before us? Is there any reason why *we* should not move with alacrity and take up with joy and enthusiasm—yes, and *thanks to God*, doing over again the very same things we did yesterday?

Yes, I know something about it, for in Mrs. Root's absence this winter I have been caring for our cottage here on the island. After I had been here a week or two I wrote our youngest daughter (recently married) that I was getting tired of so much sweeping the house, dusting, making the bed, etc. But afterward, in thinking it over, I remembered I had been very happy about my "housework," after all. We don't have any mud here; but the sand and broken shells have a fashion of clinging to one's feet, so that, unless you are careful, there will be an unpleasant crunching as you set your feet down on the floor; and to avoid this we have burlap sacks tacked on all the doorsteps. If you wipe off your feet well on these door-mats you will carry very little "grit" into the house; but these door-mats need to be swept off several times a day. To keep a broom in good order it should never be set with the broom end on the floor. Our way is to flatten the top of the broom-handle, then with a sharp bit bore a ⅝ hole so the broom can easily be hung on a nail.

Well, with every thing convenient and handy I have learned to *love* my household tasks. Not only every morning but several times a day I get the broom and make the house look neat, just as Mrs. Root would have it; and when I sweep I always whistle. Why, I have done more whistling this winter than in all the time since fifty years ago, when I was a boy. Yes, I do get homesick sometimes—not so much for that other *home*, but for a sight of Mrs. Root. Well, when I get homesick, I breathe that little prayer, "Create in me a clean heart, O God," etc., and then I get the broom, move the bed, all the chairs, and (home-made) furniture, and do a good job of housecleaning; and before I get through I get to whistling "Listen to the Mocking-bird," with impromptu variations. Why, two or three times I have been so astonished at my progress in learning to whistle that I actually wished I had a phonograph to catch the notes. I can't reproduce it when I get home. I might find some *sweeping* to do, but I never *could* whistle as I have been whistling here this winter, unless I was homesick. Dear brothers (of course, I don't know to whom I am talking), did *you* ever find consolation by whistling when off alone, and thinking of "the girl I left behind me"? I am getting a little away from my text, but there is something more to be said just here. It *does* take a good deal of time to keep a house looking tidy, and I told Carrie I was looking forward to the time when I should have some one to do it for me; but wait a bit; is it *really certain* I shall be *happier* or as happy when I am relieved? Shall I be able to keep on whistling with that boyish abandon? May God help us all to recognize that the very things we are, in our shortsightedness, considering *drudgery*, may be the very *essentials* to

our happiness and enjoyment of life? Now we come to lesson No. 2.

We can not very well whistle and sing (and do a *good* job at it) unless we are in good health. The chicken doesn't flop its wings and make its legs spin, and cut up all sorts of antics, to show how it enjoys life, unless it is robust and strong. If chilled, or even if its toes are cold, that wonderful buoyancy of spirits is gone. My reading for the past winter has been largely in regard to poultry. I have read the poultry papers, and studied the incubator catalogs, and I have been impressed with the fact that the best authorities are beginning to agree that dry uncooked food is best for chickens, young and old. A year ago I said the best medicine in the world for chickens was "a pocketful of wheat;" and later I said I might almost have added, for human beings as well as for poultry. A year or two ago much was said in print about "mashes" for fowls —hot mashes or wet up cold. Now all are being dropped, or mostly so. Give them, young and old, dry grains with plenty of water to drink, and many if not most of the diseases will be averted. If I am right, cooked food for all farm stock is pretty much abandoned. Very well in theory, but not in average practice. Now think of Terry's teachings—grains and nuts *uncooked*. Can't we get some lessons in health from chickens? I don't like to disagree with Terry, and may be I shall not very much. Let us see.

Several years ago my neighbor Hilbert, of Traverse City, Mich., hatched a lot of chickens with an incubator. He sent word he had something to show me. When his chickens were a week or two old they kept chirping for something; but as they had plenty of grain and water he couldn't make out what the trouble was until he got them out on some rich ground and spaded up some angleworms. At the sight of them there was almost a panic. It was the "long-felt want." I told you about it in GLEANINGS. A hen with a dozen or more finds insects, etc.; but incubator chickens without a hen are a different proposition. Ours were in the same fix. When I began to chop up one of the coons I told you about, my chickens, little and big, were almost crazy. They chased each other round and round the yard as if gone wild, for just a morsel of animal food. I gave them all they wanted. *Then* they were satisfied and happy. My brood of 30 went and sat in a row on a crooked tree, perfect pictures of contentment and satisfied appetites—something I had never seen them do before. Since then, every time I give them all the animal food they crave they go and sit in a row on that very log. Fresh fish or ground bones from the meat market will produce the same result. I have recently purchased a Mann bone-cutter, and with it came a little book, "Worms and Bugs." The book is an advertisement of the bone-cutter, of course; but for all that I think it is boiled-down common sense, and it is about the cutest advertising circular I ever got hold of. The book doesn't say it, nor even hint it, but *I* say that the same reasoning will, I think, apply to *humanity* the world over. Thousands of people are not happy, not thanking God and enjoying life, just because they do not have for daily food a "*balanced ration.*" The great reason why they don't "sit on a log in a row," contented, happy, and thankful, like the chickens, is because — not because, dear reader, they don't have "angleworms," or even "coons," but because they don't have enough animal food in some form to make a "balanced ration." Here is where Terry and I *may* not see things alike. He has, it is true, said but little in favor of animal food, but he may have no objection to milk and eggs.

I have no quarrel with those who hesitate to take animal life for food, for I confess I should very much dislike to use my pet "biddies" for food, even if they were too old to be profitable layers; but I *do* think eggs and milk are among God's greatest gifts to mankind. Now that we have fowls giving us over 200 eggs a year, why shouldn't we use eggs for *medicine*, if we can't afford them in any other light? What you pay for drugs and doctors would buy a good lot of eggs.

In Cleveland, O., they have a sanitarium for consumptives, and I have been told they have much success, and that their patients are on a diet largely of eggs. Here is a clipping from *Poultry Success* for February, 1907:

> An Indiana man claims to have eaten more than 2000 eggs within a year to ward off consumption. He says he is well now. This may look like a big story, but we know of one woman, threatened with consumption, or having the disease, as some doctors claimed, who ate six raw eggs a day. She was very weak and thin at first, but after a time gained flesh, color came back to her cheeks, and she is now pronounced entirely cured. This is eating eggs with a vengeance, and, of course, might not be beneficial in all cases. The one who sent in this item says she can not eat even two eggs without distress, yet suggests it might help others. Of one thing I am certain, however, and that is, we should most of us consume more than we do, instead of buying so largely of the butcher.

I have eaten more eggs during the past winter than ever before in my life in the same time, and my health has been remarkable. When I am on "grains, fruit, and nuts," I need about one egg at each meal to make a balanced ration.

Now, grains and meat alone do not make a complete balanced ration for poultry. The need of green stuff of some kind is almost as great as that for meat. Here in Florida, if it is not provided, the chickens will destroy every living thing. This is especially the case when fowls are confined. In my yard are some small papaya-trees (the tree that bears "muskmelons"). Well, my White Leghorn rooster was springing up and pulling the leaves from trees about as high as my head. In fact, I had to protect the trees with some old rusty stove-pipe or there would not have been a leaf left. Now I give them sea kale that grows in the salty sand along the Gulf. When I bring up an armful there is animation and rejoicing among all the poultry, little and big. This

plant has a pungency something like mustard, and doubtless is liked by the fowls on that account; the leaves are thick and succulent, something like cabbage, and a single thirfty plant makes quite an armful. Hot weather and lack of rain (like the present season) have no effect on it, for it is watered by the briny spray of the great ocean.

My "Florida flying-machines" are now roosting in the tall cedar-trees just in front of our door—not all of them, however, for only a few have learned to fly so high. Every night at sundown there is a "contest" that I seem to enjoy as much as any of them. The most skillful and muscular flyers look down from their lofty perch and watch the repeated trials of the others. The flapping (or, rather, flipping) of their newly "created" wings is music in my ears, and the planning and calculating they resort to to get up among their fellows is amusing.

Last night a lot of them, that had apparently given up, hopped from the workbench to the top of the woodshed door, which had been left open temporarily, and from there to the roof, and then by the aid of their wings they reached the ridge-pole of the house, from which it was "clear sailing" to their comrades in the cedars. This makes it just about nine weeks from the egg to the tree-tops. When in the tree-tops, although in one sense "*in* the woods," they are, so far as care of the owner is concerned, "*out* of the woods." A little grain where they can have access to it, and they care for themselves until ready for market, or to go to laying—no houses to clean out and fuss with—at least in this climate. In lesson No. 1 I spoke of learning from the chickens an example of being happy with the environment God has given us; in No. 2 of the necessity of providing for these bodies of ours proper nourishing food in the way of a balanced ration; lesson No. 3 in regard to our spiritual needs in order that we may be as happy, satisfied, and contented as the row of chickens resting on the log. We will introduce by quoting Matt. 10: 29, 30, 31.

Are not two sparrows sold for a farthing? and one of them shall not fall on the ground without your Father. But the very hairs of your head are all numbered. Fear ye not, therefore; ye are of more value than many sparrows.

Well, I have been *very* happy this afternoon, dear friends, in singing an old hymn that I learned from brother Shumard. I give just the words, but you can probably find the music in some of your books. As you sing it, or even read it over, study carefully until you get the full meaning of every line and every sentence.

I am dwelling on the mountain,
Where the golden sunlight gleams
O'er a land whose wondrous beauty
Far exceeds my fondest dreams;
Where the air is pure ethereal,
Laden with the breath of flowers,
They are blooming by the fountain,
'Neath the amaranthine bowers,

I can see far down the mountain,
Where I wandered weary years,
Often hindered in my journey
By the ghosts of doubts and fears;
Broken vows and disappointments
Thickly sprinkled all the way,
But the Spirit led unerring
To the land I hold to-day.

I am drinking at the fountain,
Where I ever would abide;
For I've tasted life's sweet river,
And my soul is satisfied;
There's no thirsting for life's pleasures
Nor adorning rich and gay,
For I've found a richer treasure,
One that fadeth not away.

Chorus:—Is this not the land of Beulah,
Blessed, blessed land of light,
Where the flowers bloom for ever,
And the sun is always bright?

Dear reader, do skepticism and infidelity offer any thing to be compared with the sentiment in the above lines? Just think of it, "For I have found a richer treasure, one that fadeth not away."

It has been our pleasure to entertain to-day one of the veteran bee-keepers and his wife, Mr. L. Brewer,* of Philo, Ills., and we all sang together the above hymn, and I think all agreed with the sentiment of the beautiful words, "Heaven and earth shall pass away, but my words shall not pass away."

I came not to send peace on earth, but a sword.—MATT. 10:34.

"FIGHTING MOTHERS."

I find I have something more to say on this subject. My first pullet that wanted to sit was given 18 eggs. I knew one of Mr. Shumard's hens that stole her nest brought home 18 chickens, and why should not *my* hen, at the same time of year, in this locality, also have at least 18 eggs? Well, the other hens laid two eggs more in the nest; one was found unfertile, and my pullet brought out yesterday 18 strong chickens. I *hope* there are incubators that do as well, but I am afraid not. Well, this pullet, as you may remember, is one-fourth Brazilian game. For the first 24 hours I put her in a small enclosure of inch-mesh poultry-netting; but she got so excited when other older chicks came near (stepping on *her* chicks, etc.), that this morning I turned her loose. In a little while some of the older chickens came near. The day before, I kept a little switch handy to drive them away when I was giving the "new arrivals" their "baby chick-food." Well, as soon as one of the half-grown ones came this morning within about a rod of her chicks she made a dive for him and had him by the nape of the neck, shaking him aloft in the air until I came to his rescue. The day before, while she was penned, I had tried in vain to make him stay away. After the shaking *she* gave him, however, he "made for the timber," and I haven't had a glimpse of him since. Friends, this is a "chicken story," but there is a moral to it. Yesterday's daily told of a miscreant who went into a town making picture sketches. He picked out good-looking girls of 12 or 14, and on pretense of wanting to sketch them he got them into his "studio." When a raid was made on the place, three girls—children—were found *unconscious* from the effects of drugged whisky. Well, I should like to see the mothers of these girls take that fellow as the game hen took that chicken, and either

*On pages 1125 and 1126 of GLEANINGS for Sept. 1, last year, you will find pictures of Mr. Brewer, with a sketch.

shake the life out of him or scare him so bad he would remember ever more that the girls, even in our rural districts, have not only *mothers*, but, when needed, mothers who can *fight*. A little later she took another chick (that seemed a little too inquisitive) by the leg and swung him about until I came to interfere. A third she took by the *wing*, and before noon the whole poultry-yard "had notice served on them" that she proposed to shed her last drop of blood in fighting for and protecting those 18 helpless little bits of downy feathers. She proclaimed herself by her actions a "fighting mother," and she and her chickens are now "boss of the island." While I write they are making a handsome picture, spread out before my door, some of them asleep in the bright sunshine, while she the mother (bear in mind, the *fighting mother*) is also sitting down a little distance away, taking her ease. She can do so safely, for she has, in just one short forenoon, taught all the rest the penalty, not only of harming a "feather" of those 18, but even of coming near with meddlesome and inquisitive looks.

A spell ago a young girl in New Jersey was drugged and carried off, and never recovered. She had no father, no big brothers, and her mother was a poor widow who did washing. Some *married men, respectably connected*, were sent to prison for the crime, it is true; but after they had been there a year or two a petition was circulated to have them pardoned on the ground they "didn't mean to" *kill* the girl. I don't know whether our land afforded "fighting mothers" enough to "kill" that petition or not; but I hope so—mothers who are ready to fight like my game pullet, not only for their girls but for their *boys* as well as girls; mothers who will give the whole world to understand that their boys and girls *belong* to *them*; mothers who will put up such a fight that saloonkeepers and all the criminal horde that lurk in the darkness of their dens will back off and out of sight *because* of the fighting mothers. Do you know why the hypocritical lies that were sown broadcast by the so-called "army generals" in favor of the "canteen restoration" had so little effect on the public mind? Because the world is just beginning to learn something of the temper of the *fighting mothers* of America. May God be praised that it is my privilege to do a little in clearing the way for these "mothers," and in backing them up when the time comes, when "fighting *fathers*" are also needed. The wolves that try to prey on our children are cowards—wolves are *always* cowards. When they once find out that there is "game blood" in our veins—yes, even the blood and the *spirit* of Him who said, "I came not to send peace on earth, but a sword," *then* we can take up our peaceful employments while our children go unharmed about their plays, even as these tender little chickens now bask safely in the sunshine unprotected, *because* the mother has already proclaimed she is ready to die without flinching in defense of the innocent and helpless ones that God in his mercy has entrusted to her care.

As I now write, an effort is being made to permit the women of Ohio to have a voice in saying whether saloons may or may not have a foothold in the vicinity of our Ohio homes. Shall the "Spartan" mothers of Ohio be permitted to fight for their children and their homes as my game pullet is, even at this very moment, chasing *clear out of sight* any that she thinks might be unduly *familiar* with her innocent and unsuspecting little flock?

CONSCIENCE NOT AN INFORMATION-BUREAU.

If conscience is a safe guide to what is right and wrong, then the Bible is not needed. There is no half-way ground here, for a guide that needs guidance is no guide at all. And as a matter of fact, conscience is *not* a guide; and because so many souls mistakenly think it is, confused and wandering errors in the pathway of life are constantly made. Conscience is a *monitor*. It prompts and prods; it urges "*Do* what you know to be right: do *not* do what you know to be wrong." But it does not instruct us in what is right and what is wrong; it is not a bureau of information. That instruction we receive from God in many different ways, of which the Bible and the training of parents and teachers are some. Therefore it will not do to settle back in the easy assurance that we have a safe guide in conscience. We have a tremendous responsibility to learn, from sources outside of ourselves, what is our duty, and those sources are always available when we really seek them.

The above from the *Sunday School Times* contains a grand truth that many learn only after sad experience. I wish it might be copied far and wide.—A. I. R.

PAULOWNIA IMPERIALIS: MORE ABOUT IT.

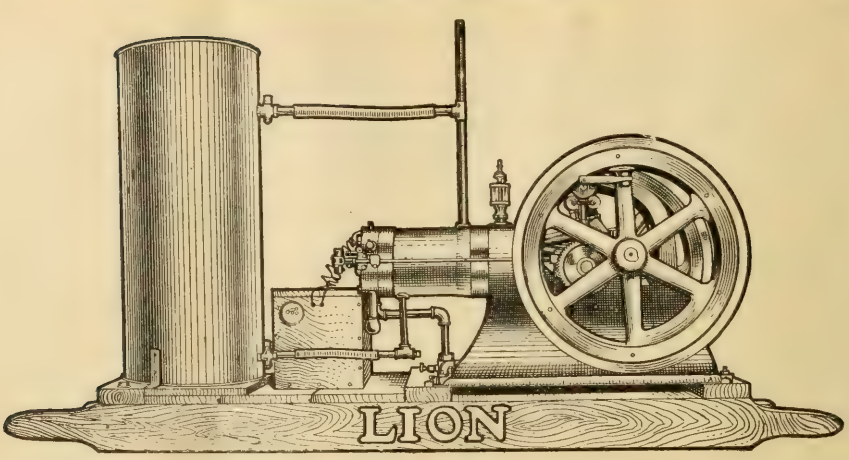
I clip the following from *Park's Floral Magazine*:

I have a full-grown paulownia in my yard, about 35 or 40 feet high. It has in May the most beautiful large branches of purple flowers ever seen. The bunch is composed of 25 or 30 flowers, lavender purple, with creamy to orange throats, and the odor from them is the most delightful I ever smelt. It is the odor of violets, but 100 per cent stronger; and as the flowers drop from time to time, the grass beneath is sprinkled thickly with them, and the atmosphere for a radius of at least 100 feet each way is permeated with the odor of violets. You can raise them from seeds. The buds form in the fall. They are covered with a thick, velvety-brown covering or husk that drops in the spring, then come the flowers. I can go the editor one better in the size of leaves. A sucker sprang from this tree a couple of years ago, and, of course, it received the most nourishment; besides, we sprinkled it plentifully with the hose. It was a sight. It grew in one season 10 feet high, with leaves 26 inches across. I have three other small ones on my place. I think they are gorgeous in the fall. I had a man dig and cut a portion of the root to which this sucker was attached, and plant it elsewhere, and it is a fine tree now.

Riverside, Ohio, July 10, 1906. MRS. R. WINTER.

Our readers may remember that ours grew *more* than ten feet last season, and some of the leaves more than *a yard* across. Both seeds and plants can be had of Geo. W. Park, LaPark, Pa.

FOR selling oleomargarine for butter, a St. Louis dealer was a short time ago sentenced to pay a fine of $1400 and also to undergo one month's imprisonment by a federal judge. This ought to prove a warning to some that Uncle Sam will enforce the pure-food law to the limit.



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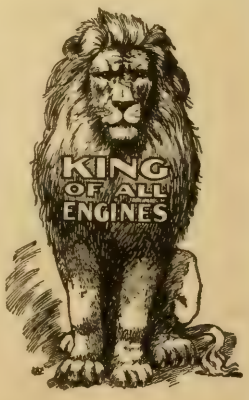

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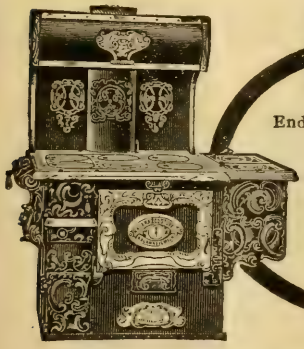

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No. 6 Iron Age Combined Double and Single Wheel Hoe, Hill and Drill Seeder

Write for the **new Iron Age book—FREE**—and get posted on the full line of labor-saving Iron Age tools—Seeders, Wheel Hoes, Horse Hoes, Walking and Riding Cultivators, Fertilizer Distributers; Potato Planters, Sprayers, Cultivators, Diggers, etc.

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HAVE YOU ANY SAND?

If you have, it is worth more than a gold-mine.

Take a little cement and water, and convert it into concrete building-blocks—the ancient, modern, and future building-material.

They are stronger, warmer, more attractive, better in every way, than brick or stone, and, complete in a house, cost no more than a frame structure.

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MYERS

The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers. Pumps, Hay Tools & Barn Door Hangers. Send for catalog and prices.
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Ashland, Ohio.

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If you want to spray trees, shrubs or vines, whitewash or disinfect buildings, kill vermin in poultry houses and make sanitary quarters, you can find nothing more to your purpose than a

Deming Outfit

Great variety in the Deming line, 20 styles **Hand, Bucket, Knapsack, Barrel and Gasoline Engine Sprayers.** All right working. Every style the result of long experience. Don't buy till you send for free catalogue and all particulars.

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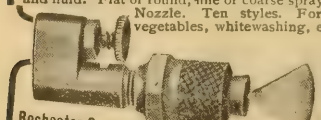
THE "KANT-KLOG" SPRAYERS

Something New. Gets twice the results with same labor and fluid. Flat or round, fine or coarse sprays from same Nozzle. Ten styles. For trees, vines, vegetables, whitewashing, etc.



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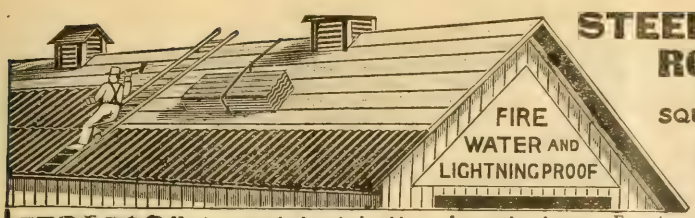
69 Varieties. Also **Small Fruits, Trees, &c.** Best rooted stock. Genuine, cheap. 2 sample vines mailed for 10c. Descriptive price-list free. **Lewis Roesch, Fredonia, N.Y.**



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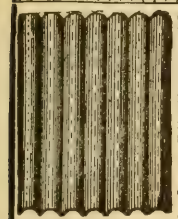
PER 100 SQUARE FEET
$1.50



Most economical and durable roof covering known. Easy to put on; requires no tools but a hatchet or a hammer. With ordinary care will outlast any other kind. Thousands of satisfied customers everywhere have proven its virtues. Suitable for covering any building. Also best for ceiling and siding. Fire-proof and water-proof. Cheaper and more lasting than shingles. Will not taint rain-water. Makes your building cooler in summer and warmer in winter. Absolutely perfect, brand new. **$1.50** is our price for our No. 15 grade of Flat Semi-Hardened steel roofing and siding, each sheet 24 ins. wide and 24 ins. long. Our price on the corrugated, like illustration, sheets 22 ins. wide x 24 ins. long, **$1.75.** At 25c per square additional we will furnish sheets 6 and 8 feet long. Steel pressed brick siding, **per square, $2.00.** Fine Steel Beaded Ceiling, **per square, $2.00.** Can also furnish standing seam or "V" crimped Roofing. **WE PAY THE FREIGHT TO ALL POINTS EAST OF COLORADO** except Okla., Tex. and Ind. Ter. Quotations to other points on application.

Satisfaction guaranteed or money refunded. We will send this roofing to any one answering this ad C. O. D., with privilege of examination if you will send us 25% of the amount of your order in cash; balance to be paid after material reaches your Station. If not found as represented, you do not have to take the shipment and we will cheerfully refund your deposit. **Ask for Catalog No. WE 688.** Lowest prices on Roofing, Eave Trough, Wire, Pipe, Fencing, Plumbings, Doors, Household Goods and everything needed on the Farm or in the Home. We buy our goods at sheriff's and receiver's sales. **CHICAGO HOUSE WRECKING CO., 35TH AND IRON STS., CHICAGO**

Paint without Oil

Remarkable Discovery that Cuts Down the Cost of Paint Seventy-five Per Cent.

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powdrpaint.

THE DISCOVERER OF POWDRPAINT.

It comes in the form of a dry powder, and all that is required is cold water to make a paint storm-proof, fire-proof, and as durable as oil paint. It adheres to any surface, wood, stone, or brick; spreads and looks like oil paint, and costs about one-fourth what you have heretofore had to pay for paint.

Write to Mr. A. L. Rice, 615 North St., Adams, N. Y., and he will send you a free trial of his new discovery, also color-card and full information showing you how you can save a good many dollars. Write to-day.

PATENTS No attorney's fee until patent is allowed. Write for "*Inventor's Guide.*"
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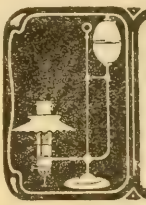

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Portable 100-Candle Power light. Every lamp warranted. The most brilliant, economical light made. No grease, dirt, odor or smoke.
AGENTS WANTED EVERYWHERE.
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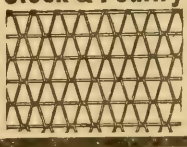
BROWN PAYS THE FREIGHT
HEAVIEST FENCE MADE
All No. 9 Steel Wire. Well galvanized. Weighs ⅛ more than most fences. **15 to 85c per rod delivered.** We send **free sample** for inspection and test. Write for fence book of 133 styles. **The Brown Fence & Wire Co., Cleveland, Ohio.**

FENCE *Strongest Made*
Made of **High Carbon** coiled wire. We have no **agents.** Sell direct to user at **factory prices on 30 days free trial.** We pay **all freight.** Catalog shows 37 styles and heights of farm and poultry fence. **It's free.** Buy direct. Write today
COILED SPRING FENCE CO.
Box 101, **WINCHESTER, INDIANA.**

Stock & Poultry FENCE



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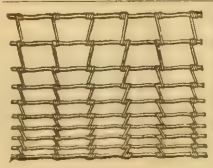

WIRE FENCE 29c
48-in. stock fence per rod only
Best high carbon coiled steel spring wire. Catalogue of fences, tools and supplies FREE. Buy direct at wholesale. Write to-day.
MASON FENCE CO.,
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HANDY THINGS

For the Sewing-room.

Every thing that will help along the work of the home dress-maker and the professional dress-maker can be bought in this store. We enumerate a few.

Perfection Dress-forms, which at once remove all difficulties of fitting or trimming a dress or skirt or waist. Various kinds from 50c up to $2.50.
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Sleeve-boards, 10c to $1 25.
Sewing-machines, $1.00 to $4.00.
Pinking-machines, $5.00.
Electric hot-plates for heating irons, etc., $1.00 to $6.00.

Joseph Horne & Co.
Pittsburg, Pa.

NEW BOOK JUST ISSUED

SQUABS FOR PROFIT

By William E. Rice and William E. Cox

This is the most complete and exhaustive work of the kind ever published on squab raising. It is not a book of second-hand references, but contains the hard-earned experiences of the authors Every detail of their methods of selecting, breeding, feeding, killing, and marketing squabs is given in plain, simple language, with numerous illustrations, all taken from the home plant of Mr. Rice in New Jersey. The chapter on buildings, their location, and how to construct them is concise, specific, and complete.

The squab industry is increasing rapidly. This book is a guide for those who want to know, and a standard reference work for the old-time breeder. It is not based on mere theory, but contains the true story of the most successful squab plant in this country. The story of how $50, the original investment, has grown to $3,000, is fully given by Mr. Rice. He took the money made by the squabs, enlarged and developed his plant, until it is now complete.

The illustrations are simply superb. They were taken especially for this work. The plants and specifications for buildings, etc., are as complete as an expert architect could make them. The book contains about 150 pages, each 5x7 inches, printed on fine paper. Bound in cloth and sent postpaid for 50 cents.

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MEDINA, OHIO

INDIAN RELICS. I want Indian relics such as arrows, axes, pipes, or pottery, as used by the mound-builders or cliff-dwellers. What have you? M. C. LONG, Mo. Av. and Main St., Kansas Cy., Mo.

A WOMAN FLORIST

6 Hardy Everblooming Roses On their own roots. ALL WILL BLOOM THIS SUMMER. **25c**

Sent to any address post-paid; guaranteed to reach you in good growing condition.

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Gruss an Teplitz, deep red.
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6 Carnations the "Divine Flower," all colors, 25c.
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Any Five Collections for One Dollar, Post-Paid. Guarantee satisfaction. Once a customer, always one. Catalog Free.
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Write for the Seed Catalog that's Different
A relief from the crowded, exaggerated kinds. Tells the **plain truth** about the best varieties you can grow. Splendid half-tone illustrations. No confusing offers, **full value** in seeds.
E. C. GREEN & SON, Box G, Medina, O.

Jewell Seeds and Trees
Have been planted since 1868. Always reliable. Most complete line of **hardy** stock in the U. S. Five catalogs.
The Jewell Nurseries, Box 14 Lake City, Minn.

The Best Strawberries
grow from Farmer's plants. Introducer of "Oswego" strawberry and "Plum Farmer" raspberry. Fruit plants, all kinds. Catalog free. **L. J. Farmer, Box 708, Pulaski, N. Y.**

STRAWBERRIES!

The "St. Louis" was awarded first prize at the U. Exposition. *U. S. Pomologist* says, "It breaks all records for size." Largest sample measured by U. S. officials—circ., 11¼ in.; diam., 3⅝x3¾ in.; wt., 4¾ oz. First prize also for the "Duplication" gooseberry.
A. T. GOLDSBOROUGH, Wesley Heights, Washington, D. C.

SWEET-POTATO SEED. MANY VARIETIES! The best of the old and the new. Send for free descriptive price list.
—L. H. MAHAN—
P O.Bx.143. Terre Haute.Ind.

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INCUBATORS & BROODERS

We are the only manufacturers of this line in the Central States. Our goods are the standard of perfection. We warrant the goods, and they will please you. **SPECIAL PRICES** on early orders. We can save you money. Send for big **FREE BOOK** that tells all about them. Do it to-day.

ADDRESS **LEAHY MANUFACTURING COMPANY** 20 Talmadge St., HIGGINSVILLE, MO 1740 South 13th St., Omaha, Neb.

J. W. Rouse, Mexico, Missouri, or E. T. Flanagan, Belleville, Illinois

MODEL

Incubators and Brooders

are world-beaters for hatching and rearing chickens. 20,000 chickens were reared in them on the Model Farm last season. 30,000 out now, and more coming. You can do as well when guided by the advice of one who knows.

Pres. Brown, of the Lakewood Farm, who raised 7,000 layers last season, says: "Mr. Cyphers, our results this last year will place us in the first rank of successful poultry farms; and we feel that we owe our success largely to you. The years of research and accumulated knowledge that have enabled you to give us poultrymen an incubator that hatches chicks and the advice and counsel to which you have made us welcome, and which have helped avoid money-wasting errors have, with our own work, made Lakewood Farm a financial success."

The Model catalog describes these real hatchers. I will send it and a report book, showing that the Model Incubator hatches more and stronger chicks at agricultural stations; on the biggest money-making poultry plants in the world; for small poultrymen; for fanciers; and for amateurs who never before operated an incubator.

You can make big money producing eggs for me. Top prices paid. Now have five receiving stations. Write me today.

CHAS. A. CYPHERS,
350 Henry St. Buffalo, N. Y.

Branches St. Paul, Buffalo, Kansas City.

$7.00 Buys the Best 120-EGG Incubator

freight prepaid, ever made.

Double cases all over; best copper tank; hot water; self-regulating. Best 100 chick hot water Brooder $4.50. Incubator and Brooder ordered together $11.00. **Satisfaction guaranteed.** Our book, "Hatching Facts" tells all about them. Mailed free. Write today.

Belle City Incubator Co., Box 69, Racine, Wis.

Old Trusty

Incubators and Brooders

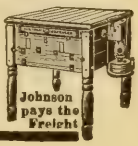
The really automatic incubator—start it and it runs itself. Regulator so perfect that you might throw away the thermometer, if you wanted to. Sold on

40, 60 and 90 DAYS' TRIAL and 5 YEARS' GUARANTY

More sold in 1906 than any other make and every patron satisfied. You will be, too.

SEND FOR FREE BOOK.

Johnson's Chicken Book—bigger and better than ever Full of common-sense chicken talk, 300 pictures. It will save you money. Write today sure.



Johnson pays the Freight

M. M. JOHNSON CO., Clay Center, Neb.

The Racine

Incubator

We pay the freight

Built by the man who devoted 25 years to its present perfect development.

Can be operated by anyone, anywhere. Automatic regulator, copper tank, white pine case, double walled, nursery. Built to last 20 years.

Don't buy until you read our remarkable **Incubator Book,** written by the man who made the Racine. When you learn what he knows, you will want his machine, we think. **The book is free.** Write for it. Address

Racine Hatcher Co. Box 114, Racine, Wis.

Warehouses: Buffalo, Detroit, Kansas City, St. Paul.

Send for free Catalogue.

Hatch Chickens by Steam with the EXCELSIOR INCUBATOR Or WOODEN HEN

Simple, perfect, self-regulating. Hatch every fertile egg. Lowest priced first-class hatchers made.

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MANDY LEE

Incubators and Brooders

are made for business. The extra amount of chicks you save with these machines over what you could raise with other kinds will soon pay for a MANDY LEE Incubator and Brooder. Don't waste time and money. Get the best; write to-day.

Ask about our mixed-grain food and our gape cure.

C. M. SCOTT CO., 1006 E. Wash. St., Indianapolis, Ind.

METAL MOTHERS.

Complete fireproof Hatching and Brooding plant for $7.50; 2 qts. oil will hatch and brood the chicks. Our nest system is the latest discovery. Full line poultry supplies. Lowest prices. Free catalog. Write to-day.

CYCLE HATCHER CO.,
Box 223, Elmira, N. Y.

Automatic BUCKEYE Incubator

All Metal, Fire Proof, Continuous Hatcher.

NEEDS NO THERMOMETER.

Adjusted by us and ready to run when you get it. Guaranteed for five years. Good credit at home is good with us. Get the best and save money. CATALOGUE FREE.

BUCKEYE INCUBATOR CO. Box 64. Springfield, O.

Greider's - Fine - Catalog - 1907

Tells all about pure-bred poultry, and describes and illustrates 60 varieties. Ten beautiful natural-color plates. Gives reasonable prices for stock and eggs; how to cure diseases, kill lice, make money. This valuable book only 10 cents.

B. H. Greider, Rheems, Penn

Rhode Island Reds

Buff, White, Silver, and Golden WYANDOTTES.
White, Barred, Buff, and Black ROCKS.
Brown, Buff, and White LEGHORNS.
Black JAVAS and MINORCAS.
Light BRAHMAS.

Hardy, prolific, farm-bred, pure stock. *For birds, moderate prices.*

Eggs to Hatch at 10 cts. each.

WALTER SHERMAN, 100 Boulevard, Newport, R. I.

Your Name Will Get $2 Eggs

For 50 Cents Per Sitting

The White and Brown Leghorns are the greatest layers in the world. I keep 2000 of the celebrated Chamberlain laying strain on my Experimental Farm, and to increase the sale of my Perfect Chick Feed, I will send to any one who will send me their name so I can send them my Perfect Chick Feed Catalogue, 2 sittings of Single Comb Brown or White Leghorn Eggs for $1 for the 2 sittings. Only 2 sittings sold to one person. White or Barred Plymouth Rock, or White or Silver Laced Wyandotte Eggs $1 per sitting. This is a rare chance to get a start of extra fine stock. Send money and have your orders booked at once.

W. F. CHAMBERLAIN, (*The Perfect Chick Feed Man*)
KIRKWOOD, MO.

THE BEE & POULTRY INDUSTRIES DOVETAIL

and go well together

In poultry culture the main thing is health, and

Conkey's Poultry Remedies

Are the World's Standard

This is the season for Roup and the sneezing, wheezing, swollen headed fowls should be quickly restored to health, usefulness and profit. You cannot afford to experiment, so use

CONKEY'S ROUP REMEDY

Just a thimbleful in the drinking water and they cure themselves. Our absolute guarantee goes with it, and it means your money back should it disappoint you.

Conkey's Book on Poultry Free for 4c in stamps and names of two others interested. It solves the whole poultry problem and is worth dollars to any poultry raiser. **GET IT TODAY.**

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Conkey's Poultry Remedies are carried by A. I. Root Co. at their branches, New York, Philadelphia, Washington, Chicago and Medina.

HAVE A LOOK At The World's Best

Poultry Journal. Our Beautiful Xmas Number containing **3 color pictures** from Burgess' masterpieces in oil, **costing $1,000**, and **10 cook plans for Poultry Houses**, all for **10 cents**. We will tell you How to Make Poultry Pay. Address

INLAND POULTRY JOURNAL,
15 Cord Bld'g, Indianapolis, Ind.

WHITE WYANDOTTES

Mature; vigorous; prolific layers; best table fowl; extra good ones. Fertile eggs, $1.00 per 15. Free circular is interesting.

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Make More MONEY on Fruit

Everyone who grows fruit should be interested in getting MORE PROFIT from his FRUIT crops

THE FRUIT-GROWER

ST. JOSEPH, MO.

is a handsomely illustrated, 76-p. monthly. Treats of fruit growing, gardening, poultry raising, on a large or small scale. Every farmer needs it. $1 a year, but will be sent 3 months FREE on trial if you will notify us to stop or subscribe after trial.

The Fruit-Grower, Box 110, St. Joseph, Mo.

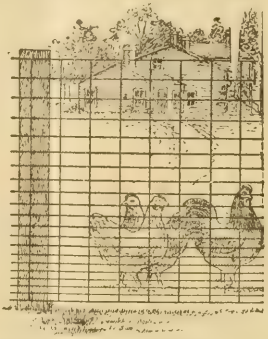
Poultry Fence Economy

LET US SHOW YOU HOW WE CAN SAVE YOU
40 TO 70 PER CENT ON YOUR POULTRY FENCES

Suppose a rod of four-foot netting costs you 40c. Two posts at 15c each will cost 30c. A 2x4 railing at the top, and a 1x6 board at the bottom will cost you at least 35c per rod, or a total cost of $1.05 per rod.

SQUARE DEAL POULTRY FENCE will cost you about 50c per rod delivered at your place (depends somewhat how far you are located from factory). One post per rod is plenty with our fence because it can be stretched and won't sag. Railings are absolutely unnecessary. At 15c per post that would make the whole business cost 65c per rod as compared with $1.05 for flimsy netting.

That means a saving of about 40 PER CENT in first cost. Now, if you further consider that our Square Deal Poultry Fence will last about four times as long, you will realize the astounding fact that 70 PER CENT of your fence expense can be saved by using our new heavy weight, long lived, close spaced Square Deal Poultry Fence. These are facts and figures which cannot be disputed.



CLOSER SPACING It has four 1½-inch spaces at the bottom (closer than ordinary netting) then gradually increases to 4 inch at the top. We give close spacing at the BOTTOM where it is needed. The top strand is No. 11 wire, the bottom No. 12, and the intermediate strands and stays are No. 14.

The lightest wire used in our fence is FOUR TIMES as heavy as that used in netting. That gives long life to our fence. If you consider 70 PER CENT of your fence money worth saving write for our catalogue and prices TO-DAY.

KEYSTONE FENCE CO., 509 RUSH ST., PEORIA, ILL.
NOT IN THE TRUST.

TO THE BEE-KEEPERS OF NORTH CAROLINA

This office is gathering information concerning the bee-keeping industry in this State, and we wish to continue the enquiry until we get the following blank filled out by practically every bee-keeper in the State who keeps more than a dozen hives of bees. After we know something of the extent and condition of the industry, it may be possible for us to undertake some line of work of direct benefit to our bee-keepers. We shall therefore appreciate it if you will carefully fill out the blank form below and return it at once. We will be especially glad if you will give us as large a list as you can of other bee-keepers whom you know.

By attending to this promptly you will greatly aid and oblige us.

FRANKLIN SHERMAN, JR.,
Division of Entomology, Dept. of Agriculture,
Raleigh, N. C.

1. How many hives of bees have you?
2. Do you sell honey or use it only for home use?
3. What breed, race, strain, or variety of bees do you keep?
4. What is your average yield per hive each year?
5. Do you mind stating the highest and lowest prices commonly paid for your honey per pound?
6. What are the principal plants from which your honey is made in your locality?
7. What plant do you consider makes the best quality of honey in your locality?
8. What plant do you consider yields the largest quantity of honey in your locality?
9. Do you keep your bees in hollow-log gums or in hives? if in hives, what type of hive do you use?
10. Are your bees troubled with Foul-brood, Bee-moth, Paralysis, or other enemies, and, if so, state the nature of the trouble?
11. Do you subscribe for any of the bee-keeping journals, and, if so, for which ones?
12. Please give the names and addresses of persons in this State whom you know keep bees in quantities of ten or more hives.

Please answer by number, repeating the number, but do not repeat the question.

Your Name..... (31762)

R. F. D. and P. O. Address.....

Date..... County.....N. C.

CARNIOLANS and BANATS

OUR SPECIALTIES.

CARNIOLANS.

THIS is our 22nd year in breeding this race of bees, and, by careful selections, we claim to have the finest *Line-Bred* Carniolans to be had. They are very gentle, hardy, prolific, great honey-gatherers, and builders of white combs. We have wintered 500 queens for early orders. One untested queen, $1.00; six for $5.00; 12 for $9.00. Tested, $1.50; best breeder, $3.00; best imported, $5.00. Golden and leather Italians same price. One L-frame nucleus, $1.00; two, $1.75; three, $2.50. Add price of queen wanted to nucleus. No foul brood here. Bees and queens guaranteed to arrive in good condition.

BANAT BEES, from Hungary.

THIS wonderful new race of bees takes the lead over all others, all points considered. Are great honey-gatherers and builders of very white combs; gather very little propolis; do not breed out of season and use up their honey when none is to be had; are very gentle and quiet on combs; are not inclined to swarm, even with their hives boiling over with bees, but beep right at work while other races are swarming. We consider this race of bees a model one for producing fancy comb honey. Have wintered a choice lot of queens for early orders. One untested queen, $2.00; tested, $5.00; best breeding and imported, $8.00.

F. A. LOCKHART & COMPANY, LAKE GEORGE, NEW YORK.

Better than an Island

This place is just as good as an island for breeding queens, for there are no other bees within five miles, and so pure mating is guaranteed. It is better than an island when you order queens, for the fastest trains stop here, and hence queens are not away from the colony long enough to impair their usefulness. Safe introduction is guaranteed if you follow my special directions. I consider the Banat Caucasian bees the best and gentlest in the world. Banat Caucasian bees are bred here; other races in outyards. Queen-breeders should secure their breeding-queens from this pure stock. Order now. Banat Caucasian queen, $3.00. Caucasian queen, $1.50. Golden Italian, 75c. Tested queens, one year old, double these prices,

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Made of artificial stone. Practically indestructible, and giving entirely satisfactory results. Comb foundation made easily and quickly at less than half the cost of buying from the dealers. Price of press for L. frame sheets, $2.00; other sizes, 25c extra. Price of the press making the foundation directly on the wired frames, $2.50, any size wanted.

Adrian Getaz, Knoxville, Tenn.

Convention Notices.

The North Texas Bee-keepers' Association will hold its annual meeting at Ladonia, Texas, on the first Wednesday and Thursday in April. All bee-keepers are invited to attend. No hotel bills to pay.

W. H. WHITE, Sec.

The Northern Michigan Bee-keepers' Association will hold its next annual convention at East Jordan, Mich., Wednesday and Thursday, April 10 and 11. Special rates secured at the Russell House, of $1.00 per day. IRA D. BARTLETT, Sec.

The annual meeting of the Connecticut Bee-keepers' Association will be held in the State Capitol, Hartford, room 50, April 6, 1907. Interest in bee culture has been given an impetus through the recent effort to secure good foul-brood legislation, and this meeting will not only give every bee-keeper in the State an opportunity to increase his knowledge of bees and their diseases, but an interesting program has been prepared touching many other important phases of the science of apiculture. A cordial invitation is extended to both ladies and gentlemen. Please bring choice samples of honey, or any thing of an apiarian nature, for the honey exhibit. J. ARTHUR SMITH, Sec'y.
Hartford, Ct.

IMPROVED BINGHAM KNIFE.

After waiting a year we have finally secured a supply of the improved Bingham knife with flanged shank, and are now filling orders. For some time we were obliged to send orders forward without these knives. Any who have been disappointed in this way can now get all they want.

POWER EXTRACTORS.

There is a lively interest in many quarters in the power-driven extractors. We received orders for four engines with large extractors in a period of one week, all from California. One man puts an engine between two large extractors on a low-wheel wagon, driving both extractors with the same engine. He can easily move his rig from one apiary to another.

METAL SPACER FOR HOFFMAN FRAME.

A patent has been allowed on this device, which was issued March 5th. It broadly covers all devices of a similar nature, though differing in design from the one we make. We shall be pleased to hear from any who have tested this spacer to a considerable extent the past season, as to how it compares in use with other frames with different means for spacing. From the limited trial in our own yards we believe it to be a valuable device.

SECOND-HAND FOUNDATION-MILLS.

We have the following second-hand comb-foundation mills to offer. We give a brief description of each, and shall be pleased to mail a sample of foundation, representing any one or more of these mills, to those interested, on application:

No. 077, 2x10-inch round-cell brood mill in old-style high frame, in good condition. Price 12.00.

No. 082, 2½x10 medium-brood mill, round cell, late-style frame, in good condition. Price $15.00.

No. 083 2½x10 medium-brood hex. mill, late-style frame, in good condition. Price $16.00.

No. 084 2x10 medium-brood round-cell mill, old-style frame, in fair condition. Price $11.00.

No. 075, 2x9 hex. brood mill in the oldest-style wood-base frame. Original price of this machine was $80.00. We offer it for $10.00.

BUSINESS OUTLOOK.

Carload orders from our jobbing agents are crowding us much more than they were at this time last year, and our shipments so far this year are somewhat ahead of last year, same date. The outlook in many directions is quite promising, and a hopeful spirit prevails. The supply of choice honey, both comb and extracted, especially the latter, is pretty well sold up, and what is available is bringing good prices. The price of lumber and other materials continues to stiffen, and many things are sold so far ahead that it is almost impossible to get deliveries for months to come. There seems to be little prospect of a let-up in this respect.

ALUMINUM-COATED SMOKER.

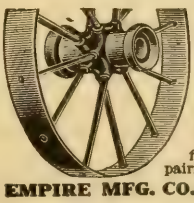
The greatly increased price of brass and copper made it necessary to make an advance of 50 cents for a copper smoker over the price of a tin one of same size. Our attention has been called to a new metal which is rust-proof, and does not blacken by being overheated. It is aluminum-coated steel. We secured some of it to test for bee-smokers, and are now prepared to offer Jumbo and standard Root smokers made of this metal, to those who wish to try them, at an advance of 15 cts. each on the standard, 25 cts. on the Jumbo. This makes the standard cost $1.00 with other goods, or $1.25 by mail; the Jumbo at $1.50 with other goods, or $1.80 by mail. We should be glad to have these tested by those living in the vicinity of salt air, where tin smokers are subject to rust, and report how they stand in comparison with tin and copper.

SWEET-CLOVER SEED.

We still have a good stock of unhulled white-sweet-clover seed here and in Chicago, the price of which is 22 cts. per lb. by mail, postpaid; not prepaid, 12 cts. per lb.; 10 lbs., $1.00; 100 lbs., $8.00. We have here at Medina a limited quantity of hulled white at 8 cents a pound advance over the unhulled. We are sold out of the yellow variety entirely, and hardly expect to have any more of this to offer till the new crop is gathered. If any of our readers know of any seed of the yellow variety available we should be pleased to get the information.

Mr. W. T. Davidson, of Indiana, who had an article regarding the value of sweet clover, in a recent issue of GLEANINGS, wishes us to say to our readers that he has no seed for sale, but that he is selling hives and other bee-fixtures.

CUTS USED IN THIS MAGAZINE ARE FROM
THE MUGLER ENGRAVING CO.
MUGLER BLDG. CLEVELAND, OHIO.



STEEL WHEELS
with wide tires double the usefulness of the farm wagon. We furnish them any size to fit any axle. Cheaper than repairing old wheels. Catalogue *free.*
EMPIRE MFG. CO., Box 91A Quincy, Ill.

Old-Fashioned Flowers
Like those our grandmothers grew. Hardy Vines, Shrubs, Fruit and Ornamental Trees, Roses. Full line. Wholesale prices. Buy direct from grower. Write for handsome illustrated Catalog. It's free. Don't delay.
GROVER'S TREES GROW
Grover Nursery Co., 67 Trust Bldg., Rochester, N. Y.

30 DAYS-FREE TRIAL

The Famous SPLIT HICKORY Vehicles

You Pay Us Nothing, Until You Are Satisfied.

Send No Money But write me at once for full information about this most liberal offer. Remember, you can have **30 days' free trial** on any of my famous *Split Hickory Vehicles*, and you don't have to pay us any money unless you are satisfied. Don't buy a buggy or vehicle of any kind from any one until you get my valuable Buggy Book. It is the most wonderful Book about Vehicles ever published. Just write me a postal card and say: "*Send me your free Buggy Book*," and I will send it to you by return mail **absolutely free.** Write me now, before you forget it. H. C. PHELPS, President

THE OHIO CARRIAGE MFG. CO., Station 293, Cincinnati, Ohio.

This Valuable **BUGGY BOOK** Mailed **FREE** Write For It

No. 42. Light Double Buggy or Carriage Harness. Price complete with collars and nickel or imitation rubber trimmings, $24.00. As good as sells for $6.00 to $8.00 more.

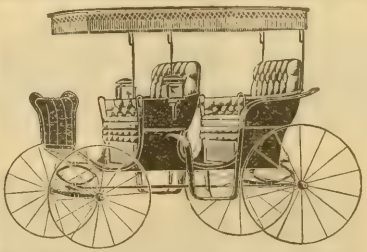
34 Years Selling Direct

Our vehicles and harness have been sold direct from our factory to user for a third of a century. We ship for examination and approval and guarantee safe delivery. You are out nothing if not satisfied as to style, quality, price.

We Are The Largest Manufacturers In The World

selling to the consumer exclusively. We make 200 styles of Vehicles, 75 styles of Harness. Send for large, free catalogue.

Elkhart Carriage & Harness Mfg. Co., Elkhart, Ind.



No. 309. Fine Canopy Top Surrey. Price complete, $83.00. As good as sells for $25.00 to $30.00 more.

Try it Two Years

Our Guarantee that this Buggy will stay right for that time is backed by a cash bond of $25,000. Your money back if it is not all we claim for it.

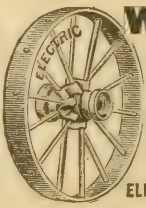
Try an **Anderton** 30 Days

With your Money in Your Pocket

"Anderton" Top Buggy.

Write today for our plan and 140-page, illustrated catalog. The "Anderton" line includes Buggies, Surreys, Stanhopes, Driving Wagons, Pony Vehicles Carts, Harness, etc.

The Anderton Manufacturing Co.,
41 Third St., Cincinnati, Ohio.



WAGON SENSE

Don't break your back and kill your horses with a high wheel wagon. For comfort's sake get an

Electric Handy Wagon.

It will save you time and money. A set of Electric Steel Wheels will make your old wagon new at small cost. Write for catalogue. It is free.

ELECTRIC WHEEL CO., Box 95, Quincy, Ill.

10 DAYS FREE TRIAL

We **ship on approval,** without a cent deposit, **freight prepaid. DON'T PAY A CENT** if you are not satisfied after using the bicycle 10 days.

DO NOT BUY *a bicycle or a pair of tires* from *anyone* at *any price* until you receive our latest **art catalogs** illustrating every kind of bicycle, and have learned our *unheard of prices* and *marvelous new offers.*

ONE CENT is all it will cost you to write a postal and everything will be sent you **free postpaid** by return mail. You will get much valuable information. **Do not wait,** write it **now.**

TIRES, Coaster-Brakes, Built-up-Wheels and all sundries at *half usual prices.*

MEAD CYCLE CO. Dept. w215 CHICAGO

$53,700 Made by O-HI-O Cooker Agents in 1905 Selling the O-HI-O COMBINATION STEAM COOKER-BAKER.

We have many agents making $5 to $10 daily. Write us and we will give you names of agents near by who are making at least $5 daily. We can easily prove that the "O-HI-O" is the best money-maker you ever heard of, and will make you more money than anything you ever sold or are now selling. *Write us at once and we will prove it.*

Guaranteed to save 50 per cent in fuel, labor, time, and provisions. A whole meal cooked over one burner on any style stove. It assures you deliciously cooked hot meals; *30 days' trial.* No intermingling of odors or tastes. Fine for use in summer cottages. A necessity every day of the year. The only healthful way to cook foods and breadstuffs. :: *Handsomely illustrated catalog free.*

"O-HI-O" COOKER CO., 908 Jefferson Ave., Toledo, O.

A New Factory

and also a new firm name, but in the same place with the same management. We have just put in a complete

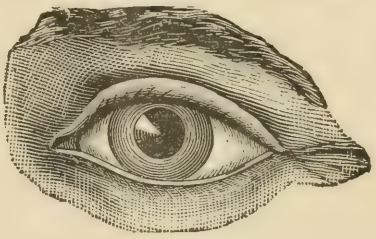
Weed Process Comb Foundation Factory

of the very latest type, and we are now ready to work up wax for western bee-keepers at low prices. . . We want several thousand pounds of beeswax at once, and will pay top market price for same. Let us hear from any one having wax to offer. .· .· .·

Buck & Wilson, Augusta, Kan.

Butler County

Keep Your



Open!

THERE will be need for many "B" Supplies this season. The past two years have been poor ones. Prospects are good for a honey crop this year. Bees are wintering well. If you are in need of hives, sections, etc., better order soon. Railroad companies are crowded. Freight moves slow these days. Don't wait until the last moment. Send for our 40-page catalog of A. I. Root Co.'s goods, which we can furnish you from here on short notice at a low price. . . . . .

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.

Mr. Texas Bee-keeper:

I should like to talk to you *personally*.

First, I want you to know about my supplies. I handle Root's Goods, of course; for I believe in giving my customers complete satisfaction—for that's better in the long run than low prices. My place of business is on the S. A. & A. P. Ry., just opposite the passenger depot, where I have built a warehouse 40×250 feet, and I have filled it full to the brim, for I handle Root's goods by the carload. This means I can furnish you with supplies with the utmost promptness.

Then, too, I have installed a complete Weed-process Foundation factory. I can turn out 500 lbs. a day. I can work your wax into foundation. In fact, my facilities in this line are not surpassed in Texas.

My can business is increasing by leaps and bounds. That is because of the quality of the goods. It will save you dollars to get my prices. Better write for them to-day.

Nothing pleases me better than for bee-keepers to make their headquarters at my office when in San Antonio. You are always welcome. I have fitted up my office with plenty of desks and chairs, with writing-material, a reading-table, and all the bee journals on hand. Consider yourself invited.

If you haven't my catalog just drop a postal.

I can supply Red-clover and Golden Italian queens promptly.

I am now paying 23c cash and 26c in trade for average clean beeswax delivered here. Save your slumgum. I will buy it. Let me know how much you have, in what condition the slumgum is, and in what kind of an extractor it was rendered, and I will make you price I am paying.

Call or Address

Udo Toepperwein, - San Antonio, Texas

1322 South Flores Street

We are Not in a Trust!

Bee-hives, Sections, Brood-frames, Extractors

Every thing that bee-keepers use at LOWEST PRICES.
Quality the Highest. We've been making them 25 years.

American Bee-keeper

A profusely illustrated practical bee-journal which we have published for 17 years. 50c year. Sample copy and our 1907 illustrated catalog and price list free. Address

The W. T. Falconer Mfg. Co., Dept. C, Jamestown, N. Y.

New Goods - Big Stock

New Warehouse : Root's Goods : Prompt Shipment : Low Freight

Everything for the Bee-keeper at Savannah, Georgia

We are prepared to furnish promptly a full line of supplies; choice new stock just from the factory. BEES and QUEENS. We have large apiaries of fine stock. Book your orders at once, as there will be a heavy demand this season. Catalog sent free. Correspondence solicited.

Howkins & Rush, 124 West Liberty St., Savannah, Ga.

Beeswax!

We are always in the market to buy beeswax, and pay the highest market prices. We want beeswax from the bee-keepers direct. . . . . .

Dadant's . . . . .

It Excels **Foundation**

Wherever you are you can get our goods. Write us and we will either make you prices or will tell you where you can get our foundation nearer to you. We have agents everywhere. . .

Bee-supplies

We handle every kind of bee-keepers' supplies and only the very best. Early order discounts given now on supplies and foundation. Write us before selling your beeswax or buying your season's supplies. . . . . .

Dadant & Sons, Hamilton, Ills.

Root Goods

for the West

Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS.

My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

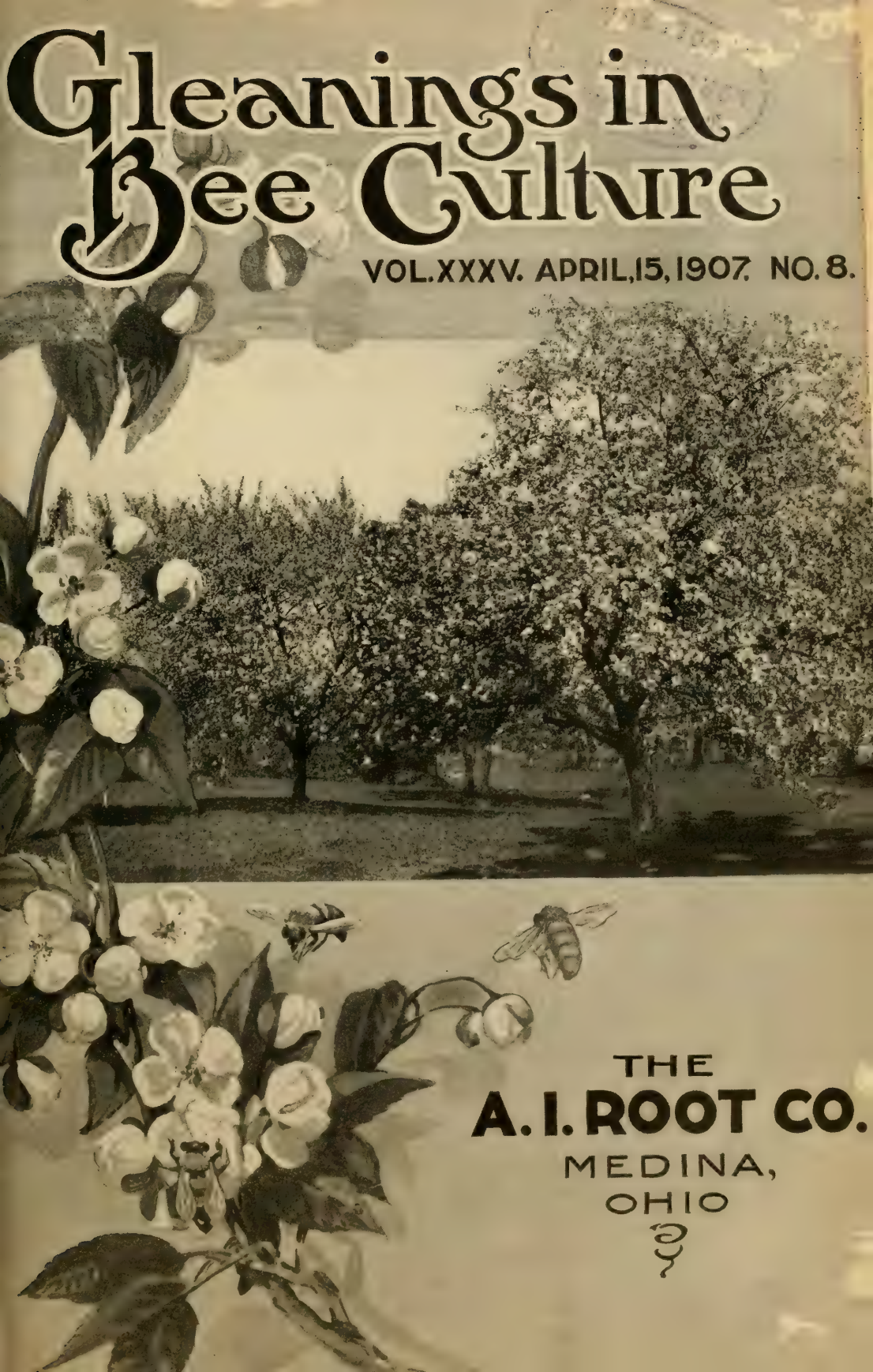
Write for estimate with liberal discount for orders sent in now.

Jos. Nysewander, Des Moines, Iowa

565, 567 West Seventh Street

Gleanings in Bee Culture

VOL. XXXV. APRIL 15, 1907 NO. 8.



THE
A. I. ROOT CO.
MEDINA,
OHIO

Are you now deciding on the hives you will purchase for this season's use? If so, we ask you to consider the Danzenbaker Hive on its merits as a "Comb Honey Hive." It has stood the test. A booklet telling about it is yours for the asking. We send with it a copy of our 1907 catalog.

We are the Michigan agents for Root's goods, both wholesale and retail. We can save you time and freight expense

M. H. Hunt & Son,

Redford, Wayne Co., Mich.

The Swarming Season

will soon be here. Are you prepared? Why not order your supplies now, and take advantage of

The Large Discounts

which we offer this month on Bee-supplies? Only remember the

Low Freight Rates

from TOLEDO places our goods in your door cheaper than you can get them elsewhere. We afford you every advantage in both Poultry and Bee Supplies. We sell The A. I. Root Co.'s bee-supplies, Model Incubators and Brooders, Prairie State Incubators and Brooders, Poultry Supplies of all kinds.

Our Large Illustrated Catalog

illustrates and describes our complete line; tells how to raise bees and chickens successfully. . Free upon request.

The Griggs Bros. & Nichols Co.

523 Monroe St., Toledo, Ohio.

APICULTORES

De Espana, Portugal y Colonies.

Pidan cataloges de las colmenas, extractores, prenzas para cera, ahumadores, zinc perforado, escape de abejas, velos, cuchillos, maquinas para hacer base de panales, y todos otros articulos utiles en apicultura manufacturado por la celeberrima casa de

A. I. Root Company,

la fabrica la mas importante del mundo. Precios muy modicos a los subagentes por mercancias puestas en nuestros talleres.

EMILE BONDONNEAU,

Agente Générale

POR TODA EUROPA Y COLONIAS,

142 Faubourg SAINT DENIS, PARIS. 10me.

C. H. W. WEBER

Headquarters for . . .

BEE-SUPPLIES

Distributor of Root's Goods Exclusively at Root's Factory Prices

GIVE ME your orders for the **Best Goods Made.** You will be pleased on receipt of them. You will **save money** by ordering from me. My stock is complete; in fact, I keep **every thing** the **bee-keeper** needs. **Cincinnati** is one of the best **shipping-points** in the Union, **particularly in the South,** as all freight now **goes through Cincinnati.** Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly **free.**

A SPECIAL DISCOUNT ON EARLY ORDERS

I will buy your Honey and Beeswax

I pay **cash on delivery;** or, if you are in **need of honey,** write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of **extracted** or **comb honey.** I guarantee its purity.

Queens and Nuclei

Let me book your orders for queens. I breed the finest **Golden Italians, Red-clovers, Carniolans, and Caucasians.** Can furnish **Nuclei** beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White Sweet-scented Clover, Alfalfa, and Alsike.

C. H. W. WEBER

Office and Salesroom, 2146-48 Central Ave.
Warehouse, Freeman and Central Avenues.

CINCINNATI, OHIO, U. S. A.

Honey Markets.

GRADING RULES.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled, by travel-stain or otherwise; all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

The prices here quoted are wholesale, or what the honey brings on arrival.

ST. LOUIS.—Fancy white comb honey, 17; No. 1 15 to 16; light amber, 14 to 15; broken and inferior, less. Extracted light amber, California, 8; Spanish needle, 8, in 5-gallon cans. There is no new Southern honey on this market yet; same would be quotable at 5½ to 6 in barrels; same quality in 5-gallon cans, 6½ to 7. Beeswax firm at 31, for choice pure. All impure and inferior, less. R. HARTMANN PRODUCE CO.,
April 4. St. Louis, Mo.

KANSAS CITY.—The demand for comb honey is light, as also are the receipts. The market is about bare of extracted. We quote: No. 1 white comb, 24-section cases, $3.10 to $3.25; No. 2, $2.50 to $2.75; extracted, white, 8 to 9; amber, 7 to 8. Beeswax, 28.
C. C. CLEMONS & CO.,
Mar. 30. Kansas City, Mo.

BUFFALO.—There is a very good demand for white-clover honey, but none in our market that will grade good enough for the trade. Most of the trade prefer to go without honey rather than buy No. 2 white or mixed. Very little demand for buckwheat, mixed, or No. 2 white. A 1 to fancy white clover, 16 to 17; dark and mixed, 9 to 11; No. 2 white clover, 12 to 14. Beeswax, 32 to 33. W. C. TOWNSEND,
April 6. Buffalo, N. Y.

TOLEDO.—There is practically no change in the price of comb and extracted honey, and not very much demand for comb honey. Fancy honey brings, in a retail way, 17; No. 1, 16; no demand for lower grades. Extracted in barrels would bring 6½ to 7½, about the same. Beeswax, 28 cash, 31 in trade.
THE GRIGGS BRO. & NICHOLS CO.,
April 8. Toledo, Ohio.

CINCINNATI.—There is very little demand for extracted honey at this writing, which is only natural owing to the unsettled weather at this time of the year. However, we are looking forward with interest to a revival of trade as soon as the warm spring days are here. We sell amber extracted honey in barrels at 6¼ to 7½, the price depending upon the quantity purchased. Fancy table honey, in crates of two 60-lb. cans each, at from 8 to 9. There is little demand for comb honey, owing to the lateness of the season. We are now paying 32 cts. cash, 35 in trade, delivered here for choice yellow beeswax.
THE FRED W. MUTH CO.,
Mar. 20. 51 Walnut St., Cincinnati, O.

PHILADELPHIA.—Owing to the cold weather, there has been quite a demand for comb-honey in the last ten days. Quite a number of odd lots have been moved in this market, with not so many arrivals as heretofore. We quote: Fancy white comb-honey, 15-16; No. 1, 14-15; Amber, 12-14; fancy white extracted, 7-8; light amber, 6-7. Beeswax, very firm, 32. We are producers of honey and do not handle on commission.
WM. A. SELSER,
April 10. 10 Vine St., Phila., Pa.

CHICAGO.—Market is quite bare of best grades of comb honey. When sales are made it is on a basis of 15 to 17, with very little outlet for the off grades. Extracted, 7 to 8; off grades, 6 to 6½. Beeswax is in good demand at 30 to 32. R. A. BURNETT & CO.,
April 4. 199 So. Water St., Chicago, Ill.

SCHENECTADY.—The demand is as good as could be expected during the maple-sugar season. The latter crop, however, seems to be quite short, and prices ruling high. This will help the honey market to some extent. No material change in quotations.
CHAS. MACCULLOCH,
April 9. Schenectady, N. Y.

BOSTON.—The honey market is very quiet, with but a fair supply and light demand. Fancy white is bringing 16 to 17; No. 1, 14 to 15; No. 2, practically out of market. Extracted honey, 6 to 8, according to quality. BLAKE, SCOTT & LEE CO.,
April 8. Boston, Mass.

ZANESVILLE.—The demand for honey continues light. No. 1 to fancy white comb brings 17 to 18, with tendency toward lower prices. Not much call for extracted in quantities. Table honey, 1-lb. jars, $2 20 per dozen, wholesale. Beeswax, wholesale selling price, 40. E. W. PEIRCE,
Mar. 22. 136 W. Main St.

ST. PAUL.—Honey supply is limited. Fancy white, No. 1, in 1-lb. sections, new, 15 to 16; No. 2 white clover, in 1-lb. sections, 13 to 14; extracted white, in 60-lb. cans, per case, 9 to 10. W. H. PATTON, Sec.,
April 8. St. Paul, Minn.

Honey and Wax Wanted and for Sale. See Classified Ads. on pages 586–588.

BEE SUPPLIES.

We handle the finest bee supplies, made by the W. T. FALCONER MFG. CO., Jamestown, N. Y. Big Discounts on early orders, let us figure with you on your wants.

MUTH SPECIAL DOVE TAIL HIVES, have a honey board, warp-proof cover, and bottom board, think of it, same price as the regular styles. Send for Catalog.

THE FRED. W. MUTH CO.,

51 WALNUT ST., CINCINNATI, OHIO.

WE WILL BUY AND SELL

HONEY

of the different grades and kinds.

If you have any to dispose of, or if you intend to buy, correspond with us.

We are always in the market for WAX at highest market prices.

HILDRETH & SEGELKEN,

265-267 Greenwich St. 82-86 Murray St.

NEW YORK.

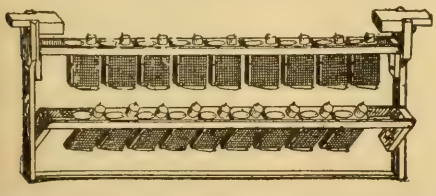
BEESWAX ADVANCED.

From this date until further notice we will pay 31 cents cash, 33 trade, for average wax delivered here or at our branch offices. This is a higher price than we have ever paid before at this season of the year. If any of our readers have any wax to dispose of we shall be pleased to hear from them. Be sure to mark your shipment with your name so that it may be identified on arrival, and mail us shipping receipt with gross and net weight of shipment.

The A. I. ROOT COMPANY, Medina, Ohio.

Root Queen-rearing Outfit No. 2.

In this outfit are embraced the best points of the best systems in use. It will give satisfaction to the amateur as well as the expert. The cell-cups are made of wood, wax-coated. No melted wax is used in their manipulation, as they are attached to the cell-stick by means of a small nail-point.



The nursery cage combines the features of nursery and introducing cages. By their use a queen can be released on the candy plan or caged in the hive as desired.

In connection with the outfit goes a booklet on queen-rearing—one which ought to put the veriest amateur on the high road to success.

The outfit consists, first, of a book of 36 pages; 24 queen-nursery cages; one queen-nursery frame: 100 wooden queen-cell cups; 200 artificial compressed cell-cups; three cell-bars; 10 Miller introducing-cages; one set of grafting-tools, all complete for $4.50. Postage 50 cents.

Tools for Queen-breeders.

Root cell-cup, with point for attaching to bar, 50c per 100; $4.00 per 1000. Postage 10c per 100.

Same, waxed ready for use, 75c per 100; $6.00 per 1000. Postage 10c per 100.

Wax-cells, 25c per 100; $2 00 per 1000.

Cell-stick, each, 10c; $1.00 per doz. Postage 1c each.

Transferring-needle, double-ended and nickel-plated, 25 cents. Postage 1c each.

Jelly-spoon, nickel-plated, 15 cts. Postage 1c each.

We can supply, also, fine-pointed lace-scissors with extra large bows, for clumsy fingers, at 35 cents each. Postage 1c each.

Send orders to any dealer in bee-keepers' Supplies.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize

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at the World's Fair, St. Louis, 1904.

IS THE BEST, CLEANEST, COOLEST, STRONGEST, CHEAPEST, AND LARGEST SMOKER SOLD FOR A DOLLAR.

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to clog **WITH SOOT.**

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke. I find it all you claim. In the spring I shall want several. I always want the best.

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F. DANZENBAKER, Jamestown Exposition, Va.

TO THE

BEE-KEEPERS OF CANADA.

WE are pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we do not offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

E. GRAINGER & COMPANY,

Deer Park,

Toronto, Ontario, Canada.

CANADIAN AGENTS FOR
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

Established 1873
Circulation 32,000

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Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

Published by
THE A. I. ROOT CO., Medina, Ohio

J. T. CALVERT, Business Manager

POSTAGE IS PREPAID by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 60 cents per year postage.

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My brother and myself will have about 600 colonies of bees under our management the coming season, and to buy cans in which to store all of the honey that we hope they will gather will cost not far from $200. To secure money for that purpose I have decided to sell a few of the bees here at home—perhaps 25 or 30 colonies.

The bees are all pure Italians; most of the colonies having queens of the Superior Stock. Not a queen will be sent out that would not pass as a breeding queen—such as dealers sell in the spring for from $3.00 to $5.00 each. The hives are 8-frame Langstroth, have been used only two years, and are painted with two good coats of white paint. The combs are all built from full sheets of foundation, and wired at that. In fact, the stocks are strictly first-class in every respect—could not be better—and the price is $6.00 per colony, no more and no less, even if one man should take the whole lot.

I am ready to accept and book orders accompanied by the cash, and when I have received orders for 30 colonies, this advertisement will be discontinued, and no more orders accepted. The bees will be shipped by express, about fruit-bloom time, and safe arrival guaranteed in every respect.

If you wish to stock your apiary with a strain of bees that has no superior, here is a chance to get a tested queen, already introduced, in a full colony, whereby she can be shipped without injury, early in the season, all at moderate price.

To every purchaser of one or more colonies there will be sent, free of charge, the Review for 1907, and all of the back numbers for 1906.

W. Z. HUTCHINSON, Flint, Mich.

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Why Buy of Us?

A. G. WOODMAN: Remus, Mich., Feb. 18, 1907.
The *Lewis Hive Bodies* are far superior, both in material and workmanship, to any I ever bought. As ever yours, E. D. TOWNSEND.

A. G. WOODMAN, Grand Rapids, Mich. Remus, Mich., Feb. 25, 1907.
Dear Sir:—I use *Lewis Sections* exclusively, there are none better—the only perfect "V"-cut section that has come to my notice. They fold without moistening. E. D. TOWNSEND.

Several Carloads on hand.
Immediate Shipments.

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ADVANCED BEE-VEIL, 50c.
Cord arrangement, silk face; postpaid,

A. G. WOODMAN CO.
GRAND RAPIDS, MICH.

Save Your Queenless Colonies

Introduce a vigorous tested queen. We can furnish them by return mail from our fine Strain of Three-band Italians; queens reared last fall and winter in four-frame nuclei. Choice tested queens by return mail, $1.00 each. Untested queens ready to mail March 15, 75c; $8.00 per dozen. No disease, and satisfaction guaranteed.

J. W. K. SHAW & CO.
Loreauville - Iberia Parish - Louisiana

THE RIETSCHE PRESS

Made of artificial stone. Practically indestructible, and giving entirely satisfactory results. Comb foundation made easily and quickly at less than half the cost of buying from the dealers. Price of press for L. frame sheets, $2.00; other sizes, 25c extra. Price of the press making the foundation directly on the wired frames, $2.50, any size wanted.

Adrian Getaz, Knoxville, Tenn.

Gleanings in Bee Culture

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Department Editors—DR. C. C. MILLER, J. A. GREEN, PROF. A. J. COOK, J. E. CRANE, LOUIS H. SCHOLL, G. M. DOOLITTLE, R. F. HOLTERMANN, "STENOG."

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The following letter from one of our subscribers explains itself:

The A. I. Root Co., Medina, O.

Dear Sirs:—Thank you very much for the fountain pen. It is as good as any I ever saw, and I hope all the readers of GLEANINGS will be able to get one.

Yours very truly,

Petersburg, Va., April 5. R. M. MCMURDO.

We appreciate very much what Mr. McMurdo has to say about the fountain pen which we furnish; and while it is, perhaps the best on the market for the price, yet we would not advertise it unless we thought it was. We do not want our subscribers to think that it is equal to pens sold for much higher prices. With fountain pens as with every thing else, one can not expect to get the best of the kind for the lowest price. There is a decided demand, however, for a low-priced pen, and we believe this is a very satisfactory one to fill this demand.

FARM AND GARDEN HELPS; TOOLS THAT SAVE TIME AND LABOR AND RESULT IN LARGER CROPS.

The scarcity of good farm help is a serious problem which confronts the farmers to-day, and the result is that many of them are compelled to let a large part of their land lie idle and allow it to run to grass and weeds.

The farmer or gardener who depends on Iron Age farm and garden tools has the best help in the world. These tools do the work easier, quicker, and better than it can be done by any other tools or methods. There are Iron Age tools for every farming need, and some of them combine several tools in one implement.

The No. 6 Iron Age tool, for instance, can be used either as a double or single wheel hoe, or as a hill or drill seeder. At a single operation, it opens the furrow, sows the seed, covers and rolls the ground, and marks the next row. It takes only a few minutes to change into either form of wheel hoe. This implement can also be had without the seed attachment, when it becomes the No. 1 Iron Age combined double and single wheel hoe—the only wheel hoe that combines these two forms.

The No. 60 Iron Age riding cultivator is another great labor-saver. It is quickly adjusted to cultivate any crop in rows from 28 to 48 inches in width. It is successfully operated on both level and hilly land, and all kinds of soil; is easy to guide and easy to turn in smallest space.

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Iron Age tools are made by the Bateman Manufacturing Co., Grenloch, N. J., and the works have been established since 1836. Only the best materials and workmanship enter into the making of Iron Age tools. They are light, strong, and easy-running, and every implement is guaranteed.

The 1907 Iron Age book is the most beautiful book of its kind ever published, and shows and describes the complete line of Iron Age farm and garden tools—wheel hoes, seeders, fertilizers, distributors, horse hoes, potato-planters, cultivators, sprayers, diggers, etc. It is a book that should be in the hands of every reader of GLEANINGS in Bee Culture, and will be sent free on request to Bateman Mfg. Co., Box 120, Grenloch, N. J.

The Journal for Less than a 2-cent Stamp.

If you could get several authoritative articles by leading writers on bee culture merely by writing a letter of request for them, you would jump at the proposition, wouldn't you?

But two cents is MORE than the price of the American Bee Journal when you get it by the year (52 weeks for $1.00).

And the articles mentioned above constitute ONLY ONE of the dozen departments of this great up-to-date Bee Journal, one issue of which is worth more to a bee-man than the cost of a whole year's subscription.

Think of getting a 20-page high-class magazine for less than two cents a copy!

Sample copy FREE, or a "trial trip" of three months (13 copies) for only 20 cents.

Special Offer.—We will send the Weekly American Bee Journal for 52 weeks, and a standard-bred ITALIAN QUEEN (to be mailed in May or June) for $1.50. Subscription can begin with January, or with current number—say which.

Address American Bee Journal, 334 Dearborn Street, Chicago, Ill. Write to-day—this offer may not appear again.

AT THE CLOSE OF THE SEASON FOR 1907

ROOT'S HIVES WILL OUTWEIGH NEARLY ALL OTHER STYLES.

SEND IN YOUR ORDER NOW.

The A. I. ROOT COMPANY

Syracuse New York

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Twenty cents per agate line, flat.
Fourteen lines to inch.

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One-fourth page $11.00
One-half page 21.00
One page..... 40.00

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Preferred position, inside cover pages, 50 per cent additional.
Outside cover page, double price.
Reading notices, 50 per cent additional.
Cash-in-advance discount, 5 per cent.
Cash discount, if paid in 10 days, 2 per cent.
Bills payable monthly.
No medical or objectionable advertising accepted.

"A Square Deal."

We believe that every advertisement in this paper is backed by a responsible person. But to make doubly sure we will make good any loss to paid subscribers sustained by trusting any deliberate swindler advertising in our columns, and any such swindler will be publicly exposed. We protect subscribers against rogues, but we do not guarantee to adjust trifling differences between subscribers and honest responsible advertisers. Neither will we be responsible for the debts of honest bankrupts sanctioned by the courts. Notice of the complaint must be sent to us within one month of the time of the transaction, and you must have mentioned GLEANINGS IN BEE CULTURE when writing the advertiser.

LOW-PRICED GOOD VEHICLES.

It is a matter of great surprise to people who are not keeping track of such things, at what low prices good vehicles can be bought these days. A glance through the catalog of The Anderton Mfg. Co., Cincinnati, Ohio, one of our regular and reliable advertisers, well illustrates this. The prices are, indeed, extraordinary. But the wonder is all the greater when it is known that these prices are for really high-class vehicles. They are not "bargain prices," offered for a short time on a single "leader," but they include all styles of vehicles they manufacture, and that is a long list. They include buggies, surreys, stanhopes, driving-wagons, spring wagons, pony vehicles, carts, harness, etc.

Another interesting thing in this connection is the way this concern sells its vehicles and harness. We refer to their liberal free-trial plan. It is a *real* free trial. Readers are familiar with the phrase, "Try an Anderton, with your money in your pocket." The Andertons make their selling plan mean that and nothing else. Often "free trial" means a preliminary deposit, or you put up your money for the article and get it back if not satisfied. Again, it often means an advanced price for the article over the cash-with-order price. This is not the "Anderton" plan. They give a straight out-and-out free trial. They agree to make good all their representations. If they should not, you have your money and they get the vehicle back at their own expense. They sell only direct, factory to user. They give two years' guarantee on their articles, and the public is amply protected in all its dealings with them by a $25,000 cash bond.

Certainly no better assurances of quality, right prices, or right treatment could be asked for or given. Their beautifully illustrated 140-page catalog will show you what you want. If you are in the market for a vehicle or harness of any kind, send for it.

Our discounts on **BEE-SUPPLIES** are still in effect.

WE furnish EVERY THING needed in practical bee culture, at lowest prices. We make the DOVETAILED, LANGSTROTH, and ALTERNATING HIVES. The most practical, *up-to-date* hives are the MASSIE HIVES. We make them. Have you seen them? Have you received our new 1907 catalog? It is surely the easiest catalog to order from you ever saw. It is so easy that you can not make a mistake in your orders; a child can order from it as well as an adult. It is something new and entirely different from any you have ever seen. Write us a postal card for it to-day. It is free.

Address Kretchmer Mfg. Co., Council Bluffs, Iowa.
Muscatine Produce Co., Muscatine, Iowa. :: Trester Supply Co., 103 S. 11th St., Lincoln, Neb.
Catalogs issued in German and English.

North Texas . .

. . Bee-keepers

will find Dallas the best point from which to purchase supplies. We have a carload of ROOT'S GOODS IN STOCK, and sell them at the Factory Prices. Don't forget that we can furnish any thing in the way of Field or Garden Seeds, Plants, and Poultry Supplies. Our large illustrated catalog for 1907 free on application. Mention GLEANINGS when you write. . . . . .

Texas Seed and : Floral : Company
Dallas, : : : : : Texas

1884 1907

New 64-page catalog for the New Year now ready

FOR YOU

Twenty-two successful years manufacturing bee-supplies and raising Italian bees and queens. . . . . Root's Goods in Stock.

J. M Jenkins
Wetumpka, : : Alabama

NOW READY

to fill your orders for hives, supers, sections, and foundation of all grades, We now have a large stock of these goods on hand and can supply your wants for regular goods without delay.

We are booking orders for BEES and Queens, and to assure early shipment you should send in your orders now.

Price list free upon application.

W. W. CARY & SON, Lyonsville, Mass.

Well-bred Queens!

For the purpose of securing an ample supply of select-bred queens, I have engaged an experienced breeder in the South to rear queens for *me only*, and confidently expect to fill orders promptly soon as weather permits mailing. . . . . .

Cook's Square Honey-jar

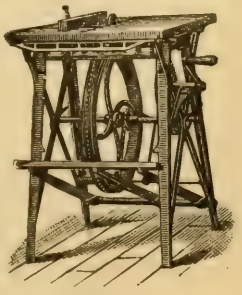
is the best, cheapest, and most sanitary package for retailing honey. Send for circular and price list of hives, bees, and useful implements. . . . . .

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail.

BARNES' HAND and FOOT POWER MACHINERY

This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, etc.



MACHINES ON TRIAL

Send for illustrated catalog and prices. Address

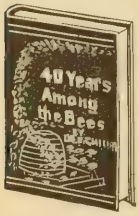
W. F. & JNO. BARNES CO.
545 Ruby Street,
ROCKFORD, ILLINOIS.

PRACTICAL WORKS ON BEES

THE books mentioned on this and the succeeding page are all devoted to practical bee culture, although a few of them, as will be noticed by their descriptions, have more or less scientific value. A somewhat careful reading of the descriptions below will undoubtedly show any one just what book will suit him best.

LANGSTROTH ON THE HONEY-BEE. Revised by C. P. Dadant. The original work by Langstroth will always remain a classic book on bee-keeping along with that of Huber, Reaumur, and Swammerdam. This is the old book brought down to date by one of America's foremost bee-keepers, C. P. Dadant, who is also very well known in Europe as the great exponent of movable frames—so much so that frame hives are sometimes known by his name in certain European countries. The new edition is termed the "Twentieth-Century Edition of Langstroth," and contains nearly every thing one wishes to know about bees, and forms a thick cloth-bound book of 575 pages, beautifully illustrated. It is a standard work, both here and in Europe, where it has been translated into French and Russian. The bee-keeper who does not like this book is hard to suit. Price by mail, $1.25; by freight or express, 15 cts. less.

FORTY YEARS AMONG THE BEES. Some 17 years ago Dr. C. C. Miller, of Marengo, Ill., wrote an unpretentious little book entitled, "A Year Among the Bees." This was charmingly written, and in a style so simple and easy that it read more like a story than a treatise on bees. The new book, in one sense a revision of the old, because it uses some of the old matter, is, to all intents and purposes, a brand-new work with a title that certainly covers a large expanse of time for one life, and that of a man who is one of the best-posted bee-men in the United States—a practical bee-keeper, one who produces large crops of honey. He has for years read most thoroughly all the literature on bees, both in Europe and America. With all his practical knowledge relating to the business he is a college graduate, a graduate of a medical school, and one who has had a large experience as a journalist. His training is just such as would enable him to write a book on bees; and his last book from his best and ripest experience is a masterpiece. It is just as much a good story as the old one, and just as interesting. It contains over 300 pages and 100 beautiful half-tone pictures from photos taken by the good doctor himself while he was at his every-day work among the bees. Price $1.00, postpaid. By freight or express, 10 cts. less.



COOK'S MANUAL OF THE APIARY is a very complete treatise on bees and bee-keeping, nothing of any consequence being omitted by its author, Prof. A. J. Cook, formerly of the University of Michigan. Even the anatomy and physiology of the bee has been very completely covered in this work, also bee botany, and yet the practical management of the apiary has not been slighted in the least. The edition was completely revised and partly rewritten in 1902, hence it is up with the times in every respect. Price $1.15, postpaid; 15 cts. less by freight or express.

BRITISH BEE-KEEPERS' GUIDE BOOK. By T. W. Cowan. This is the leading English work on practical bee-keeping in England, and as such has had an immense sale, and has been republished in French, German, Danish, Swedish, Russian, Spanish, and Dutch. The work is condensed into 179 pages, handsomely bound and well illustrated. Price $1.00 by mail; by freight or express, 5 cts. less.

DOOLITTLE'S QUEEN-REARING. This is practically the only comprehensive book on queen-rearing now in print. It is looked upon by many as the foundation of modern methods of raising queens wholesale. Mr. Doolittle has an entertaining way of writing on bee subjects which enables his readers to follow him with pleasure, even if they never intend to raise queens at all. Cloth bound, 124 pages, $1.00 postpaid; by freight or express, 5 cts. less.

THE HONEY-BEE. By T. W. Cowan. This is the standard work on the anatomy and physiology of the bee in the English language. It is packed with information on the subjects indicated, and expresses in a condensed, accurate manner, every thing that has been discovered by the scientists of all countries who have studied the life history of the honey-bee. The book is beautifully bound, printed and illustrated in the highest style of the art of book-making, and is invaluable to a bee-keeper. Last edition 1904, 220 pages. Price $1.00 postpaid. By freight or express, 5 cts. less.

QUINBY'S NEW BEE-KEEPING. This, a modern edition of Quinby's Mysteries of Bee-keeping, is one of the most useful books on apiculture ever written. Mr. Quinby was an intensely practical bee-keeper and greatly assisted Mr. Langstroth in laying the foundations of American apiculture. His son-in-law, Mr. L. C. Root, revised the old book, giving it a new title and bringing it in line with the times. It is a simple, easily understood guide to bee-keeping. Cloth bound, 271 pages, 1905; price $1.00 postpaid; by freight or express, 10 cts. less.

ADVANCED BEE CULTURE. By W. Z. Hutchinson. This, as its name implies, is a book giving the latest methods of keeping bees, and it certainly does what it claims to do. The author is himself a very practical bee-keeper, but in addition he edits and publishes a bee magazine, where he, of course, gets a first-hand knowledge of all that is taking place in the bee-keepers' world. The book is embellished with a number of beautiful illustrations which greatly enhance the value of it to many. The author is an accomplished photographer, and the pictures are therefore mostly original. This is a very useful work to any one who is seriously thinking of becoming a specialist in apiculture, depending very largely upon the bees to furnish bread and butter and food and raiment for the bee-keeper and his family. There are no theories in it. If one can afford to get only two or three books, this certainly should be one of them. Price $1.10 postpaid; by freight or express, 10 cts. less.

HOW TO KEEP BEES. By Anna Botsford Comstock. This is a charmingly written manual for amateurs and beginners, describing in the clearest language all necessary details which are so confusing to a novice. The authoress combines enthusiasm, literary ability, and a knowledge of bee-keeping into a goodly volume. Having herself made a start in the bee-business more than once, she fully appreciates the perplexities of the situation and makes provision accordingly. The book is well suited to the wants of the suburban dweller who wishes a hobby which will give something by way of return for labor and capital expended, or those who wish to keep only a small apiary either for pleasure or profit. If there is any better book than this for the purpose indicated, we do not know of it. Cloth bound, 228 pages, $1.10 postpaid; by freight or express, 10 cts. less.

A MODERN BEE-FARM, by Simmins, is one of those books which will cause you to sit up and take notice if you are a real live bee-keeper with lots of formic acid in your blood. The author is an English bee-keeper of note, who not only knows and understands bee culture in his own home land, but is as well an earnest student of American apicultural methods. He was the first man in the field with a non-swarming system of bee-management, and is otherwise a very original thinker on all that pertains to bees. He is not very orthodox in his views, but his book is all the better for that, seeing he wants to take us out of the ruts. You can read the book right straight through, in the long winter evenings, as it runs along like a narrative or a novel. Cloth bound, 430 pages, 1904; price $2.00 postpaid; by freight or express, 15 cts. less.

THE IRISH BEE-GUIDE, by Digges, is, as its name implies, a guide to the bee-keeping industry of Ireland. This is a closely printed, well-bound book of 220 pages with excellent illustrations on fine paper. It would be useful to any one who wishes to become acquainted with the status of bee-keeping in the old land. Price $1.00 postpaid; by freight or express, 5 cts. less.

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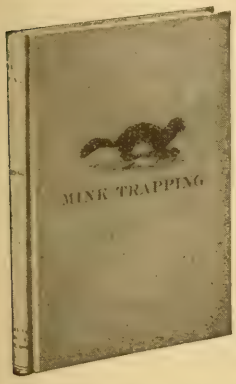

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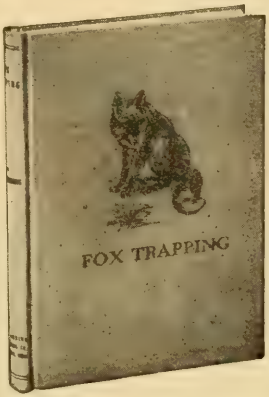

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VIII. Trapping Red Fox.
IX. Red and Gray.
X. Wire and Twine Snare.
XI. Trap, Snare, Shooting, and Poison.
XII. My First Fox.
XIII. Tennessee Trapper's Method.
XIV. Many Good Methods.
XV. Fred and the Old Trapper.
XVI. Experienced Trapper Tricks.
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GLEANINGS IN BEE CULTURE

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STRAY STRAWS
by Dr. C. C. MILLER

LAST WINTER was unusually warm, the coldest day being only 8 below zero; and the last week in March runs up to 70 or 80 degrees, day after day

G. M. DOOLITTLE advises against trying to raise queens before fruit-bloom. Not many beginners will follow that advice, but they will after enough years of experience. After trying a good many early-reared queens, first and last, I have come to the conclusion that the best thing to do with any queen that comes into the world before fruit-bloom, and perhaps even before clover, is to take off her head.

LIGHT FRAMES in a ten-frame body are mentioned as discouraging the queen from laying in extracting-combs, p. 490, top of second column. I puzzled some little time to think why a queen should object to light frames, and then it occurred to me that instead of "*light* frames" it should read "*eight* frames." [This is certainly a typographical error. It should have been *eight* frames, not *light* frames.—ED.]

E. W. ALEXANDER talks, p. 474, as if he wanted others to try two or more queens in a colony. I am afraid not many can try it unless he tells how to introduce them. I never had but one case of two unrelated queens in a colony—I think I reported that one case in GLEANINGS—and I'm not sure how they got there. A German bee-journal reported five or six queens in a colony, but I wasn't interested, and don't remember how it was done. Now that Mr. Alexander says that it prevents swarming I'm all interest, and anxiously waiting for further word from him.

BRO. A. I. ROOT, you seem to be trying to bull the market by advocating the eating of a lot of eggs, p. 497. But you can't persuade me, and yet we have plenty of eggs. Mrs. Miller brings in 25 to 29 a day. But I seldom eat one; I do better. I just drink 'em. Break an egg into a bowl, whip it well, add cream and sugar, pour in about a teacupful of hot coffee, fill up with hot water, and you have a drink fit for a king. That's what I have for breakfast every morning, and all I've had for breakfast for more than two years.

GLEANINGS for April 1 mailed March 23! What is this world coming to? [We will explain that we send Dr. Miller a copy of GLEANINGS hot from the press in order that he may have it in time to prepare his Straws for the issue following. We have no doubt our readers will appreciate the earlier mailing. But, notwithstanding GLEANINGS is practically finished a week ahead of time, it is doubtful if many of our subscribers, owing to our rapidly growing subscription-list, will get their journals much earlier than usual.—ED.]

C. P. DADANT thinks less than two per cent of colonies in progressive apiaries are in shallow hives, p. 485. A curious thing about the Heddon hive is that more seems to be said in its favor in Australia and Canada than in this country. [We doubt if the estimate of two per cent for colonies in shallow hives is anywhere near high enough. In our travels over the country we find the shallow-hive or divisible-brood-chamber men feel that they are out of the orthodox channel of bee culture, and therefore do not say any thing about the hive they use. The correspondence in this office of late seems to indicate that the percentage of shallow-hive men, and those who use divisible brood-

chambers, compared with all the rest, would be considerably in excess of two per cent, but how much higher we would not venture to say. But every day we are surprised to find how many there are who use divisible-brood-chamber hives.—ED.]

IN MY TIME I have smoked bees on taking from the cellar, or shut the entrance with a cloth wringing wet, but I think it isn't often necessary. This year Philo carried them out with never a wet rag, nor a puff of smoke. It took him five hours to take out the 166, placing them at an average distance of seven or eight rods from the cellar. Temperature in cellar at beginning was 52, rising to 66 at close. Some bees flew out at the outer cellar door, but gradually disappeared, going, I suppose, into some of the hives. An important factor was that the cellar had been wide open the night before.

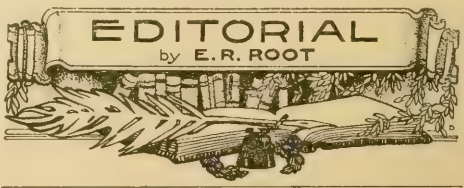
SOFT MAPLES bloomed March 21, with thermometer at 75, but I was away and did not get the bees out of the cellar until March 23, with highest thermometer at 78. Only four of the 170 were dead; and the curious thing about them was that, while there was plenty of honey, they were clean of bees, combs, bottom-board, and all, and I am puzzled to know whether the bees deserted them before they were carried into the cellar or after. [We are having unprecedentedly warm weather here for March, and we are fearful that old Dame Nature will make up by giving us a cold spell that will kill the brood later on.—ED.]

LAST FALL I tried to give my bees enough honey so there would be no question about their weight this spring. But for fear of some oversight I "hefted" them all to-day, March 25. I lifted very few indeed from their stands. When I pulled on a hive to the amount of about 40 pounds, if it didn't come up I let it stay down. What's the use of breaking my back lifting an extra 10 or 20 pounds when I know the hive is more than heavy enough? If it raised from the stand with what I thought was a 40-pound lift, I weighed it. If it weighed less than 38 pounds I opened it. There were only five to open, and they didn't need honey.

THE EFFORT to secure an anti-spraying law in Illinois will probably turn out a failure on account of the opposition of fruit-men. They say they can not get through spraying in time unless they begin at least a little before the blossoms fall. It is just possible that the fruit-men may gain by this; but I don't believe that their gain will be as great as the loss to the neighboring bee-keepers. [The trouble in Illinois is that you have a large manufacturer of spraying-outfits who has for years been sending out literature broadcast, advising fruit-men to spray during fruit-bloom. So persistently has this advertising matter been sent out that your fruit-growers have come to be permeated by the idea. Mr. Sprayingoutfitman has been labored with, and been informed that all the experiment stations in the country advise against spraying while trees are in bloom. But he insists he is right; and the last we knew of him he was still sending out spraying-in-bloom literature with his spraying-outfits.—ED.]

J. A. GREEN thinks no foundation heavier than "extra thin" should be used in sections, p. 468. Possibly, possibly. I have used no extra thin for many years, although using full sheets, and have had no complaint. Here the harvest has a way of letting up now and then, even in the best years, and at such times the bees have an unpleasant way of digging down extra thin foundation. Besides, extra thin doesn't do so well for bottom-starters, and I can't afford to do without them. [Our records in our foundation department show that there is two pounds of thin to one of extra thin super foundation used by the comb-honey producers of the country. So, doctor, you are not in the minority. To the ordinary consumer the difference between a comb of honey built off from thin and extra thin is not apparent. It is the discriminating bee-keeper, however, who notices the difference.—ED.]

E. D. TOWNSEND, in *Review*, springs an idea worth thinking about: In a heavy flow honey stored in very deep cells will not be of so good *quality*. So he favors extracting-frames with ⅞ top-bars and end-bars, spaced 1⅞ in., and then when uncapping he cuts down to the wood, leaving a ⅞ comb to return to the bees. [Mr. Townsend is correct; and the same principle applies to comb honey. A tall section with a large amount of surface, theoretically at least, will have better-ripened honey than the same weight of comb square in form but thicker; or, in other words, a 4×5 1⅞ plain section having a thinner comb than a 1½ square section of the same weight should have a slightly better honey. While the actual difference is *very small*, yet if there is a difference it may be the proverbial straw that breaks the camel's back in favor of sections with thinner combs of larger surface.—ED.]



COMPLAINT has reached this office from some of our subscribers, of the non-receipt of certain issues of GLEANINGS, and in some cases numbers so badly mutilated that even whole pages were missing. Uncle Sam's mail clerks are none too careful, as every publisher knows to his sorrow. We are making preparations to mail GLEANINGS in flat packages more securely wrapped, and trust hereafter the numbers will be received in better condition. We will gladly replace any missing or mutilated numbers on receipt of a postal card advising us to that effect.

TARIFF INCREASED ON HONEY IN EUROPE.

Both Germany and France have recently raised their tariffs considerably in the interest of agriculture. The raise applies to honey. The Canadians have also decided on a pretty stiff tariff, on both honey and beeswax. In this country beeswax is free, and the duty on honey is not high—20 cents per gallon, which is not high enough to prevent good honey from coming here. The increase in the European tariffs may divert some Cuban and other West Indian honeys into the American markets. If so, it may affect adversely the market for the bee-keeper and honey-producer in this country, for manufacturing purposes; but we haven't much to fear from Cuban honey this year, as there is not much in sight.

THE ALMOST UNPRECEDENTEDLY WARM DAYS IN MARCH.

According to the weather reports, the 22d and 23d of last month were the warmest for March that has been known since 1871. At this writing, the 26th, it continues warm. In our locality, prematurely warm weather starts excessive brood-rearing, and then when a cold spell comes on for a number of days (as it is almost sure to do), the effort of the bees to cover this brood results not only in loss of the brood, but of many of the bees, inducing what we generally call spring dwindling. If we could control the weather we would have one or two good flight days early in the spring, then have it cold enough to keep brood-rearing back until natural at the proper season.

Later.—A cold spell came on, but it didn't last long. Indications go to show that this will be an early spring for the central States at least.

HOW THE NATIONAL PURE-FOOD LAW IS WORKING; SOME HEAVY FINES THAT HAVE BEEN PAID.

The pure-food law is already proving a terror to evil-doers. As illustrating this, we may mention a case recently reported in the press, of a company which has a plant in Vermont, but sells its goods in Boston. It is alleged its officers pleaded guilty in a federal court to four indictments, charging them with having in their possession diseased meat intended for sale. The indictments contained 400 counts, to 34 of which, it is said, the company pleaded guilty, and that they were compelled to pay a fine of $3000 and costs.

Under the old dispensation this concern would probably have evaded the law because they prepared the goods in one State and sold in another; or had they been haled before a local State court they would have been let off with a small fine, or none at all, for it frequently happens that concerns of this kind can bring local sentiment to bear, and the case is allowed to die. We want to have only a few cases of this kind with regard to honey-mixing to put a complete stop to the adulteration.

Perhaps the greatest temptation at present is to substitute paraffine for beeswax in the manufacture of candy, also in druggists' supplies. These people hate to pay 33 cents per lb. for beeswax.

SACCHARIN RULED OUT IN FAVOR OF SUGAR, AND POSSIBLY HONEY, FOR CANNING PURPOSES.

It is stated in press despatches that the Ohio State Food Commissioner has barred the use of saccharin in canned goods, and will allow no sweetening other than good plain sugar. It is claimed the canners had been using saccharin, which is 500 times sweeter than sugar, and that it was harmless; but from the information we possess it is far from being so. On the contrary, it has been proved to be a rank poison in some cases, and the Ohio commissioner is amply justified in his ruling. We doubt very much, however, if he can compel the canners to use nothing but sugar, for honey stands on even a higher plane than sugar; and the very finest preserves made in Europe to-day are sweetened and preserved with honey—a fact which should be better known in the United States,

WHY THE BEES CLUSTERED OUT IN FRONT OF THE ASPINWALL HIVE.

Mr. L. A. Aspinwall, referring to the crowding of the bees out of the front of the Aspinwall hives, as illustrated on page 399, draws attention to the fact that the photos show that the slotted dividers or dummies were not in the hive at the time the pictures were taken. For that reason the bees would crowd out of the entrance as they would from any hive under precisely the same condition. If the dummies had been alternated between the frames, the bees would have all been in the hive. In talking with our neighbor Vernon Burt this morning he said he had removed the dummies after the season was over, and that it was a fact that, while the slotted dividers were between the frames, the bees remained wholly within the hive, no matter how hot the day. He reports that this Aspinwall colony this spring is a rousing big one; and he says if the dividers and the general construction effectually stop swarming he will get a big crop of honey from the hive.

BEES POISONED FROM SPRAYING WHILE IN BLOOM.

About this time of the year some bee-keepers will find a rapid decimation of the bees in their colonies, in localities where ignorant farmers or orchardists are spraying while fruit-trees are in bloom. There is no question about the spraying-liquids killing the bees by the thousands, for reports of it begin to pour in every year after the blooming season is over, and we shall expect it this year unless bee-keepers get busy. Our friends should take the matter up with the fruit-growers without unnecessary delay, and, if possible, get them to do their spraying just before or soon after blooming. Experiment

stations over the country are all agreed that no good (but generally harm) is done by spraying while the bees are gathering pollen and nectar from the blossoms. Show Mr. Fruitman that, from *his own standpoint* of fruit production, he can not afford to injure the blossoms when the organs are in such a delicate state.

This is an old matter that we have to bring up every year; and where there are no laws against spraying in blooming time our friends will have to use moral suasion, and such suasion should be reinforced with five or ten pounds of choice honey. The strongest argument that a bee-man can use is to "sweeten" his neighbor into being good.

MAETERLINCK NOT AN AUTHORITY ON APICULTURE.

THE editor of the *Pacific Rural Press* asks the question, "Can it be possible the great Maurice Maeterlinck has made a mistake?" He refers to the statement in *Harper's Magazine* for March, in which he states, "Transported to Australia or California, our black bee completely alters her habits. After one or two years, finding that summer is perpetual, and flowers for ever abundant, she will live from day to day, content to gather the honey and pollen indispensable for the day's consumption, and, her recent and thoughtful observation triumphing over hereditary experience, she will cease to make provision for her winter."

All we need to say is, Maeterlinck is somewhat of a romancer when he writes about bees; that is to say, he indulges in a good deal of poetic license at times. His book on bees, from a literary standpoint, is unsurpassed, and is worth reading; but the author does not claim to be a practical authority.

Another writer, who posed for a long time as an authority on bees, is Sir John Lubbock (now Lord Avebury), when, as a matter of fact, his knowledge of bees was very small—not equal to that of most bee-keepers.

TOO MUCH RAIN IN CALIFORNIA; HONEY CROP THERE PUT IN JEOPARDY.

THE following, from a correspondent in Central California, would seem to indicate that what promised, earlier in the season, to insure a honey crop (the rains), may prove too much of a good thing, and ruin all chances. California may not, therefore, be able to send any honey eastward after all; if so, the markets will be firmer. Here is the letter:

It is still raining in Central California, where there are unprecedented floods and inundations, and stoppage of traffic in many places. Generally over California this has been the heaviest winter the State has had in forty years. No one can predict at present what the ultimate effect will be of such a long *rainy* season. All lines of agriculture are demoralized, and a complete change must be made in cropping. Lands that should now be producing are either completely under water or are too wet even to seed. The apiarist in many localities is similarly upset in all his bee-work. Where nectar should be coming in, it is simply being washed away by continuous rains. Around San Francisco we have had but a day or two of sunshine at a time for three months. Snow has fallen here once—about a year ago—a very rare occurrence. The honey crop will certainly be a light one.

In the southern (or dry) counties it may prove to be a record year yet, but all depends on the weather when the flowers are in full bloom. In the central counties, or those around San Francisco Bay, we predict a late and very small flow of honey.

San Francisco, Cal., March 25. SOJOURNER.

CAN COMBS ON WHICH BEES HAVE DIED DURING WINTER BE GIVEN TO HEALTHY BEES IN THE SPRING?

EVERY year about this time a good many inquire whether it would be safe to put live bees on combs from which bees have died. We should have no hesitation whatever if they are not badly soiled with dysentery stains; and there would be no danger even then after settled warm weather comes on. Even if the stores were so inferior as to be responsible for the death of the colony during winter, such stores would probably do no harm to bees that are permitted to have a flight one or two days in a week in early spring. Combs very badly soiled with dysentery should be set aside and not used until the bees can fly every day; and even then we would not give more than one to a colony at a time. If they are well sealed and badly spotted with dysentery, a bee-brush dipped in water should be used to clean them up before giving them to the bees.

MALTED HONEY.

WE have been favored with a jar of malted honey put up by Dr. Hamilton T. Mason, of Wenonah, N. J., evidently with a view to getting our opinion of its merits. Some, perhaps, would not care for it, as the malt gives it a sort of burnt flavor which is not appreciated by most lovers of good honey; and it is an open question with us whether any thing can be done to improve honey in any way. But it is well known that honey does not agree with every person, particularly with some whose digestion is so poor that food sours or ferments in their stomach. We know the digestion of food is promoted by certain enzymes, or ferments; and the addition of malt to a food is supposed to take the place of these in weak stomachs where the proper ferment is not present, and because of the lack of which an uncomfortable and oppressive feeling after eating is experienced. Our strenuous, exciting mode of life produces many cases of this sort, and for them malted honey may prove a blessing.

It may be observed the consumption of malted honey will lead to the partaking of ordinary honey, and at present malted foods are quite fashionable. Malting the honey, by the way, is a preventive of granulation, and this feature may be valuable.

It should be understood that malt itself is not an alcohol, and its use to change certain foods to make them more easily assimilated in no way induces alcoholism, although the ferment may be used, as in the manufacture of beer, to make an intoxicating drink. The

policy of this journal always has been (and we hope always will be) against the drink-traffic in any form.

INDIANA WITH ITS PURE-FOOD LAW; PURE-FOOD LAWS IN OTHER STATES.

INDIANA has joined the great procession, and passed a pure-food law which is now in force, though it had resisted all efforts for the past ten years to get a pure-food law on the statute-books. An appropriation of $15,000 was passed to put the law in working order, and there is a provision for coöperation with the officers of the United States Department of Agriculture, as the Indiana law is identical with the national. Quite a number of States are about to pass similar laws, or have already passed them. New York, which now has a very effective law, will probably pass a law to conform with the national one, and Pennsylvania has one before the legislature, which is strongly supported by the Wholesale and Retail Grocers' Association. The idea in these cases is to avoid the clashing of the State and national laws, and, as a rule, the adulterators can hire plenty of lawyers. Similar laws are expected in New Jersey and Maryland, so that by the end of the year, all the States, with the exception, possibly, of some in the South, will have pure-food laws in operation. Our southern friends ought to endeavor to interest their representatives in this matter, for it would put our country in the fore front of all nations in regard to the quality of our goods, and it is well known we lead them all in quantity.

No great nation has yet dared to put into operation so drastic and far-reaching a pure-food law. Of course, it would be good policy for all bee-keepers to attempt to improve on the quality of their product, eliminating all thin and discolored honey from the market, and, as far as possible, turn out a fancy product, for there is a strong demand all along the line for strictly fancy goods.

SELLING HONEY.

IT will be noted by this time that GLEANINGS is devoting more space to the problems connected with the sale of honey. Our reason for doing so is that the time has now come to make a vigorous effort to turn the trend of honey prices upward, and we wish to furnish our readers with all the information available that they may join in a crusade for higher prices. The national pure-food law gives us the powerful assistance of Uncle Sam. It seems to us *now* is the accepted time to raise prices, and it is our wish to stiffen the back-bone of the bee-keeper so that he will positively refuse to sell at the extremely low prices which formerly prevailed. We wish, also, to furnish our readers with facts and figures about honey and its intrinsic value, which will enable them to explain to consumers the superlative quality of honey as a food. Perhaps it would be well for bee-keepers who sell locally to furnish their local newspapers with items taken from GLEANINGS from time to time; and if the publisher is favored with an advertisement it is very probable these items will be inserted. We wish that every bee-keeper would exert his influence in having the truth about honey published. To succeed we must convince the public that honey is not surpassed by any food known. We have right on our side. We also have the law on our side. If you disagree with us we should be glad to hear from you.

GLEANINGS AND THE REFORMED SPELLING.

THE following letter, received from one of our subscribers, will explain itself:

Dear Mr. Root:—Editorial references in recent issues of GLEANINGS to "reformed spelling" prompt me to suggest:

1. That you are too modest by half. GLEANINGS is just as "big" and "influential" in its class as the *Literary Digest* is in its chosen field, if not more so. Why not lend your influence, so far as it goes, be it much or little?

2. The movement is not new. Changes and modifications of the original spellings have been silently but steadily going on for a hundred years or more, and the present agitation dates back a quarter of a century. In 1883 the American Philological Association and the English Philological Society recommended, as a convenient basis, 3500 amended spellings. These are recorded in the Century, the Webster International, and the Standard dictionaries. For more definite work, 12 of these simplified forms were, in 1898, approved and adopted by our National Education Association, and have since been used by it in all its publications. This list has been extended to cover about 300 words in common use, many of which have dual spellings, thereby forcing a choice "whether or no." Hence in adopting, to a greater or less extent, this list GLEANINGS would not be a pioneer blazing a trail through an unexplored country.

3. You would not be lonesome nor considered eccentric. The Simplified-spelling Board, which is responsible for the present agitation, is composed of some of the most eminent men of letters in this country and England. More than 15,000 persons have signed a promise to use the simplified spellings recommended by the board—among them 4000 teachers in universities and colleges, presidents of universities and colleges, superintendents of schools, and a great number of lawyers, clergymen, physicians, scientists, journalists, and other professional men and leaders in every walk of life. About 150 periodicals—many of them with national circulation—are now using simplified spelling, some far in advance of the tentative "three hundred words." More than 2000 firms and corporations are doing the same thing, both in correspondence and advertisements. The literature of some of these concerns penetrates every quarter of the civilized world. Lonesome? Not a bit of it. You would have an abundance of the very best company, and the procession is growing larger every day.

In view of these facts, and many more which might be cited, can you afford to have your enviable reputation as a leader marred by allowing the printed product of your skill to be a "mossback" orthographically speaking?

Minneapolis, Minn., March 13. W. S. WINGATE.

There is a good deal of truth in what you say. While it is true that GLEANINGS is by no means small, nor without influence *in its class*, yet its chosen field is comparatively small when put against the chosen field of the *Literary Digest*. A literary paper, or one popular in its general nature and character, could wield a mighty influence because of the magnitude of its field. There are probably not over 500,000 bee-keepers all told in the United States, and not a tenth of these take a bee-journal. Suppose we make it 40,000. Their influence would be small in comparison with the mighty clientage of the magazine and newspaper readers. Under-

stand that we are heartily in sympathy with the reform spelling; and if we had a club big enough to help lop off a lot of the silent and other letters of the wrong sound now considered necessary in our outrageous orthography we would use it most vigorously. We have already adopted a few short forms; but these are so few and far between that the average reader, probably, will not notice them. We may adopt others little by little. If a few more papers like the *Literary Digest*, the *Independent*, and other papers of that class, would help blaze the way, we should be glad to follow. As it is, we are very sorry that Congress stopped President Roosevelt from using the shortened spelling in printing government bulletins. We should soon have become accustomed to the shorter spellings, even though at first they seem odd. In the mean time we thank our subscriber for his boost in the right direction. The effort may not be amiss.

THE RAGE NOW ON FOR PURE-FOOD LAWS IN MANY STATES; WHAT STATES HAVE ALREADY ENACTED THEM, AND OTHERS THAT ARE TRYING TO GET IN LINE.

Pure-food laws are being passed so thick and fast it is rather difficult to keep track of all that is being done, for some States which all along have had such a law on their statute-books are now amending them to conform to the national law. Others have had laws, but for some reason or other they were dead letters.

Tennessee, for example, had a law, but provided no funds for its enforcement. An effort is now being made to get the necessary amount voted by the legislature of that State to secure its enforcement; and our readers in that State ought to get busy at *once*.

The Southern States have long been the dumping-ground for all kinds of adulterated and impure foods, and it is to be hoped efforts will be successful in getting all these States in line.

In Idaho the pure-food law did not get a hearing before the legislature adjourned; but the bee-keepers of that State can easily revive it again next session.

In Pennsylvania the Tustin law is before the legislature; and in New York, Mr. Oliver, in the Assembly, and Mr. Frawley, in the Senate, have charge of the new pure-food law which brings the New York statute in line with the national law.

In Nebraska, the pure-food law is in the care of Senator McKassan, and stands a good chance of being enacted; but it would be a good thing if our friends were to write to their representatives, stating their views on this matter.

In West Virginia a pure-food measure is up before the legislature and ought to pass.

Vermont, New Hampshire, Massachusetts, Indiana, Missouri, Iowa, Colorado, Arkansas, Ohio, North Dakota, Minnesota, Wisconsin, Michigan, Illinois, Kansas, are already in line, so that it looks now as if there would be hardly a State left out, and there should not be.

We have not heard from California as yet; but the bee-keepers of that State ought to pull hard to get the law enacted, as the honey from that State has suffered very much from adulteration after it left there. In future, when California honey is sold in the East it will be California honey unless Uncle Sam falls asleep, which is not at all likely; on the contrary, we expect to see more stringent laws enacted as the years go by.

There are no sulphites, salts of tin, ptomaines, formalin, sulphurous acid, nor hydrochloric acid in honey, hence we have nothing to fear from any law; but our competitors in the sugar and the glucose line have much to fear.

BACILLUS ALVEI NOT THE CAUSE OF ORDINARY FOUL BROOD, ACCORDING TO GERMAN SCIENTISTS.

The following editorial in the *British Bee Journal* for March 14, page 101, is somewhat startling in its announcements—not so startling, either, since the Imperial Biological Institute's findings go a long way to confirm the work of our own Dr. White, formerly of Cornell University, and later of the Department of Agriculture, Washington. First, the Institute agrees with Dr. White that *Bacilus alvei* is not the cause of foul brood, since, of the 112 samples of foul brood examined, only 13 contained *Bacillus alvei*. Well, the editorial from our careful and conservative contemporary speaks of it as follows:

A report has just been issued of the investigations made during 1905 in the Imperial Biological Institute of Dahlem, near Berlin. In this report Nos. 24 and 25 are of special interest to bee-keepers, as they treat of the experiments made on diseases of brood. The first treats of foul brood of bees, and the last of what has been called "Aspergillusmykose" of bees.

The Institute received 119 samples of the diseased brood, and 112 of them were found to be foul brood. It is stated that bee-keepers suppose that *Bacillus alvei* is the prime cause of foul brood. The investigations of the Institute tend to show that this is not absolutely correct, and that other bacteria play an important part in the development of the disease. In other words, of the 112 samples of foul brood examined, *Bacillus alvei* was found in only thirteen, or, in round numbers, in one sample out of every nine. This unexpected result gave cause for considerable reflection and experiment. Food containing the bacilli mentioned above was given to healthy colonies, and foul brood failed to break out; nor was any effect produced when bacilli were brought in direct contact with the larvæ and nymphs in the cells.

From this it would appear that *Bacillus alvei* is of less importance than has hitherto been attached to it. Not only so, but in every case of foul brood another microbe has been found, sometimes in company with *Bacillus alvei;* but all attempts to produce the disease with it failed; therefore it can not be considered as playing any part in its production.

In continuing the investigations a different microbe, a *Spirochæte* belonging to an altogether different family of the higher bacteria, was found. It is spiral in form, is not motile, and appeared in all samples of foul brood as well as in the dried masses and scales, even when these were several years old.

According to the report, the researches were to be continued during 1906, and it will be interesting to know if this hitherto unknown organism has any thing to do with the disease causing so much damage to the bee-industry. In any case the results tend to show that *Bacillus alvei* is not the real cause of foul brood, and, when present, plays only a subordinate part.

No. 25 treats of what Germans call "Steinbrut," or mummified brood. In this disease the brood becomes hardened and brittle, and, what is more important, adult bees are also affected. It is due to a microbe caled *Aspergillus flavus*, found in abundance in the affected brood and also on the hairs of adult bees. Inoculation experiments on rabbits and fowls not only produce the disease but cause their death; from which it is inferred that this microbe is the true cause of the disease in question. We would, however, point out that too much reliance should not be placed on this, as we know that *Aspergillis flavus* is parthogenic in rabbits, whereas it is saprophytic in man. The disease seems to be epidemic in some districts of Germany.

Dr. Moore and Dr. White were the first to discover that *Bacillus alvei* was not the cause of foul brood, but the direct cause of black brood. In only one respect do the investigations of the Imperial Institute differ from the findings of these men; and that is regarding the cause of foul brood—the common kind that seems to be so prevalent in Europe and this country. The Institute lays the cause to a *Spirochæte* belonging to an altogether different family of the higher bacteria that appeared in all the samples of foul brood, as well as in all the dried masses and scales. Dr. White, on the other hand, attributed the cause to *Bacillus larvæ*. It remains to be seen which of these two authorities is right on this proposition. The fact that Dr. White was the first to show that we have been laboring under a wrong impression as to the cause of foul brood, entitles his opinions and findings to a greater degree of respect than ever. That his discoveries are being confirmed in part, at least, by so high German authority is a distinct tribute to his skill, and we incline to the opinion that this same authority will find that he has also discovered the microbe responsible for the old-fashioned foul brood.

THE PRICE OF HONEY NOT KEEPING PACE WITH OTHER COMMODITIES; THE FOOD VALUE OF HONEY.

Some maintain the present low prices of honey are permanent, and others think the salvation of the honey-producer is more bees to produce more honey. In other words he must cut a stick to beat himself with. It can not be disputed that honey in Europe sells for more than it does in this country; and the consumption of it in Europe is not small by any means, so that it can not be stated the higher prices keep the consumer from buying. On the contrary, low prices tend to create an impression that the article offered is not what it is represented to be. No one requires more than a small amount of honey at a meal, hence there is no need to sell it at low prices. It is a concentrated food of high feeding value. Intrinsically it is much more valuable than butter, yet it sells for considerably less. Why so? Honey possesses a richer flavor than butter, has a greater life-sustaining power, and keeps indefinitely; whereas butter keeps but a few days or weeks. At one time in this country comb honey sold for more money than butter; but that was before glucose came this way. Doolittle once sold his comb honey for 28 cents per lb. section, wholesale. He could not do it now, though the ability of the consumers to purchase is far greater than it was then. The same people are now paying nearly twice as much for their butter as they did then. What is the reason for the change? Partly lack of confidence, and partly because honey is not a staple like butter. People, as a rule, want pure foods, even when their cash is short; but the trouble with honey up to and including Dec. 31, 1906, was that the public did not have confidence in its purity. The general impression was that honey on the market was, in the main, adulterated. One can hardly blame them for their opinions, for they realized adulteration was very common, and were nervous about it. They thought, too, that the bee-keeper was as likely as anybody else to be dishonest.

The situation has changed considerably for the better; but the effect of continual and reiterated misrepresentation will long remain to create an unfavorable opinion of honey in the minds of many consumers in this country.

To restore confidence, bee-keepers will have to get behind the national pure-food law and conduct a lively campaign of education. The American people are eagerly reading every thing relating to pure food. They are even now willing to listen to the bee-keeper's side of the honey question. They want to know what he has to say about his products, honey and wax. If he says they are pure they are willing to believe, knowing, as they do, that Uncle Sam to a certain extent looks after that. Granting that honey is pure, they want to know how honey must be used and what it is good for. They ought to be informed all about its value as a food and medicine. For the first time in history we see a nation thoroughly aroused to the paramount importance of pure food properly used. Within the next few years, books and papers about food will appear in great numbers on account of the eager desire for information on the part of the people everywhere.

THE TERRIFIC DEATH-RATE OF CHILDREN DUE TO BAD FOOD.

Why all this *furore* about food? Why not let people do as they have always done—look out each one for himself? The reason we think for the change is this: Women in this country have been receiving a superior education for a generation back, and they have gradually come to learn of the terrific death-rate of children, and the causes of that holocaust of babies. They have found that bad food and bad hygienic conditions were responsible for half the death-rate in the children at least. This aroused mothers everywhere, and they in turn have created a sentiment which demanded pure-food legislation.

Now, it must be admitted that honey is largely a food for children—a fact that is usually lost sight of by many bee-keepers who deal directly with consumers or by writers on the subject. We must convince the American mothers that honey is the best sweet for children. If we succeed, there need be no worry about the sale of honey.

KEEPING HONEY IN CELLAR.

Yes, Dr. Miller, there is always some secret in connection with keeping honey safely in a cellar. Some years ago, while spending a day in company with Frank Benton and the late Dr. Mason at the home of Mr. Herman Rauchfuss, of Denver, Colo., some beautiful alfalfa comb honey was served at the table. This, Mr. Rauchfuss told me, he had kept in his cellar over the season to keep it from candying, and it was in as fine condition as could be. The secret in this case was that the cellar was *warm and dry*, together with the dry weather conditions outside during the time. I think we are about right in believing that the average cellar is a poor place to keep honey, and should be condemned, at least for beginners and those of lesser experience. Most of the cellars are cool and more or less damp, hence not at all adapted for keeping honey in them.

CLEANING SUPERS OF PROPOLIS.

"*When the mercury stands at from ten to twenty degrees above zero,* wearing overcoat and mittens to keep warm if necessary," G. M. Doolittle instructs us, p. 313, supers should be cleaned of propolis, using an old chisel with its edges ground square and sharp. This leaves us "Southerners" wondering how often we'd get a chance to clean our supers. The mercury in our thermometers does not *often* go so far down; and if it should we'd be hugging the stove "to keep warm if necessary." But does it really take weather so cold as that to make propolis "fly"? A tool with sharp square edges is a good one for the purpose. I have been using, and prefer, a tool made of a thin piece of steel about 5 inches long, from a thick saw-blade inserted in a short stout wooden handle. The blade should be about 4 inches wide, with edges filed perfectly square. This is best done by laying the file flat on top of the edge of the blade, lengthwise, and holding the file level while filing. Such a scraping-tool, resembling a huge stout putty-knife, can be used with much force, and makes propolis fly on cool days. Besides, such a tool can be used as a hive-tool and for many other purposes. It is excellent for opening hives and prying apart supers, etc., and can be conveniently carried in the hip pocket.

THOSE BEE-SPACES IN DIVISIBLE HIVES.

Even authorities differ in regard to the objections that have been mentioned about the space between sections of divisible-brood-chamber hives interfering with the laying of the queen. While Dr. Miller, page 307, does not believe that objection valid, C. P. Dadant, on page 316, gives some facts to show that a sectional frame interrupts the laying of the queen in many instances. Although it is difficult to deny these facts so plainly pointed out, it is a puzzle to me why my divisible-brood-chamber colonies are as strong in every respect as any colonies on solid deep combs—not only of the L. depth but the Jumbo size, which is exactly the size of hive the Dadants use.

Another factor I have often found is that many colonies in box hives are real "whoppers" as regards strength in bees, while their combs may be ever so "divisible," cut up into all kinds of crooked pieces, the most of them no larger than a man's hand. I have recently been at the outyards and found the bees in divisible hives in the best condition, with brood in several sections of each hive. The many advantages that such hives possess over others, for me, are so great that, even if the queens were hindered by the space between the sections, I could still well afford to use them profitably.

CACTI AS HONEY-PLANTS.

The "prickly pear," the common name for our large-leafed cacti (*Opuntia engelmanni* Palm.), is sometimes of much importance to the bee-keeper, especially during a season of partial drouth. Several years ago a late "cold snap" destroyed various kinds of bloom in the latter part of March, and retarded the blooming plants for April so much that there was nothing for the bees from which to replenish their stores, which were soon consumed, since heavy brood-rearing had been going on during the extended favorable weather previous to the frost. It also happened that the season so far had been a dry one, and there had not been an over-abundance of bloom. This, together with the late frost, made all a very discouraging situation, and I was "figuring" on how many barrels of sugar I should have to feed, when, lo and behold! a light rain saved me. The "prickly-pear" cacti came into bloom and yielded such an abundance of nectar that not only the brood-chambers were filled but some was stored in the shallow extracting-supers in a little more than a week's time. The bees built up with astonishing rapidity to rousing colonies in a short space of time, and were in the best possible condition for the main mesquite flow, which commenced early in May, since it was also delayed for about a month on account of the frost, otherwise blooming in April. These cacti are very common throughout Southern and Western Texas. In Southwest Texas, where the photo on page 558 was taken, the ranches were covered over large areas with a thick growth of prickly pear, so that neither man nor stock could pass through except along the cleared roads or certain open paths. Often, as far as we could see, there was nothing but prickly pear and mesquite-trees, the cacti sometimes towering from 8 to

10 feet high. The thick, green, pear-shaped leaf-like stems or joints, from which the plant gets its name, are generally mistaken for leaves; they are very thick and succulent, and bear bunches of small stout bristles and longer-barbed spines; hence it will be seen how such a plant can "keep on growing," even during dry seasons, from the "water" stored up in these joints. Consequently the cactus-plants had not suffered during the dry spring mentioned, as did other plants; and as the roots are very shallow, or near the surface of the soil, and wide spread, the light rain, coming at just the right time, helped these wonderfully while it had little effect on other vegetation. Both an abundance of honey and pollen were obtained, the honey being light amber in color, of heavy body, but "stringy"—so much so that it fairly draws out into "strings" when very thick. The flavor is very rank; and, from reports of other bee-keepers, as well as from my own experience, it is too rank for human food, while it is quite valuable for brood-rearing, especially during an off season as here related.

The "leaves" of this cactus form an important food for grazing animals, known as "nopal." In portions of West Texas, and over a great deal of South and Southwest Texas, the prickly pear has long been regarded as an unmitigated nuisance; but during seasons of drouth the ranchmen of those sections have found it a very good cattle food after the spines have been burned off over a brush fire or otherwise. Many ranchmen have provided themselves with "pear-burners," as they are called (large gasoline-torches), which are carried around over the pear-producing area, and the spines are burned off the plants. The slight scorching given the plants during the spine-burning process does not seem to affect the taste for the cattle, for they eat it with avidity, and it is apparent that, had it not been for the spines, this plant would long ago have been wiped out of existence.

Since the impetus given the making of denatured alcohol it is claimed that these cactus lands will become valuable for the making of alcohol, and the owners are figuring on a large revenue from such.

The "nopal leaf" is much used for poultices, and I know of nothing I like better for "drawing" sores or boils. The spines are scorched off over a fire, and the leaf baked through well, when it is split in two and a piece tied over the sore while as hot as can be comfortably borne.

Editor Root was much interested in "this beautiful plant" that "any Northern landscape gardener would give any thing for if he could only grow them up North." Yes, Mr. Root, do you still remember how my mother laughed at you for admiring "our common old cactus" so much, shown in your A B C of Bee Culture when visiting me in 1900?

[Yes, indeed, well do we remember it. We admired it much. Perhaps if we were more intimately acquainted with it, we might think less of it.—ED.]

MR. O. L. HERSHISER AND HIS METHOD OF WINTERING BEES; ARE BEE-SUPPLIES SOLD AT TOO HIGH A PRICE?

There are advantages in traveling. You see many things from a different angle from what you are accustomed to. We learn of how little consequence we are in the great world in which we live and move. We get new ideas in exchange for our own, and such trades are often of mutual advantage. These thoughts were suggested by a short visit at O. L. Hershiser's, at Buffalo, N. Y.

Now, really, Mr. Hershiser is quite a fellow. I believe he will weigh more than 200 pounds; and if he were a policeman, and if I were living on his beat, I should not want to be caught cutting up any questionable pranks. Besides, what he doesn't know about making beeswax hardly seems of much value. The fact that he can afford to buy what other bee-keepers throw away, and transport it hundreds of miles, and make it pay, is what few bee-keepers would care to attempt. I can now understand why he advertises for "slumgum." His idea of trying to squeeze all the ink, color and all, out of a sponge is one of the brightest ideas I have seen lying around loose in quite a while.

Then there is the "Hershiser hive-bottom." It looks to me like a good thing. I went into his cellar—not a dead bee on the cellar bottom. No, that is not quite right. I did see just one, but that is not bad where 75 or 100 colonies are stored.

His bees appeared to be as quiet as kittens. You could scarcely hear them purr. And then to be able to look into the bottom of each hive and see just how many bees had died was something new. Of course, you can sweep up the dead bees from the cellar bottom, but somehow I never seem to get them all; and how it does make one feel to step on dead bees! And then to think that you can carry them in and out of the cellar without a bee getting out! I try to think mine will not come out of their hives, but they always do, and bees are not apt to be very tidy when they first come out in the spring.

If I were using single-wall hives I should want every one to have just such bottoms; but whether I could afford it is another thing. It seemed to me the price asked for these hive-bottoms was rather high, but perhaps not higher than other supplies.

This reminds me that I found there was a feeling quite general among bee-keepers that those who furnish supplies for bee-keepers have set their prices quite too high, and are getting rich at the expense of bee-keepers.

Well, this was a great idea, and something new to me, as I have usually bought my supplies, or most of them, from near-by box-factories, and sent my wax away to be made into foundation. I was given to understand that supply-dealers were charging more than twice the actual cost of producing. If this were so it certainly seemed as though a great injustice were done; and I said within myself that, if some benevolently disposed individual could be found, who had fine mechanical ability combined with good business capacity, and his pockets well lined with gold, and he would go into the supply business, and charge us bee-keepers only five or ten per cent above cost for his wares, I for one would patronize him unless I found it more convenient to buy nearer home, or make what I wanted myself. Then these wicked railroads! I have been told that the actual cost of moving a ton of freight over a railroad is but one-eighth of a cent a mile, while I am charged thirty-five cents for moving a hundred pounds five miles. Outrageous!

There, too, are the telegraph companies, and other monopolies. "Surely the big fish are eating up the little ones." But as my train carried me along, other thoughts came to me. As I passed costly bridges or expensive cuts or embankments, I was reminded that enormous sums were spent in building the roads. To this, other sums must be paid for rolling-stock and a multitude of employees kept to keep the road in repair and do the business. The actual expense of hauling freight over a road is but a drop in the bucket compared with other necessary expenses that make it possible to haul freight so cheaply; and I have sometimes wondered if it might not be something the same with the supply business. The expense of a well-equipped plant for manufacturing all kinds of bee-keepers' supplies must be very large for buildings, power, machinery, labor, to say nothing of patents, etc. Much of the machinery must be gotten up for this express purpose, and, of course, is very expensive. And the necessary capital to hold in stock until bee-keepers are ready to buy is no small item.

I have said nothing of expensive correspondence and clerk hire, or losses that come to most people who do extensive business. Speaking of these things reminds me that I was, some fifteen or twenty years ago, in the supply business in a small way. I had a foundation-mill for making my own foundation, and why not make it for my neighbors too? But I soon had enough of it, for I found that, unless the season was good, they would not buy, and I must carry it over a year. If the season was good, perhaps Mrs. So and So would call at two o'clock P.M. when I was the busiest. They had just had a swarm, and she wanted 65 cents' worth of foundation. Her husband would pay me when he saw me. She said he was very busy to-day getting up hay. Who could resist such an appeal? But her husband never saw me; if he did he conveniently forgot to pay me. I remember one man who came six or eight miles after dark to get a few pounds of foundation and a thousand sections. I supplied him as well as I could; but really he didn't have the cash just then, but would remember me later. When, some months later, I suggested to him that I was short of money, and that, if he could help me, I should be very grateful, etc., he blushed to think I should doubt either his ability or willingness to pay me. He "would do so just as soon as he sold his cheese." Alas! I have not yet received my pay. I suppose he has not sold his cheese.

Now, I could stand an occasional loss; but to have people come when I was the busiest, and take up my time, was more than I could stand, and I said that, if this was the supply business, I had had enough of it. So, perhaps, my friend Hershiser does not ask more for his hive-bottoms than he should, nor the supply-dealers charge more for supplies than they should, in order to do an honest and successful business.

I have noticed, during the past forty years, many supply manufacturers have gone out of business without any one to take up the business. For myself I much prefer to keep bees to making bee-hives.

INTRODUCING VIRGIN QUEENS AT AN OUT-APIARY.

"Hello, Doolittle! It's a long time since I have seen you."

"Well, if that isn't F. H. Cyrenius! How do you do? Glad to see you. How are you and the bees prospering?"

"We are getting along about the same as of yore, only time has carried us on so that I am not quite as limber-jointed as I was when we met in that Utica bee-convention away back in the early eighties."

"Yes, surely time has carried us on at a rapid pace; but I think you have stood the racket much better than I. I was obliged to give up the greater part of the apiary work to my partner, Mr. Clark, as my joints got so stiff with rheumatism that they would not move around with me as supple as in years gone by, when we used to attend conventions together."

"I know I have not seen you at conventions of late, and so I thought I would come and see you (by letter), and we would have a little convention all of our own. You know it is always easy to hear from any one when that *one* wants something of you."

"Well, from the thousands of letters I have answered regarding bee-keeping I am inclined to think that you are right. But what can I do for your wants at this time?"

"The first question I want to ask is this: If bees will accept queen-cells 24 hours after

removing a laying queen, why not introduce cells in queen-cell protectors at the time the queens are taken away from the colonies?"

"This can be done, and is the way I very often do, if I have ripe cells when I wish to take away queens, and the weather is not too cold for carrying the cells about while I am doing the work of putting up queens to send away to customers, or for other reasons."

"Very well. Now, if a colony will accept a virgin queen emerging from a queen-cell in a queen-cell protector from 20 to 24 hours after the old queen has been taken away, why not introduce a virgin queen at the time of taking away the old one by putting her in a cage with a candy cork so that the bees will release her by eating out the candy in about 24 hours after she is given the colony?"

"Because bees do not look on an old virgin queen the same way they do one which is and has just emerged from a queen-cell in their own hive. The virgin just emerged is a weak downy thing to which the bees pay little more attention than they do to a worker just emerged, for the next ten hours, while your one to five day old virgin queen asserts her queenhood, if I may be allowed that expression, and the bees are in no mood, at this stage of proceedings, to accept a running, squealing, unfertile queen to take the place of their old, sedate, much-loved mother. They take to her somewhat after the way grown-up children do to a young new stepmother—not always pleasant relations, you know. I have very little success in introducing these old virgin queens to a colony which has been less than 72 hours queenless. This is the amount of time that Mr. Alley says is required for the safe introduction of virgin queens, and I have found Mr. A. very correct on this point."

"On page 126 of Scientific Queen-rearing, when speaking of introducing virgin queens you say we should remove all combs from the hive to receive the caged virgin queen, then fasten the cage containing the queen to the side of the hive, put in a frame having a starter of foundation in it, using a feeder beyond this, when the queen will be accepted as soon as the bees eat her out of the cage, from 12 to 24 hours later. Now, what I want to know is, would there be any objection to using a frame of honey next to this startered frame? And could we not go still further and use not only a frame of honey but a frame having only sealed brood in it, in addition to the one having honey? This would do away with the feeding and the looking after the colony so quickly, as your plan requires."

"I should like to say yes to this; but my experience says that, when the bees are given any thing that resembles their old home life with their much-loved mother, they will hold out much longer against an old virgin queen than they will if every thing that has the smell or looks of where their mother has been is taken away from them. With a comb of brood and honey, as you propose, I have had them worry and kill old virgin queens when released 48 hours after they were hopelessly queenless. And they will often worry and kill such virgin queens when put in without a bit of comb, and feed only in a feeder, as given in Scientific Queen-rearing, if the queen is let out much sooner than 20 to 24 hours. I have had them killed when let out at 10 to 12 hours, when they had absolutely nothing from which to rear another queen except the cage she was in, the feeder, and the bare walls of the hive. These things have seemed surpassing strange to me, that they will go to work and kill their only chance for an existence as a colony; but thus they will often do when an old virgin queen is substituted in place of their fertile mother."

"The queens I received from you last year were introduced as follows: Ten or twelve days before the queens were expected to arrive I placed three frames of brood and one of honey in a hive on top of a queen-excluding honey-board, over strong colonies. When the queens came I took off these hives and placed them on new stands, putting a queen in each, and every queen was accepted."

"Yes, that would be just what I should expect; for under these conditions the bees which you set with the combs and hives on new stands were, to all intents and purposes, *queenless* bees, just in a condition to accept a queen let out among them from a cage by their eating her out from 20 to 24 hours later."

"Why do you call such bees queenless? they had a queen below the excluder."

"I know they did. And while this was so, these same bees would build, complete, and allow to emerge, virgin queens from queen-cells, just the same as will a colony from which you have taken a queen. Here is one of the strange things about bees above a queen-excluder: They are queen-right or queenless, just in accord with the way they are treated by the apiarist. Drop a queen among them when they are over the excluder, and they will proceed to kill her at once. Set them off on a new stand, allowing them to remain there for 24 hours, and then drop the same queen among them and they will receive her at once, and very often they will do this if she is dropped in within half an hour after setting off."

"Well, then, why not use a virgin queen instead of a laying queen? In this way we could form colonies at an out-apiary, thus giving me time to prepare ahead; and when the virgins were hatched I could take them out and make while I was there the colonies I desired."

"I have made colonies in just this way with success very many times, only I make the candy cork long enough so the bees would be from 40 to 48 hours in liberating the queen, for an old virgin queen is not taken as kindly to under any circumstances as is either a newly emerged virgin or a laying queen."

"Then you think this plan will work?"

"It has been successful with me, and I am equally successful in taking the virgin queens, queen cells, or laying queens with me when I go to the out-apiary, and, on arriving, arrange things as you tell me you do; namely, three frames of brood and one of honey, without bees; when this hive is set over a queen-excluder, on a strong colony, leave it there three or four hours for the young bees from the colony to run up on the brood, when the hive is set off on the stand I wish it to occupy, a caged ripe queen-cell being given them, or a laying queen in a cage from which she will be liberated in 20 to 24 hours, or a virgin in a cage from which she will be liberated in from 40 to 48 hours."

"Well, I thank you. This last is the most simple of all of the plans of making colonies at an out-apiary."

Somebody asks where that 60-cent French honey came from. Probably from some silver leaf and golden rod.

El Colmenero Espanol, one of the most welcome visitors to Pickings' desk, has suspended publication. This leaves the Spanish apicultural field practically empty so far as journalism is concerned. It is to be hoped that our esteemed contemporay will perform the phœnix act and arise from its own ashes.

The German *Praktische Wegweiser* says, "The feeding of farinaceous foods may induce that contagion—foul brood. Some beekeepers claim to have observed that bees in the neighborhood of flour-mills are most often attacked by that malady. It must be admitted that flour which has stood outdoors, and made damp and moldy by dew or rain, is not conducive to the health of bees. But we must not conclude from this that such food is the *cause* of foul brood, for that is due to a special germ." The fight is on.

Touching the pronunciation of the word *propolis*, the following is instructive and interesting:

Dear Sir:—In regard to the discussion of the pronunciation of the Greek word *propolis*, allow me to state that, so far as the meaning is concerned, I have nothing to say; but the preposition *pro*—in front of—and *polis*—city—have these respective meanings. The same word, *propolis*, was, more than 2229 years ago, used by Aristotle for the same purpose, viz., that substance which bees accumulate in front of the entrance, holes, etc., of their hives to protect themselves from cold and all sorts of enemies. But as regards the *accent*, I have to refer to that rule in Greek grammar—1. In compounds the accent remains where it was when the last syllable is long, as in dia-*bétes:* 2. and the same is raised when the last syllable is *short;* thus, pró-polis, pró-phasis, pró-thesis, prótasis, etc. PERICLES XANTHOULIS.

Constantinople, Turkey, Feb. 13.

While the above may be "all Greek" to some, it certainly comes from good authority, as Greek is doubtless the mother tongue of the writer.

A French writer says foul brood is playing havoc in the Grand Duchy of Baden. He says that last fall there were 358 foul-broody colonies in that small area (5690 square miles), and in one section 32 apiaries were diseased. A German writer, in commenting on this state of affairs, in the *Muenchener Bienenzeitung* (German), says, "One need not be surprised at such a disastrous state of things. It is the reward of negligence. Bees are given adulterated wax; they are fed sugar instead of honey; every day they are visited at unseasonable times; the colonies are evened up; to-day their brood-nests are contracted, only to make them larger tomorrow; stimulative feeding is practiced; queens are replaced; drones are beheaded, and what is the result of all this? The colonies become weaker and weaker, maladies of all kinds break out, and finally the apiary is deserted."

What better would it be on this side of the water, without foul-brood laws? Can't this be brought before the Indiana legislature when a second attempt is made to get a foulbrood law there?

Mr. J. B. Leriche, of Amiens, France, is an apicultural writer of great note in his country. In speaking of nectar he says:

"Nectar, in Greek, means *that which does not kill; that which confers immortality.* Mythologically speaking, it is a potation which the gods drank on Olympus, and it must not be confounded with 'ambrosia,' which was the *food* of the gods. Ganymédé poured it from a golden pitcher into the cup of Jupiter; and Hebe, with an amphora of alabaster crowned with roses, poured it into the cups of the other gods.

"Scientifically speaking, the name *nectar*, according to the famous Linnæus, is given to the sugary and melliferous liquids that a large number of plants yield, and which insects, notably bees, gather with avidity. *Necturies* is the name of the organs which yield nectar.

Just here Mr. Leriche branches off on to the subject of hydromel; and as that matter is continually coming to the front I should like to get accurate information concerning hydromel. Is it intoxicating, or does it vary much in power? A year ago my friend Mr. Hempflinger, then working here, but who had always lived in Hungary, made some hydromel and gave me a bottle of it. I forgot all about it for ten months, when I came across it and pulled aside the wire over the cork. It "went off" like a cannon. The contents tasted like common pop flavored with honey. I wrote to Dr. C. C. Miller in regard to it, saying I could not perceive any

alcohol whatever in it. His reply below is interesting, and his advice is safe to follow:

Dear Wallie:—I'm loaded on the question of honey-drinks, but am just a little afraid to fire. As you intimate, there is much in foreign journals—in some French journals page after page—about drinks from honey, and I think always intoxicating; but I may be mistaken. But I think a delightful drink can be made from honey that is non-intoxicating. Whether we are right to keep entirely quiet about it is a question.

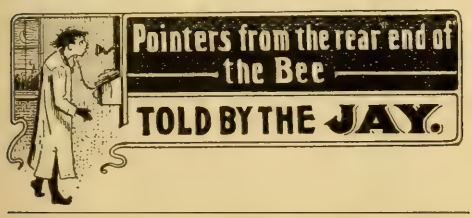
Sweet cider is good and non-intoxicating, but many think it is better not to drink it, because it is very hard to draw the line between sweet cider and hard cider. If it's the same way with honey-drinks, then we'd better continue silence.

On the other hand, the experience of my boyhood with small beer or spruce beer was extensive, and I *think* never the slightest harm came from its use. It did not change, as cider, to a dangerous drink—merely became insipid, flatly sour, after a time. I think the same may be said of Hires' root beer. But I think there was alcohol; and *is* alcohol in any of the soft drinks made effervescent by yeast and sugar. You say that year-old drink the Hungarian boy gave you "Certainly had no alcohol in it." I feel very much like saying, "Certainly you are mistaken." You will find that, wherever yeast grows, if I am not mistaken, that from the sugar or starch it produces alcohol and carbon dioxid. The latter is the gas that makes the soft drink sparkle and nip, and that makes bread porous. You can't raise bread yeast without producing alcohol, although the alcohol may become dissipated. But in kumiss and the small beers I think there is not more than 1.5 per cent of alcohol, and we ignore the alcohol and note only the harmless gas. In the beer of the saloons there is about 4 per cent of alcohol.

Now I *think* we may have a good drink with no more danger of cultivating the liquor taste than by drinking kumiss; but it would be a terrible thing to make any mistake in the matter, and I'm just a little afraid to say in print what I think. On the other hand, if we can have from honey something just as good and safe as kumiss it might be wrong not to make it known.

Yes, I think I know the minutiæ. The essential parts are honey, water, and yeast, and spices of any kind may be added. In five quarts of boiling water put one pound of honey and some lemon-peel. When cooled to blood-heat, add half a cake of compressed yeast; let stand open two days, and then keep bottled three days or more. The bottles must be very strong.

Marengo, Ill., March 5. C. C. MILLER.

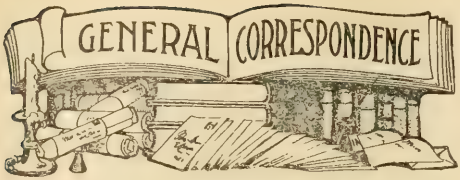


SOME THINGS I HAVEN'T DONE; HATCHING CELLS ABOVE PERFORATED ZINC; THE SWARTHMORE SWARM-BOX FOR CELL-STARTING A SUCCESS.

I've been trying the dual-queen system. It worked to perfection. The dual was fought as soon as I put the second queen in the hive. I acted as second; didn't have to act many seconds, either, till the queen and my plans were balled up together. Mr. Alley informed the bee-keeping public that bees do not tear down queen-cells till the queen starts the game. I knew better than that; but when a man like Mr. Alley speaks I have a habit of believing it, even if I know it is not so. So after reading that, I decided to forget the past and begin life anew. I raised a fine batch of queen-cells. Four I put into four two-story hives over queen-excluders with laying queens below. Two I gave to other colonies, removing their queens just before giving the cells. Results: The real young tender queens in the cells just sealed, they ate. The older tougher ones they just "chawed up" and spit out. The cells in both queenless colonies were torn down. All in upper stories were torn down but one. This one they nursed with the greatest of care. They trimmed off all surplus wax, and stuck it fast all around so that it would be sure to hatch. Just as soon as the queen hatched they killed her and dragged her out. What on earth was their idea? Did they let her hatch and then kill her just for fun, or to let me know how little I know? Locality can hardly account for the different actions in Mr. Alley's bees and mine. Is it not possible that the race of bees had something to do with it?

I believe the new swarm-box, as used by Swarthmore and recommended in the government bulletin on queen-rearing, to be the best thing ever given to the queen-breeder for the purpose of getting bees to accept cells. Italian bees seldom accept more than six or eight cells in the ordinary way. With the swarm-box they accept forty or fifty just as readily. I pour the bees into the swarm-box with a big tin funnel having the cells in place, so that not a single bee can get out. For about an hour they hang in a cluster to digest the honey they devoured in the "shook" up. Then they begin to buzz, and try to get out. I find this the best time to give them the grafted cells instead of waiting six hours as recommended by Swarthmore. Cells once used must be thoroughly cleaned by the bees, which takes from four to eight hours. They will not accept them till they are thoroughly cleaned. I succeed best with new cells. I use no royal jelly. I have frequently grafted fifteen cells in about six minutes, and then examined the first one and found that, in that short time, the bees had fed the larvæ with considerable thin jelly. A queen raised in the natural way could not have better care.

I thought I would improve on this box a little, but haven't done so yet. I thought to make this swarm-box a permanent affair, so as to save the work of loading it with bees every time I wanted some cells. I filled it with bees as usual, and made a flight-hole, and thought in this way I could keep them accepting cells all the time. I grafted one row, and then looked at the first cell. They had eaten up the larva and drank its broth; the next the same, and so on all down the row. I found they were within three cells of being caught up with me. I started afresh to graft some more, but they just wouldn't allow that graft to be worked on them. We played tag three times around the box, the bees eating up the larvæ as fast as I could dish them out, till I got tired and would not play any more. Strange why they will accept cells so much better when they are shut in and are frantic to get out.



HOW TO DISPOSE OF NEW SWARMS AND THUS CONTROL UNDESIRABLE INCREASE.

How the Plan on Page 1058 may be Followed when the Hives are in House-apiaries.

BY E. W. ALEXANDER.

[As some of our readers may not have handy our August 15th issue of last year, containing the article to which our correspondent refers on page 1058, in the subjoined, we will state that the plan is one that allows the first swarm to issue, which swarm is finally reunited with the parent colony in such a way that there will be no further swarming, the two forces working together unitedly as one colony to produce a crop of honey. The plan is, in brief, as follows:

When the swarm comes forth it is hived on frames of foundation. The hive containing it is then placed on top of the parent colony, but with the *entrance in the opposite direction*. On the evening of the fourth day the newly hived swarm with its partly drawn comb is lifted off and set to one side temporarily. The *parent* colony is now opened up, the combs are all removed, and shaken two or three feet from the old hive-entrance. After they are clear of bees they are inspected carefully, and any queen-cells found are destroyed, after which the combs are put back in the old hive. The newly drawn combs of the swarm in the hive set aside temporarily are next shaken right over the first lot of bees. The queen is hunted up, when she is started for the entrance of the old hive. The bees of the two shakings mingle together, finally crawl into the parent hive, and begin housekeeping anew as if nothing had happened. Perforated zinc is then put over the hive, when the partly drawn comb of the swarm is placed on top in a super. If extracted honey is not the object, a comb-honey super is put on instead.

The philosophy of the plan is that the natural bent of the bees to swarm is satisfied. The honey in their honey-sacs has been converted into wax and built out into combs. Cells of the parent colony have disappeared. The old queen goes to work as if nothing had happened.

Mr. Alexander explains that this plan is, in his experience, almost infallible in keeping down increase and preventing further swarming; and, further, that the two united forces will produce more than the two forces run separately in separate hives. In commenting on this method Mr. Alexander writes as follows:]

Since my article on page 1058 was published, giving our way of treating undesirable increase, several letters of inquiry have been received as to how that method could be applied to colonies kept in a close house-apiary. Yesterday I received a letter from my friend, Wm. Hesse, of Dresden, Germany, wishing some more light on this subject from me through the medium of GLEANINGS, for those who are keeping their bees, like himself, in close buildings. I can see no reason why this method would not be practical when applied to house-apiaries. All that will be necessary is to make a temporary stand for the new swarm as near as possible to the parent colony on the outside of the building, only have the new swarm face in the opposite direction, so that they will realize they have a new location. Then in four days remove all queen-cells from the parent colony and mix up the bees of the new swarm with those of the old colony as best you can, using some smoke so as to demoralize them as they are again united into one large colony. Then remove the temporary stand that the new swarm occupied, and the bees will soon locate anew in their old home.

I do hope every bee-keeper in the land, who does not care for increase, will give this method of treating undesirable swarms a thorough trial another season. With us it is the easiest way we have ever tried to keep down increase, and at the same time have all colonies strong in bees and maturing brood to make them still stronger in their working force; and certainly they will work with more perseverance, and give us more surplus, than when kept from swarming by removing queen-cells, which puts them in a sulking condition, wasting much of their time through our best harvests, which we should always try to avoid.

Delanson, N. Y.

[We do not quite see how this plan can be worked satisfactorily in a house-apiary, but perhaps it can. The general features of the plan, on outdoor colonies at least, seem to suggest that it may be a good one to practice. As so many of Mr. Alexander's ideas have worked out satisfactorily we may well afford to give this a fair test.—ED.]

THE COUNTER-ATTRACTION OF OUT-DOOR FEEDING.

How all Manner of Work was Successfully Done During the Time of a Dearth of Honey, Without any Robbing.

BY WM. M'EVOY.

The honey crop being almost a complete failure in my locality I concluded to extract all the honey, and feed sugar syrup for winter stores. As all the supers had to be taken off and the honey extracted, and 250 colonies fed, I saw that I had to begin about the 25th of August, which I did, so as to get all fitted up in good time. The weather was very warm just then, and the bees not gathering any honey, and over 200 of these colonies were right in the center of our village. To open hives and expose honey at such a time would set the bees to robbing, and cause them to become very troublesome to my neighbors if this work was not managed so as to turn the attention of the bees from the colonies that I was going to work with.

About one hour before sundown I put Porter bee-escapes under the supers; and, to get the bees to *rush out*, and have the supers ready to take off in the morning, I lifted a few of the combs up about one inch, and let them down again. In the mornings I set out (about twelve rods from the apiary) a dozen or more hives with combs in for the bees to clean out. I took half of the combs out and spread the rest well apart so that the bees could get freely at them without getting

daubed with honey as some of them do when the full set of combs are left in. When I kept the bees engaged cleaning out these combs I could take off supers, open hives, and examine any colony with the greatest of pleasure without a bee coming from any colony to bother me. I saved these combs for this purpose, and set out only enough from time to time to engage the bees while I was working with the others.

When the bees cleaned these combs they settled down very nicely and quietly. I had 60 feeders, and many of these held 28 lbs. I put these all on, and about sundown filled these with sugar syrup mixed with a little honey. I filled every feeder the second time, and when the bees had their brood-chambers full, and began building comb in the feeders, I put the bee-escapes under the feeders; and when the bees were out of them I placed these on other colonies. Many of these feeders were half full when moved off one hive on to another.

When I had over three-fourths of my colonies fed up this way I set out some combs for the bees to clean while I took from two to three capped combs from every colony that I fed up so well, and then, with division-boards, crowded the bees among the remaining combs. In the *evenings* I took *all* the combs out of the colonies not fed, and placed from five to six all-capped combs in each hive, which I took from those that were fed so much. I then, with the division-boards, crowded the bees on these capped combs and then packed each colony with forest leaves. These colonies being crowded up on a limited number of combs will winter better and brood up much faster in early spring. Where any colony will need help on or before the middle of March I will place a *warmed* comb of stores (flat like a board) right over the cluster, with a bee-space under and over, and then pack over it until spring. When the bees need more room in spring I will take out the division-boards (which are boards fitted into frames) and then fill out the hives with the best of all-worker combs.

Woodburn, Ont., Jan. 21.

[We have tested the principle in the way of giving a counter-attraction by outdoor feeding, and we find it works just as our correspondent says. Our columns during the past two years have contained reports of our experiments. See page 955, Sept. 15, 1905.

Some of our veteran bee-keepers hesitate to try this outdoor-feeding plan; and while we do not recommend it generally for beginners, the experienced bee-keeper need not be afraid of it. We have time and again stopped severe robbing by putting out a counter-attraction of outdoor feeding.

The plan is particularly useful during extracting-time when there is a dearth of honey, and robbing would be severe under ordinary conditions; but in order to make it work successfully the bees should be fed very dilute honey a few hundred yards from the apiary. This should be continued off and on at certain hours for three or four days just prior to the extracting; then, when ready to begin work, commence feeding outdoors, and, presto! there will be no more robbing than there would be during a clover or basswood flow. Keep up the feeding while the extracting is going on. But we advise doing the extracting in a screened building, exposing the combs only when going to and from the extracting-house.

At first, when outdoor feeding is started the bees will start a sort of robbing keynote, and act just as though they were (which they are) trying to find the sweets. When they discover it, they stop their prowling around at the hives; and during the time they are thus engaged we can continue our work of opening the hives.—Ed.]

ARTICLES WANTED BY THE COMMITTEE ON ADVERTISING HONEY.

BY N. E. FRANCE.

The $1408.27 raised by the Honey-producers' League has been turned over to the National Association. A committee has been appointed to spend that money in advertising honey and otherwise advancing its sales.

The first plan to be put into operation will be that of publishing, in the general press, short articles setting forth the healthfulness, deliciousness, purity, and desirability of honey as a food. The purpose for which these articles are written need not appear upon the surface. It is better that it should *not* appear; but there ought to be something about each article that would unconsciously lead the reader to have a better opinion of honey, to have greater confidence in its purity and healthfulness, or knowledge of its economic value as a food. They should show that honey is not an expensive food, requires no cooking, no sweetening, nor other special preparation, but is the "whole thing" ready for use; that choice bakings sweetened with honey do not dry up as quickly as sugar-sweetened goods. They should also call attention to the pure-food laws, and to the fact that no adulterated honey is now sold. These articles should leave the reader with his mouth watering to test the true deliciousness of honey.

The articles, which must be short, not over 300 to 400 words, will be judged with reference to their value—1. Will this article attract attention and interest the general reader? 2. Will the reader who is not acquainted with the use of honey be likely to investigate and use honey? Of course, it would be an easy matter for us to employ one man to write a series of articles for this purpose; but the committee wishes to secure the very best that the country can produce, and takes this method of inviting everybody to send in articles of this nature—not over 400 words, perhaps less, to include the thought. Mail each article to W. Z. Hutchinson, Flint, Mich., who will read and mark them according to its merits, the best to be marked 10, next best 9, and so on. They will then be sent to R. L. Taylor, who will also read and mark

the same. He will then send them to N. E. France, who will also mark them. The articles receiving the highest marking in the aggregate will be used, and its author paid $5.00. Everybody is invited to contribute. No limit to number of articles each person may send in. Perhaps 30 or more articles will be used. Please write plainly on one side of the paper, or, better still, use a typewriter if possible.

COM. { N. E. FRANCE, Platteville, Wis.
W. Z. HUTCHINSON, Flint, Mich.
R. L. TAYLOR, Lapeer, Mich.

March 1, 1907.

[The foregoing statement from the General Manager of the National Bee-keepers' Association should have appeared in our last issue, but it was overlooked. It is very important, as we regard it; for now that honey will not have a serious competitor in the shape of glucose mixtures to contend with, the future for pure honey is very bright; and the right kind of advertising and publicity work will do wonders in helping trade and in advancing prices. We are informed that the National is in a very flourishing condition; but if it had more members and money it could do more for the general interest of bee-keeping. We believe that every one of our subscribers should join for the good it will do to the general cause of our craft.

Referring to the subjoined statement we hope that a good many will avail themselves of the opportunity of winning the prize. In the meantime we should like to suggest that answers be based on the fact that honey advertised as such can be depended on to be pure, because the national pure-food law as well as the State laws makes it practically impossible for the adulterated goods to masquerade under the name of "honey;" and even if it were possible to manufacture comb honey, such stuff would be effectually barred by the national law, or, rather, we would say, the sales of such goods would never be able to find an outlet in this country except in some States where there is no pure-food law; and such sales would have to be confined *strictly within the State*—a thing practically impossible, and no one would take the chance. —ED.]

RAILROAD TIES OUT OF HAND-PLANTED TREES THAT PRODUCE HONEY.

ACCORDING to report in the press, the Santa Fe railroad management has secured a ranch near Oceanside, Cal., which will be planted at once with eucalyptus-trees. The ranch has an area of 9000 acres, all of which will be planted as fast as men and money can do it. Already 700,000 seedlings of red gum, sugar gum, and ironbark, are being transplanted, and will be planted 1000 trees to the acre. In five years this would furnish 1000 ties to the acre; but the company intends to wait till the trees (most of them) are 15 years old, when each tree will furnish five or six ties. This will afford an excellent opportunity for a few bee-keepers, as the forest will be continuous or everlasting.

TEN THOUSAND BEES, TEN THOUSAND MILES.

Some Interesting Observations.

BY EDWARD F. BIGELOW.

[As many new subscribers are coming in at a rapid rate, perhaps it would be well to state that Professor Bigelow is one of the editors of *St. Nicholas Magazine*, having charge of the Nature Study department. He lectures extensively on nature and science studies, and is well known to the teachers of the country. The present article is unusually bright and breezy, and we are sure our readers will be glad to peruse it carefully.—ED.]

My bees may have been a few more or a few less, and we may have traveled a little more or a little less than ten thousand miles. But what matters a few hundred more or less, either of bees or of miles? I use the title because it sounds well, and because it comes reasonably near to exactness. I like it because it is euphonious, and I like the bees because they have, by their companionship and musical humming, made enjoyable many miles of traveling, at all hours of the twenty-four, and in all sorts of conveyances.

It came about in this way: Bees have always appealed to me as among the most interesting form of animal life, and most excellent objects for nature study. At first I tried to take them for short distances in a crude, single-frame, old-fashioned observation hive. I say crude, and it *was* crude, although I didn't desire it to be so, for I ordered from the The A. I. Root Company the best then obtainable. But styles of observation hives have changed within a few years, and that I have been an important factor in changing these styles is to me a matter of no little pride and pleasure.

But even my finely made Educational beehive, with all its elaborations for pleasing appearance, and its various appliances for experimental purposes, seemed not quite adapted to a nomadic life. So I dreamed again, and for days and days planned how to simplify, modify, and, I may say, even intensify, so as to bring the best features of that hive within the limits of two dress-suit cases. The result was a set of plans from which The A. I. Root Company prepared an outfit admirable both in appearance and convenience. This article is the first printed announcement that I have made of what I call "The Bigelow Traveler's and Lecturer's Hive." With this new contrivance I have carried a colony of honey-bees—one frame with as many extra bees shaken in as possible—together with two sections (full 4×5 size) super, and magnifying feeder, the last being the only part that is made exactly the same as the larger and regular Educational bee-hive. Both this and the super are fitted with the well-known devices of the larger hive for filling and emptying without liberating the bees. This is by combination of long slide over a plain opening and a Porter bee-escape. Slide out, bees go in or out; half in (over the plain slot), bees go out only (through Porter escape); and all the way in, the bees, of course, go neither in nor out.

A feeding-bottle (with perforated metal screw cap) is inverted over wire netting (tacked to under side of hole just fitting the top of the bottle) between the magnifying feeder and the super.

There is also the same form of feeding-hole in the cover of the super (not shown in the illustration) so that the super may be isolated as a separate miniature hive, on the principle of baby nuclei, for experiments in queen-rearing; that is, of course, if eggs and larvæ have been placed in one or both of the sections in this miniature super.

Thus, in compact form, I have an apparatus for showing practically or biologically almost every thing that pertains to apiculture. In fact, with this outfit and a supplementary box of small apparatus, and with specimens of the actual work of the bees (secured at various times in my apiarian laboratory) in comb and cell making, I do show almost all the essentials.

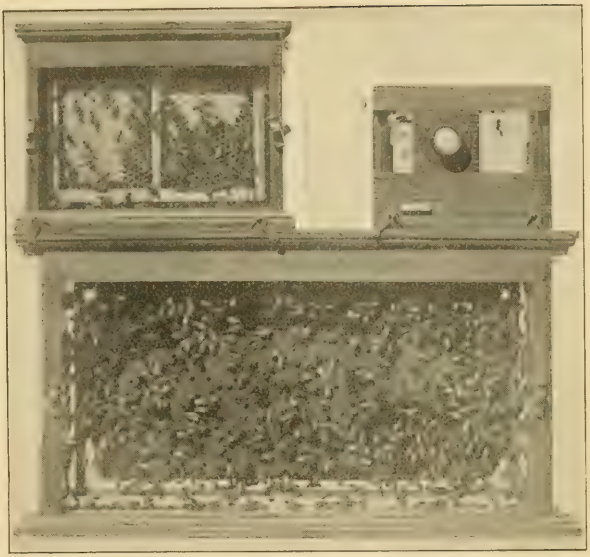


FIG. 1.—DR. BIGELOW'S TRAVELER'S AND LECTURER'S HIVE.

The main part of this traveler's hive fits evenly into a dress-suit case that is fastened by a pair of metal clasps at the top, and by straps going entirely around the outside. When carrying the case by hand I use both the clasps and the straps; but when it is resting on the floor, as opportunity may permit I use the straps only, allowing the case to stand open for about three inches for ventilation.

When necessary I also take my bees in this form to bed with me by placing the dress-suit case lengthwise at my head in the Pullman sleeper. There is plenty of room for my pillow at the side, and we sleep, approximately ten thousand and one in a bed.

For years some enthusiastic apiarists have recommended bees as a sure cure for rheumatism; but I think that I may take honor to myself as the first in the field to advocate bees as a direct specific in cases of insomnia!

The gentle murmur of ten thousand honey-bees all night by your pillow, or under it, has a soothing effect, to be fully appreciated only by those who have faithfully tried it.

At the Jenkintown convention I saw a demonstration of apparatus for applying bees to cure rheumatism. I suggest that, at the next convention, The A. I. Root Company exhibit a bed-fellow hive to cure insomnia! Perhaps we bee-keepers have been too careless in allowing the impression to be made that the effect of the bees is just the reverse of an insomnia cure. If so, I take the initiative in denying that misrepresentation. No more soothing effect can be obtained from any source than from the cheerful, contented hum of my ten thousand apiarian bed-fellows.

But I fancy some incredulous person, ignorant of most of the charms of honey-bees, rises to inquire, "Aren't they ever troublesome in bed? What if they should get loose?"

By accident I once happened to get into an "off grade" hotel in a small town of the middle West. I stayed but one night, and not all of that. I was never so early a riser. Before daylight I was on the street with a dress-suit case in

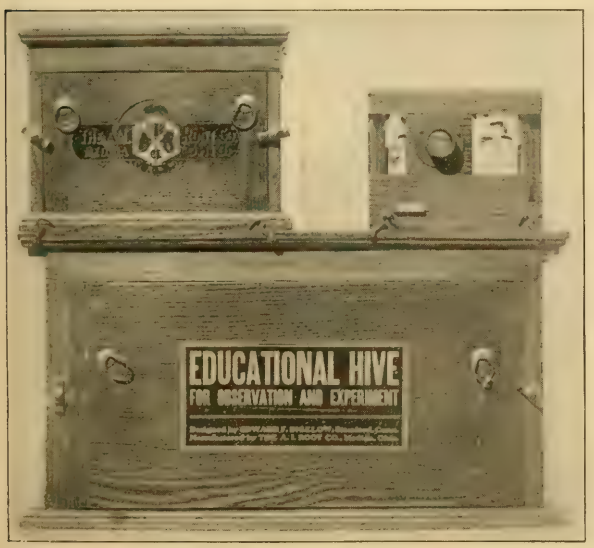


FIG. 2.—THE TRAVELER'S AND LECTURER'S HIVE CLOSED.

each hand. Frequent lightings of the dingy, broken-handled lamp, and lively skirmishes under the bedclothes for fleeing but not vanquished cimexian brigands, made me perfectly willing to exchange those two dozen or so of wingless varmints for the ten thousand bees in bed. But I had no choice. There was a "katabasis" with "the ten thousand" in the early morning.

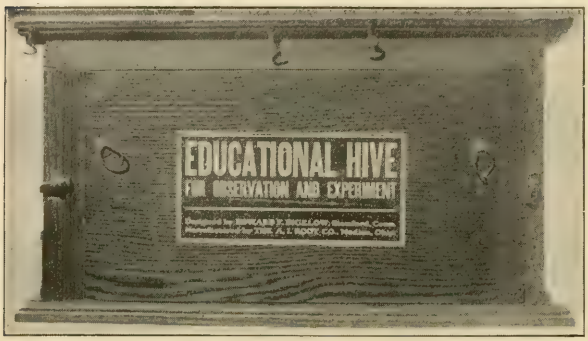


FIG. 3.—THE HIVE WITHOUT THE SURPLUS OR FEEDING ATTACHMENTS.

I have had some interesting psychological experiences with my bees, showing that the cerebellum often acts before the cerebrum can get in its work. Once a superintendent of schools volunteered to carry my cases—indeed, he *insisted* on it. I thought to impress upon him the honor he had received by mentioning that I had ten thousand bees in that case, when he instantly dropped it on the sidewalk—didn't even take time to reason that I had been carrying it for many miles. A similar experience occurred with a colored porter in a hotel at Indianapolis. The officious "gemmen" dropped not only my case but my umbrella and overcoat, by the hotel desk, and ran to the corner. I suppose he thought that every thing was infected by pernicious bees. Since then I never explain. "Where ignorance is bliss, 'tis folly to be wise."

But sometimes I come near to a smashup of my case without any explanation—indeed, with hardly an apology. In a trolley car, a heavy drunken man fell on top of both my cases, and for a time sprawled and floundered around on them like a turtle on top of an inverted tumbler. He seemed active, but unable to get very far. I collared him, and a passenger volunteered to pull his leg and thus we got him off. Those bees must have thought that a hurricane had struck their forest of hollow trees! But, fortunately, the case was strong and nothing was broken. In all my travels, not a bee has escaped to sting any one. I release all for the day at every place I stop, and they gather pollen and nectar as regularly as if at home. Sometimes the releasing is from an open window in my hotel bedroom, sometimes from a fire-escape landing (several stories up), or from the campus of some college. I rest or lecture, and the bees go foraging.

Of course, having once let them loose they can be fastened in only at night. In a normal shool in Michigan the hive was left in a broad window. I completed my lectures on Friday. I shut in the bees that night, as I was to leave by the noon train on Saturday. Imagine my chagrin upon going to the school at about 11:00 A.M., to get the hive on my way to the train, to find that the fool janitor had opened the slot and released the bees. "I thought you had forgotten it, and so I let them out to let them feed this forenoon. I knew you were going at noon."

"But, you meddlesome ignoramus" (I guess I used even stronger language), "how do you think I can get them in to go at noon when they are coming and going, and five thousand bees are out all over the city and surrounding country?"

"Oh-h-h! I hadn't thought of that—you can shut them in only at night—I see."

Could words express one's feeling? What a lot of trouble is caused by not thinking of

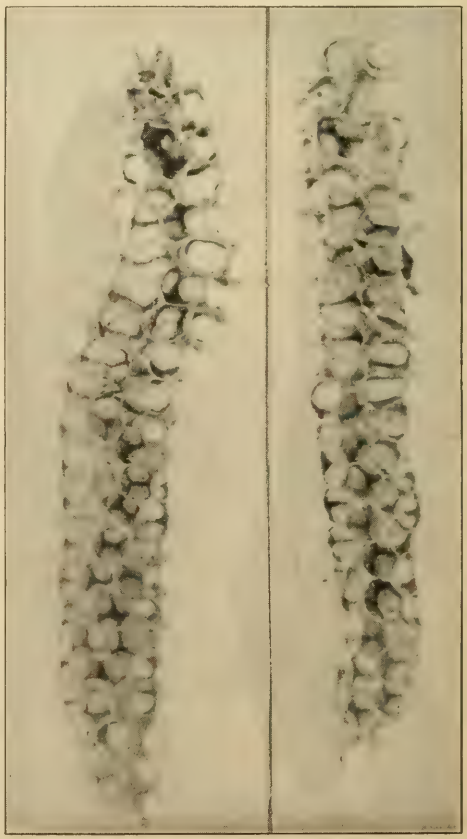


FIG. 4.—BRACE-COMBS BUILT TO THE GLASS IN THE TRAVELER'S HIVE TO PREVENT JAR.

"that"! To this day tears will almost fill my eyes when I think of the home-coming of my traveling companions, and the bee deaths at that window where no house was ready to receive them.

I was away from my own house for nearly a month after that. By liberal feeding, bees were bred to fill the hive as it was when we first started out. Though renewed in actual value, the loss from the sentimental aspect was never made good.

It is interesting to note one effect upon the bees of the continuous jarring and jolting of railroad travel. They try to obtain rest by building out burr-combs or bracing-combs to the glass. Several of these were built during a railroad run of two days. But when the glass was cleaned and the hive was at rest during the following week at a teachers' institute not a bracing-comb was built.

THE QUESTION OF BEE AND COLONY ODOR.

My traveling colony has brought out another interesting fact and raised a puzzling question. Whenever a frame with brood, bees, and queen is taken away for a journey of a week or two the bees left at home in the hive are, of course, queenless, and at once begin to repair the loss by building queen-cells. In restoring the frame, there is danger that the home bees will kill their returning mother. This has occurred, even when I have previously destroyed all the queen-cells. But in either case, whether the queen-cells are destroyed or not, why do the home bees wish to kill their queen? Wandering prodigals, in their estimation, are seldom to be looked on with favor. Why? You apiarist who talk so much of the changing smell of a queen during the period of introduction, please tell me, has she acquired a foreign odor and accent in two weeks' travel? If the mother were reintroduced to her daughters by the regular gnawing-out process of the introducing-cage, would she have recovered her home smell?

And that leads to another question: If she were thus in regular succession introduced to the one hundred colonies of an apiary, would she develop a hundred different smells? You advocate of smells, please put that into your smelter, and let me know what you draw off.

But all this is part of another question. If you would really know and love your bees, and make others know and love them, get a lecturer's hive and travel with them, eat with them, room with them, and sleep in the same bed with them.

Stamford, Conn.

[Referring to the subject of queen and colony odor, as suggested in the last paragraph, we belong to the school that believe that under normal conditions a queen will be accepted in a colony providing she has the colony odor, other things being equal. She may be accepted under other circumstances when she does not have such odor. When a queen that has traveled all over the country is returned to her colony she has lost the colony odor. Having come in contact with men and things has so changed her that even her own bees would seek, ordinarily, to destroy her. While we would not state it as a positive fact, we are of the opinion that, every time a queen is changed from one colony to another, unless she has acquired, through the process of introduction, the odor of the receiving colony, she will generally be rejected. We say generally, because there are several conditions under which a queen can be introduced without having the receiving colony odor; but these exceptions only prove the rule.—ED.]

BEE-KEEPING IN TEXAS.

Some Useful Devices as Made and Used by D. M. Edwards.

BY H. H. ROOT.

Continued from the March 15th issue.

If a man can be called the father of bee-keeping for his locality, then D. M. Edwards is the father of bee-keeping near Uvalde. He is always ready to tell what he knows,

FIG. 1.—D. M. EDWARDS ILLUSTRATING HIS UNCAPPING-BOX.

FIG. 2.—COMB-BOX ARRANGED FOR THE EXTRACTING SEASON.

and to give friendly help to his less experienced neighbors. For instance, when I saw ingenious tools and devices in his yards I would also see them in the many yards of the other bee-keepers near him. If he has a satisfactory method of working, he tells the others about it.

One very convenient and simple thing is his uncapping-can, as shown in Fig. 1. It is provided with a spout at the bottom of the further end, through which the honey may be drawn as it drops from the cappings above a screen near the bottom. At the top of the can is a frame, the construction of which is shown. A cleat is held by a bolt to one of the cross-pieces, so that it may turn around freely. When the bottom-bar of the frame rests on this cleat the frame may be turned around without effort.

Fig. 2 shows a comb-box on a wheelbarrow, the front of which is fitted with loops, etc., for holding a knife, brush, smoker, etc. The ground is so level and smooth everywhere that it is a pleasure to work with a wheelbarrow.

It is often hard work to carry or lift heavy hives; and so Mr. Edwards devised the lifting-rack shown in Fig. 3. It is seen that, the heavier the hive, the more the rack tends to close up and grip the hive. Short nails are driven through the pieces at the bottom, so that the points project a little through the wood, thus preventing any possibility of slipping. Two men can, with this rack, handle the heaviest hives very easily.

Mr. Edwards makes his own foundation, and also quite a little for his neighbors. For melting up his wax he makes an outdoor furnace of brick—see Fig. 4. This may be used also for liquefying honey and melting up

FIG. 3.—HANDY RACK FOR LIFTING AND CARRYING HEAVY HIVES.

FIG. 4.—D. M. EDWARDS' OUTDOOR FURNACE FOR MELTING UP WAX, LIQUEFYING HONEY, ETC.

old combs or slumgum for the wax-press.

Another thing that is very convenient is the moving bottom—see Fig. 5. As shown, this is a shallow box just large enough to allow a hive to stand in it. The bottom of this box is made of thin wood and wire cloth. The regular bottom-board is removed, and the hive set into this shallow box and held there by a nail driven half way in at either end. There is no chance for this to get knocked off, and yet they are easily taken off when necessary. There is no entrance, and the only opening is through the wire cloth at the bottom, which provides sufficient ventilation.

It took quite a while to see all these things, but it was still early in the morning when we started for the apiary of the Huegely Brothers. On the way I saw for the first time a brush fence It interested me greatly, and so I took a picture of it—Fig. 6.

It was in the honey-house of the Huegely Brothers that I tasted some very fine broom-weed honey. It was very light and thick, and had a good flavor, although it was not as mild, of course, as white-clover honey. Broomweed honey often candies in one night. In three days the cans into which it is put may be turned upside down without danger of the honey running out. That is, in this time it becomes perfectly solid, especially if the weather is a little cool, as it generally is when the extracting is done.

Some of the other honey-plants are the guajilla, the cat-claw, and the mesquite. These were fully illustrated and described in the Nov. 1st issue of GLEANINGS for 1901.

Before I left, Mr. Edwards remarked that, in one place near Uvalde, there were 1500 colonies within two miles, and that the bees were unable to store surplus honey, therefore, except in an unusually good year. While it may be true that certain localities are not apt to be overstocked, yet it seems only reasonable that, in most places, there is a limit to the number of colonies that should be kept in one place and that, after this limit has been passed, the amount of surplus honey decreases as the number of colonies increases. As the whole region is overstocked, there is not room for another bee-keeper to squeeze in.

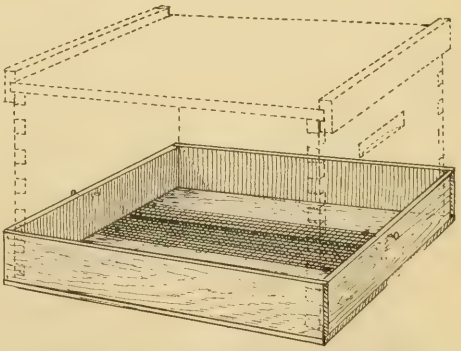


FIG. 5.—TRAY FOR MOVING BEES.

FIG. 6.—A TEXAS BRUSH FENCE.

FIG. 1.—CELLAR VENTILATING HIVE-STANDS, SHOWING THE NUMBER OF DEAD BEES PER HIVE.

THE SHUT-IN PRINCIPLE OF HIVE-STAND CELLAR WINTER VENTILATION.

The Result of the Experiment.

BY E. R. ROOT.

It will be remembered that, in our Jan. 15th issue, page 83, we reported unfavorably on this principle of wintering; but later on, when the bees had had a flight, and had been put back, we concluded that, perhaps, that scheme of shutting the bees within the hive was going to prove a success after all. Now, however, we are again in a state of uncertainty, with indications going to show that for our conditions, at least, it is not a success. We have just taken our colonies out of the cellar, and find quite a number of them dead, and all the rest in a greatly weakened condition. As compared with former years when we used the ordinary hive-entrance (superannuated bees flying on the cellar bottom), the result of the shut-in plan the past winter is very disappointing. But we are not disposed at present to lay all the blame of this poor showing on the Hershiser principle of ventilating hives in the cellar. A part of the trouble may be due to too high an average cellar temperature. A report has just been received from Mr. J. E. Hand, of Birmingham, O., who has tried this shut-in hive plan with flattering success. He says he will use it in the future. An examination of the Hershiser bees on the Hershiser stands in Buffalo showed that the bees were doing finely; but in our cellar, at least, where the temperature ranged from 45 to 65, the results were as above stated.

Up to Jan. 1 we found many bees dead on the bottom of the ventilating hive-stands. On the first warm day we took the bees out and gave them a flight; then we put them back on the hive-stands, at this time putting half the bees in one compartment and half in the other. We then put in a scheme of

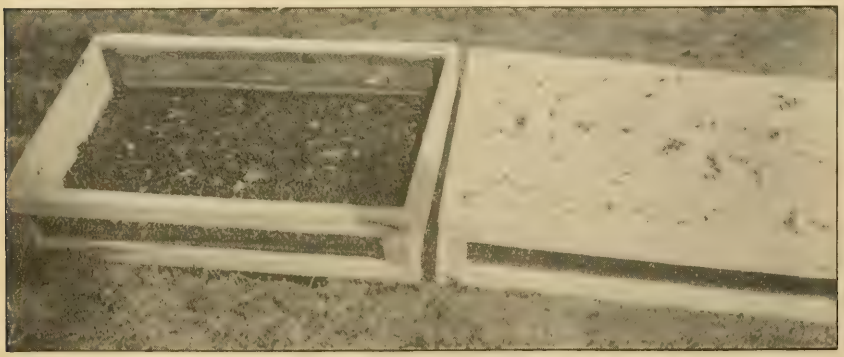


FIG. 2.—THE NUMBER OF DEAD BEES ON A VENTILATED HIVE-STAND, AND THE NUMBER ON A BOTTOM WITH NO VENTILATION.

ventilation for the cellar, whereby the temperature could be reduced, that worked so satisfactorily that we were very hopeful of good results, and so reported in our issue for March 1, page 308; but when we came to carry our bees out this spring, the silent dead told us another tale.

The subjoined half-tones, Figs. 1 and 3, from photos of the ventilating hive-bottoms, picked up at random, represent the number of dead to each hive since the middle of January.

Fig. 1 shows some of the bottoms have fewer dead bees than the others, while the two on the left foreground seem to have more dead than the average. An examination of the colonies revealed that this great amount of dead bees just below the cluster and in the hive was possibly a source of infection to the live ones above. The dead, swollen with dysentery, were traveled over by the healthy bees, with the apparent result that the infection was carried to the bees above, which in turn succumbed, adding their number to those that had preceded.

Fig. 2 shows a comparison that is somewhat remarkable. The hive-stand on the right was by accident put under the hive *upside down*, shutting out practically *all ventilation* while the colony just next to it had the hive-stand put under right side up. These two hive-stands were placed side by side and photographed, the result showing in Fig. 2. Remarkable as it may seem, the colony that had *no entrance and almost no ventilation* had very few dead bees. Indeed, the dead can be counted, as will be seen by reference to the hive-stand on the right in Fig. 2. Now the colony next to it, as far as could be seen, and of the same strength, and with a lot of ventilation, had a large number of dead bees. How do we know the colonies were of the same strength? By comparing the dead and living of both colonies. The excess of dead in one case seemed to show that ventilation was responsible for the heavy mortality. Taking into consideration the large number of colonies in the cellar which had the same losses, and others with too many dead for the time of confinement, it would seem to show that the Hershiser principle gave too much ventilation for the weak colonies in *our* cellar. Better would it have been by far if they had had the ordinary bottoms with summer entrances through which the diseased bees could have escaped, leaving the hive free from the contamination of their dead carcasses.

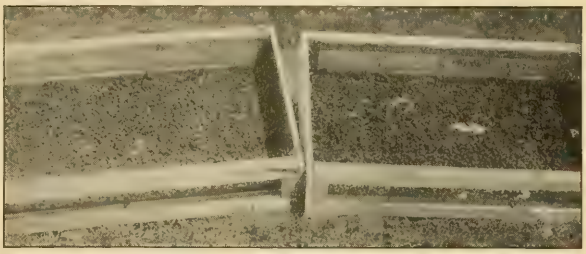


FIG. 3.—THE NUMBER OF DEAD BEES PER HIVE-STAND WHERE THE LOSS PER COLONY WAS THE GREATEST.

Right here an explanation should be made, else it may be difficult for the readers to harmonize the differences in results secured by ourselves, Mr. Hershiser, and Mr. Hand. We cellar only weak colonies or nuclei, the stronger ones being kept outdoors in double-walled hives or winter cases. With strong colonies, such as Mr. Hershiser and Mr. Hand have, such a large amount of ventilation possibly would do no harm. We say *possibly*, because we are not sure whether or not if it does no harm it does any good.

FIG. 4.—METHOD OF CARRYING BEES OUT OF THE CELLAR AT THE HOME OF THE HONEY-BEES.

In this connection it may be interesting to cite the case of Mr. H. R. Boardman, of East Townsend, Ohio, who piles his hives one on top of the other without any bottom-boards, like so much cord-wood, but so placed that

about a third of the bottom is open. While he was, apparently, having excellent results, we distinctly remember the time when he had

"PRICKLY-PEAR" CACTI IN SOUTHWEST TEXAS.

See "Bee-keeping in the Southwest" on page 542.

a good many dead bees on his cellar floor. Would he have had less if he had had less ventilation?

Two or three of our late correspondents on cellar wintering have strongly advised against this large amount of hive ventilation, arguing that it is too much of a good thing. One correspondent, it will be remembered, held that the brood-chamber was brought to too low a temperature, and that the bees, in order to keep such brood-nest warm, clustered near the opening to shut out the cold air We know that cold induces a large consumption of stores. Overfeeding in turn induces dysentery, and dysentery, death. Hence, it may be seen why so many of our colonies suffered. In this connection it may be interesting also to note that the great majority of cellar-winterers use the ordinary summer hive-entrances. So long as we used such entrances in our cellar we had excellent results in wintering.

We would not go so far as to say that Fig. 2 would probably prove that the bees in the cellar should have no ventilation, for one straw does not show which way the wind blows; but in view of the various reports we feel that an excess of ventilation, with either weak or strong colonies, does no real good, but, on the contrary, may be the cause of severe loss.

Fig. 4 shows our method of carrying our bees out of the cellar. It consists of two side rails secured by two cross-pieces with four short legs, put together as shown in the illustration. The side rails in the one we use are only 2 inches wide by $\frac{7}{8}$ thick. The legs should be short so as to make it easy to get in and out of cellars and over obstructions. Two men can easily carry out five weak colonies or three strong ones, and both be free to walk and lift it to the best possible advantage. On arrival at the point where the colonies are to be distributed, the stretcher, so to speak, is set down on its four legs, when each man picks up a hive and stations it on its stand. When unloaded, the men go back and pick up another load. This hive-carrier is used by several prominent bee-keepers. The one here shown is modeled after the one suggested by G. C. Greiner.

Do not tell Dr. Miller, but this carrier is far ahead of his scheme of two men carrying out one colony with a rope. Granted that his colonies are heavy and strong, two men can carry three as easily as they can carry one in his way.

There is one advantage about the shut-in plan. It enables one to determine definitely the *proportionate* loss for each colony. In the case of the exhibit in Fig. 2 the comparison is very marked.

DANZENBAKER FRAMES HANDLED FROM THE SIDES OF THE HIVE.

I send you two pictures of some hives I have. The engraving shows my hive remodeled to combine the American method of working over the top or of whole stories, and the Ger-

A DANZENBAKER HIVE ARRANGED TO BE OPENED AT THE SIDE.

man principle of working from the side. It makes a good observation hive.

You can see the tongs as used in Germany.

Massillon, Ohio, Oct. 6. E. A. NEWELL.

WAX-RENDERING.

The Unheated vs. the Hot-water Presses; the Strength of the Screw.

BY J. J. RAPP.

I have read H. H. Root's articles on wax-making, in which he has demonstrated nicely that the new machine is within two per cent of being as effective as the German wax-press. His conclusions are erroneons and misleading because they are based on the work of the German press instead of on the actual per cent of wax remaining in the slumgum. We can say with safety that one process is better than another, but we can not say how efficient our best appliances are unless we know our final percentage of loss.

The appearance of refuse containing less than 35 per cent of wax is so misleading that no one without much experience can divide it into more than three grades—that above 25 per cent as containing some wax; that above 20 per cent as containing a little wax, and the rest as clean. This is due to the fact that the cocoons and refuse hold the wax like a sponge, and it is only when they are saturated with it that they cohere more or less strongly, making the refuse hard or lumpy; and it is only when there is more wax present than they can absorb that we have streaks of wax showing in the lumps.

It is plain, from the nature of the material, that nothing but pressure will remove the wax, and we shall be successful just in proportion to the pressure exerted.

The unheated press you described is right in principle. All you need is a screw capable of exerting a pressure of 100 pounds or more to the square inch instead of the few pounds possible, as now constructed. I use a hot-water press with a 20-ton screw on a surface of 175 square inches, thus getting theoretically a pressure of 200 pounds or more to the square inch, and have worked many tons, both of old comb and slumgum previously worked by all the various processes, and have made during the past year 3600 pounds of wax from such material. The intermittent pressure easily obtained with a screw is a great advantage in a hot-water press, because the wax, when expressed, rises to the surface, and water takes its place when the pressure is removed, ready to carry another portion of wax with it when pressure is again applied. This is due to the elasticity of the refuse, which, when relieved, expands and absorbs a portion of water to take the place of the wax and water formerly expressed.

The hot water keeps the wax liquid, and the press can be tightened at intervals for two or three hours, for it is only after this time that the material ceases to yield, showing that the material is very reluctant to yield up its liquid portion, and also showing why a hot-water press is superior to any other, since any dry press must necessarily chill in a few minutes, giving no time for the gradual exudation of the wax, and no advantage from slacking the pressure, because we have no liquid to be taken up again. Material worked in a dry press similar to mine yielded in the hot-water press 12 per cent of wax, showing the loss in a press many times more powerful than the German wax-press. I have handled several lots of refuse previously worked in a German press, and worked cleaner than by any process in common use.

The lot yielding the least wax was worked twice through a German wax-press, then yielded 16 per cent of wax. Suppose the third lot in H. H. R.'s experiment to be 100 pounds of very old brood-combs, and that he secured 40 pounds of wax, the relative efficiency of the three presses would be 78, 80.8, and 100 per cent, leaving still an undetermined percentage in the refuse, and a gain of 9.6 pounds at one treatment over his three treatments.

The 300-pound producer would lose 72 pounds that was obtainable, worth $20.16 instead of $2.50—surely an amount sufficient to justify him in getting better appliances.

Ventura, Cal., Jan. 31.

[I was afraid that some one would think the German wax-press as we used it would still leave a great percentage of waste, and so I stated on page 104 that the slumgum taken out after the second rendering in the unheated press was then melted up again, and pressed *repeatedly* in the German press, even after wax had ceased to come from the spout. No matter how little wax is left in the slumgum, if it is gone over again in the German press a little will come out each time; but, as explained, we kept working over this refuse long after wax had ceased to run, so that nothing but hot water caused by the condensation of the steam came out. I am well aware of the fact that the German press as it is generally used is not an entirely satisfactory machine; but, so far as we have been able to learn, the trouble in every case has been caused by carelessness in reading directions. Too many producers in using the German press do not wait long enough before applying pressure; that is, if they follow the plan of melting up the comb in the press they very often begin to apply the pressure as soon as the wax begins to run out of the spout, and this means that not all of the comb is yet thoroughly heated. Or, the producer stops the work too soon in the effort to save time, and, after the refuse is cold, he fingers it over, and, not being able to see any wax, imagines that he has done thorough work, while, as an actual fact, very often from 8 to 20 per cent of wax remains. But, as stated, we did not use the German press in this way, but kept at it repeatedly until every bit of wax *had* run out that *would* run out.

However, since we have given no absolute

proof, any one may still maintain that we were mistaken as to the thoroughness with which we did the work in the German press. So, in order to give absolute proof of the thoroughness of our work, we have gone over the ground again. We selected a barrel of comb which was old—a very fair material with which to work. We do not believe in making tests with cômb that is almost new or with very small quantities, such as a few pounds, for the only real way to get at the correct results is to make the tests on a large scale. This comb weighed 130 pounds net. There were a few small pieces of wax mixed in with this, which in all would amount to possibly two or three pounds; that is, this much wax was free, in the form of small pieces. There was also a small part of the comb in the barrel which contained honey.

We first ran the contents of this barrel through the little unheated press, obtaining 62 pounds of beautiful bright yellow wax in a total time of 3½ hours. This included the time of melting up, pressing, and every thing. The writer did the work himself, and so can vouch for the truthfulness of the figures. We then melted up the refuse again and went through with the same operation, although pressing nearly twice as much at a time, so that this second rendering took only 1½ hours. Two pounds of nice wax was obtained. The total time of rendering the 64 pounds of wax was 5 hours. So far, we have taken no account of the percentage of wax still left in the refuse.

The next day we took our large hot-water press, with which we have rendered a good deal of wax, and went over the refuse for the third time, simply to ascertain the amount of waste. The refuse was put into three large burlap sacks and all put into the press, each sack being separated from the rest by a cleated division-board. Water was then poured in and heated up so that it began to boil about nine o'clock in the morning. After allowing it to boil about an hour the pressure was applied slowly until the screw was down as far as we could possibly turn it. It was left down for about half an hour, then raised for ten minutes, and then turned slowly down again. This was kept up until five o'clock in the afternoon, the water meanwhile boiling all the time We have used such a hot-water press considerably for the last two or three years, and are quite familiar with that plan of working. It will be seen that the refuse was kept under boiling water for eight hours, and was subjected to great pressure nearly all the time, although the screw was, of course, raised for ten minutes about every half-hour to allow the cheeses to swell up with water.

Now for the result. We obtained just exactly one pound and six ounces of wax, which was, of course, of a very dark color, due to the excessive heat and the long time which it had remained in the metal hot-water press. The percentage of loss, then, after the two renderings in the little open press was just exactly 2.1. You will see further that these results agree very closely with the results which were given in GLEANINGS.

By being careful, the percentage of loss after two treatments can be kept not over 2 per cent. But if any one wishes to take the time a third treatment will reduce the final loss to less than 1 per cent.

It is true that the screw which we used in this press looks very small and inadequate, for the engravings in GLEANINGS are not quite exact, for the reason that the engravers ran their tool too close in trimming off along the screw, which makes it look very slender. We have never had any trouble, however, about the screws bending; and as for the pressure to be exerted, we think they are ample.

To give the figures, however, we would say that one man using the short double 7½-inch lever at the top of the screw is able to exert a pressure of 111 pounds to the square inch. As nearly as we can get at it the actual pressure exerted is 15,079 pounds, or in round numbers 7½ tons. The cheese which we use contains 135.8 inches, so that the pressure per square inch is 111 pounds as we have stated.—H. H. ROOT.]

QUEEN-REARING.

Some Methods of Cell-starting; Inducing Supersedure by Clipping Queen's Leg; a Queen-excluding Cage for Starting Cells.

BY E. F. ATWATER.

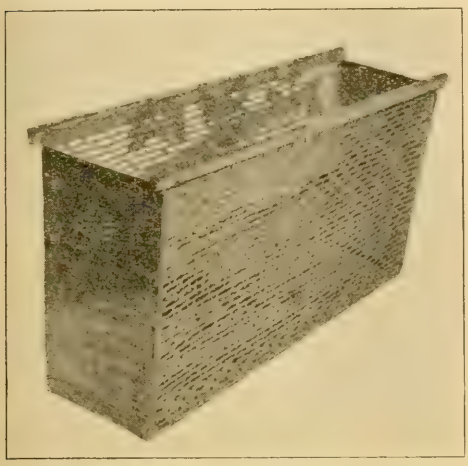
In queen-rearing I usually prefer some simple and fairly positive method of cell-starting. Sometimes I have good success with the Swarthmore "swarm-box;" at other times a strong colony is moved to a new stand after shaking off plenty of nurse-bees at the old stand, where a hive containing frames of pollen, honey, and two Pratt holding-frames and one frame of open brood receives them. This operation is performed in the afternoon or evening. Next morning we remove the brood from this now hopelessly queenless lot of bees, and graft the cells with larvæ from our best breeder. Sometimes an extracting-super with its combs and a big force of bees is set off on to a screened rim, water poured into one of the combs, then about six hours later we give these confined queenless bees about 32 cells to start. Cells started by any of these methods are best finished in a queen-right colony—the queen, unless failing, being separated from the cells by queen-excluding metal.

Early in the season we seldom have colonies so strong that the queen-cells should be finished in an upper story above an excluder. We can cut off one of the *legs* of the queen, which causes supersedure in about five out of six cases; but here queens so treated never do as good work at laying, and sooner or later come up missing. If the leg-clipping plan of inducing supersedure is adopted, the queens should be operated on, about a week before their colonies will be called on for

cell-furnishing. That method should be popular with modern bee-keeping M. D.'s.

We may confine the queen on one or more frames of brood at one side of the hive, the cells being completed on the other side. To do this we must use a tight-fitting queen-excluding division-board, making *sure* that the queen can not pass around it at any point, or our cells may be destroyed. Or, we may saw grooves in the ends of the hive-body, cutting the division-board of perforated zinc of such size that the ends will fit in these grooves; but even then the bottom is to be provided for.

With all these points in view I constructed my cell-trough several years ago, and after extensive trial I can say that it is *very* effectual and exceedingly handy. Reference to



ATWATER'S CELL-TROUGH FOR GETTING QUEEN-CELLS STARTED.

the cut will explain the construction. It is $18\frac{3}{16}$ inches long, $9\frac{3}{4}$ deep, wide enough to hold three frames easily. The ends are of tin, soldered to the sides of queen-excluding zinc, while the bottom is a thin board to which sides and ends are nailed. The top-bars, on which it hangs, are $\frac{1}{4}$x$\frac{1}{2}$x19, nailed to the upper edges of the queen-excluding zinc.

To use, go to a strong colony, take out four frames, two of them hatching brood; hang the cell-trough in the middle of the hive. Inside the cell-trough put a frame of emerging brood, if possible at each side, being *sure* that the queen is not in the cell-trough. Close the hive; and as soon as the bees are clustered in the vacant space in the middle of the cell-trough, put in a frame of started cell-cups from your cell-starters. Here they may remain for ten or eleven days, when they should be distributed to nuclei or be caged.

This device will fit in any standard hive, and is always available. Of course, use a small quilt over the cell-trough, to prevent the queen from entering it at the top.

To secure fine queens from early cells there are some essentials not generally emphasized as they should be. Select several colonies, some time before they will have to work on the cells. Feed, if the fields are not furnishing an ample supply. Every few days exchange their unsealed brood for frames of emerging brood from other colonies. As soon as your selected colonies are running over with nurse-bees, put in the cell-trough and give them a supply of cells to finish. Watch that they do not swarm. The queens so reared will be equal to the best.

Meridian, Idaho.

[The Atwater cell-trough is in principle very much like a plan that we describe in our little book, "Modern Queen-rearing," with the exception that we used two tight-fitting perforated-zinc division-boards that reach from bottom to cover. The principle is the same, and is all right. Mr. Atwater shows he is familiar with the general subject of queen-rearing by the references he makes to the various methods, all of which have some good features to recommend them.—ED.]

EXPERIMENTS WITH BABY NUCLEI.

Shall this Method of Fertilizing Queens be Perpetuated?

BY ROBERT B. M'CAIN.

[The following article, as will be seen by the dates which follow, was written over a year ago; but it was mislaid, and not discovered until lately. What the writer has to say, therefore, relates to the small Pratt baby nuclei, then in use, and not to the larger twin mating-boxes that are used at the present time. Mr. McCain's experience with these small mating-boxes was about the same as that of most of the others who tested them. But there were a few who made quite a success of them, and possibly are using them today in preference to any thing else. Under some conditions they will mate queens very satisfactorily; but, of course, they should never be used to rear cells.

The larger twin mating-boxes have a capacity of three frames, each frame being a third the size of the Langstroth in brood capacity. The aggregate comb surface of the two bunches of bees that are practically one is very nearly three Langstroth frames.—ED.]

The season of 1905 marks the time of the introduction, in a general way, of the baby-nucleus plan of queen-fertilization. A most important question to be decided before a new season of queen-breeding begins is, "Shall this method be perpetuated?" Obviously the question must be decided on the merits of the system under severe practical tests. Many bee-keepers have been prejudiced against the use of the system; more have seemed to misunderstand it. But neither prejudice nor ignorance should have weight in determining the value of new discoveries or improvements in methods of procedure in any department of human activity.

After a careful trial of the system, extending through the entire season of 1905, the writer has been driven, against his will, to feel that the system ought to be condemned.

One reason for making this statement is that the system is not only out of harmony with but is, to some extent, contrary to the natural economy of the bee-hive. Bee-masters must work with and not against the in-

stincts of the bees. All valuable improvements that have ever been made in bee culture have been founded upon the discovery of some law of action in the nature of the bee and the adaptation of man's plan of action to conform to that law, and to encourage the bees to increase their activity in accordance with the law. Any method of management in any department of bee culture which goes contrary to the nature and instincts of the bees is, in theory, therefore, doomed to failure.

In this baby-nucleus plan of queen fertilization, the bees are very reluctant—in fact, must be forced—to fill the little frames either with brood or honey preparatory to fitting out the boxes for the reception of virgins. They are induced with great difficulty to remain in the boxes even after they have been established in them by long confinement; and when they have been induced to take up an abode there, they find themselves too few in numbers to maintain "body heat" sufficient for healthy brood-rearing, and too weak to gather food. Moreover, they are an easy prey to robbers. When the bee-keeper has established his baby mating-boxes he has destroyed almost the last semblance of colony life among those bees. He has made a handful of bees homeless and heartless. They have become discouraged and demoralized so that the actions both of queens and bees are distinctly different from those of a normal colony. They must be fed to keep them from starving. They are on the down grade of existence from the very beginning, and have to be reinforced with young bees continually. It is not common for these nuclei to increase in strength, even though they are fed.

BETTER TO HAVE THE NATURAL CONDITIONS OF LARGER AND STRONGER NUCLEI.

It is not sufficient to say that queens can be fertilized from these boxes. It is true that any one who will exercise ordinary care in manipulating them will get fair results. But that is not a sufficient guarantee of the value of the system. Emphasis should be laid with increasing force upon the necessity of having strong colonies for best results in all departments of bee culture. It is manifestly unnecessary to employ strong colonies to mate the queens if it can be done equally well with a smaller number of bees. This is the theory on which the advocates of baby nuclei have proceeded. But, in my opinion, they have made the fatal mistake of carrying the theory to an extreme.

Every practical bee-keeper knows that he can divide his colonies down to pretty small fractions of their original strength, in favorable seasons, without destroying colony life; but in the practice of the baby-nucleus system the limit is passed. Colony life is destroyed, body heat is wanting, brood-rearing in precarious and uncertain, and the constitution and life of the queen, with all that that means to future generations, are put in jeopardy.

To say that good queens have been mated in this way is to pass a high compliment on their constitutions; but it does not furnish a sufficient reason to continue the system to the detriment of that same constitution.

The contrast between baby nuclei and nuclei composed of two L. frames operated alongside them throughout the season was so strikingly in favor of the latter that it would be hard to induce the writer to try the babies again. In nuclei composed of one or more L. frames, colony life progressed rapidly. Instead of killing off a lot of worker bees to get a few queens mated, as it was in the case of the baby nuclei, housekeeping and brood-rearing progressed in thriving condition. At the close of the season a few of these nuclei were easily united into colonies and prepared for winter. With this method of forming nuclei, all parts of the bee-keeper's equipment are interchangeable. There is less fuss, and less expenditure of the energy of the bee-man, and a saving of life among the bees.

A better nucleus hive, in the opinion of the writer, is one that will hold two two-frame nuclei, one on either side of a thin wooden partition. In hives of this description it was astonishing how fast the nuclei built up. Conditions were most favorable for all the activities of the hive, and there were two queens to lay a good portion of the time. There was less swarming out, less robbing, and fewer queens lost.

Oswego, Ill.

THE MARKETING OF HONEY.

Are Commission Men Honest? How to Produce Fancy Honey and Pack it; the Importance of Uniform Grading.

BY WM. W. CASE.

Mr. Root:—I do not see how you can reconcile your statements on page 235 concerning commission merchants. First you state that the one commission man who *did* know the consignment of honey was on the way notified all the rest of the commission men and dealers in the city, and that they all conspired as a unit, to the effect that none of them would pay real value for the honey, but that, on going to another city, he made one honest sale, the fact of which becoming known to the dealers of the first city, they immediately conspired together and prevented said dealer from any further honest dealing. You then state that you believe the majority of commission men are honest. As you state it, I do not see where you can find a quarter ounce of honest man in either "gang" of both cities; and as it is plain that these two "gangs" worked together is it not the inference that they would have followed the same man to every city he would have visited, with like results?

When I am lucky enough to have it, one firm buys all of my light honey, and they are willing to and *do* pay me more for my honey delivered at my depot than the shark merchants quote as bringing on commission in the same city.

I have never shipped a case of honey on

commission—never will—and have never had any dispute in settling up, the nearest being a deduction of two pounds shortage in a shipment of three dozen cases, for which the receiver apologized.

I think every one else can, if he will, dispose of his honey in the same way I do. One trouble is, so many do not pack their honey well. Generally it is a case of don't know how either in producing or packing, or both. A man who tiers up comb honey from spring till fall will never be satisfied with the price he receives; neither will the purchaser be satisfied with the price he pays.

A few years ago a party sold his honey crop to the same party to whom I sell, stating it to be just as good as mine. It took several weeks to adjust the price on that lot of honey.

I recently inspected a case of honey on the counter of a grocery. Out of 24 sections there was just one that I would class as A1. The others were well enough filled, but they contained every thing between apple bloom and aster, and "foot-prints" considerably thicker than the cappings, and all had a general "dirty" appearance. Now, had every section been removed as soon as sealed, and properly cared for, its appearance would have been its own recommendation. "Calico honey," when *clean*, is not repulsive; but when thickly soiled it tempts neither eye nor appetite. Where at all possible the extractor should be used before a new flow of different-appearing honey so as to keep the contents of every package uniform in color, weight, and quality.

An apiarian that can not make 90 per cent of his section honey grade A1 to fancy has never learned his trade.

Honey should be taken from the hive just as soon as sealed, every section held to the light to be sure it contains no pollen to feed worms, and then stored in a tight cupboard in a very warm dry room (the kitchen is just right if the ladies will agree to the arrangement), and kept tightly closed, so that, when the door is opened, a gush of delicious aroma greets the nostrils and declares the delicacy of the contents. It usually takes from four to six weeks to cure half a ton of honey so stored; but when it *is* cured it is of just as fine quality as that delicious morsel occasionally found when transferring, that the bees have cured and kept perfectly for probably a dozen years—the most toothsome morsel mortal man ever placed in contact with his palate—a rival to the "ambrosia fit only for the ancient gods." Honey so cared for and treated will sell, where known, for cash at full or considerably above quotations on the open market.

It is never any trouble to sell a good article if all parties know it to be good. In order to sell a crop of 25, 50, 100, or 1000 cases of honey, carefully pack three or four cases as samples, neither better nor worse than best grade; and, while the quality of the whole case is the same, be very sure that the four sections next to the glass are as nearly alike as four peas in color and finish. If packed in cartons, leave one section next to the glass open so as to show the exact quality of the contents; also one open section inside of the package for inspection, placing both empty cartons under the lid. Now ship a sample case to two or three reliable dealers in fine groceries, not commission men; guarantee every package as good as sample, and ask their best offer on the same F. O. B.; and if your honey is what it should be you will get an answer that will surprise you, and that very agreeably.

In making large shipments of comb honey, crate six to nine cases together and load on cars so that the face of the sections is parallel with the side of the car, and you will have no more breakage than from a carload of pig iron. Be very careful to stencil exact quality, weight, and grade, on every case, and never try to palm off a poor quality for a good one. It will not work with honey, at any rate. Here honesty is the only policy.

Frenchtown, N. J.

[Our correspondent draws attention to the fact that there is an omission in our original statement. We should have stated that we believe the great majority, if not all the commission men *who furnish quotations* for this journal are honest. The italicized words were the ones omitted. This would reduce the number down to a select few. No, we did not mean to convey the impression that the majority of *all* commission men, whether they quote for any bee-paper or not, are reliable. We should be inclined to the opinion that the majority of them are men who should be avoided.

The suggestions made by Mr. Case on how to pack honey for shipment, and, in general, how to prepare it for market, are excellent. One who knows how to take care of these two important requisites will, as a rule, have very little trouble with the honey-buyers who quote *in these columns*. We italicize the last three words so as not to be misunderstood.

We also wish to indorse another suggestion—to sell honey outright on sample rather than to depend on commission sales. If the buyer knows your honey, knows that it will be equal to the sample, he will be pretty sure to want those goods, even if he has to pay a little above the market price to get them.

It is a fact to be deplored, that the great majority of those who ship honey to the cities either do not know how to grade and how to pack it, or else are woefully careless. We have purposely put this in italics, and yet we are aware of the fact that there may be some who will question the accuracy of the statement. But the big buyers in the country, as well as commission men generally, we are confident, will vouch for it. Some think they know how to prepare honey for the market, but they do not, just the same, and are compelled to take a cent or two less than the same goods would actually bring if they were properly graded and packed. Penny wise is sometimes pound foolish.

We have harped on this statement many a time, but it seems to be necessary to keep

repeating it. Perhaps some of you may say, "Then you tell us how." Enclose one-cent postage-stamp and we will send a leaflet that will explain. Or read carefully the suggestions made by Mr. Case, who is no novice in this business.—ED.]

LOCATION.

How Long Must Bees be Confined to Cause Them to Mark Their Locations Anew? Storing Comb Honey.

BY WM. M. WHITNEY.

Mr. Editor:—High authority on apiculture, giving instruction in making artificial colonies by division, says that a nucleus colony, if put into the cellar or other dark place for three days from the time it is made, may be placed in any part of the yard thereafter without danger of bees returning to the old stand, which is correct. They might be shut in their hive, and be moved to the stand they were to occupy, if the weather were cool enough, and be opened at night of the second day with the same result.

But in the face of these facts, and of the experience of every practical bee-keeper on giving instructions for cellaring bees for the winter, he tells the apiarist to note location of each hive and place them in the cellar in such order that they may be removed in the spring and be put on the summer stands in the same order as in the fall before cellaring, thus avoiding confusion among the bees in marking their location when the first flight is taken. Some one says to me, who must entertain the same notion, "Don't you know that bees will continne to go back, more or less, to the old stand during the summer, especially if the bottom-board is left in its place?" Well, do we not all know that bees from all parts of the yard will visit that bottom-board if the weather is warm, especially if the sun shines upon it, to evolve the scent of the wax adhering to it? The same thing occurred in my yard last summer at an open hive left on the summer stand, in which the colony had died the winter before. Had that bottom-board or the hive been rods away from the yard, the result would have been just the same.

I venture the assertion, without fear of successful contradiction, that there is not a normal colony of bees in existence, which, if kept in its hive by bad weather or from any other cause for the space of two or three days, that will not mark its location anew on the first opportunity for a flight. If one wishes to change the location of any colony in the yard, and takes the opportunity to do so during a time of weather unpleasant enough to keep the bees from flying, he can do so just the same as with a nucleus, and the bees will mark their new location without any unpleasant results. If this view of the matter of the habits of bees in this particular is correct, what becomes of the theory that, on removal from the cellar, each colony should be put upon the stand it occupied the fall before? Does it not seem to the practical observing apiarist as most doubtful—in fact, extremely mythical?

Again, another expert in apiculture on being asked, "What shall I do in storing frames of comb honey which I wish to use in the spring—leave them in the honey-house or put them in the cellar?" the answer was, "In the cellar, if you have no better place." That "if you have no better place" was well said; but the experience of people in general is that a worse place can not be found than nine out of ten cellars of the country. We all know that tons of the very best honey have been spoiled by being put into the basements of commission houses and stores, and in cellars of homes. It would have been just like me to have said, "If your honey-house is dry, and you have no better place to which to transfer it than the cellar, leave it in the honey-house." I have kept the finest comb honey in the honey-house at Lake Geneva during the winter, through zero weather, taking it out in the spring in as fine condition as when put into storage. The house was dry, and the honey well ripened. Of course, warm storage is considered safer.

Were Dr. Miller asked where would be the best place to store comb honey, his answer would be, "Put it in some warm dry place, secure from injury by mice, etc.," and it would have been correct; but the answer given above was by a man who is pestered to death with all sorts of questions, asked over and over again until I should think he would go wild—dream about bees, or have the nightmare—when most of the problems could be solved at home were the questioner provided with one or more of the standard works on bee-keeping, and a subscriber to one or more journals upon the subje t. He who has not interest enough in the business to do this should go out of it.

Evanston, Ill.

[Most bee-keepers at the present day consider that, after bees have been taken out of a cellar in the spring, they can be put anywhere—in the new or old location—and it will make no difference, and we believe they are right.—ED.]

EUROPEAN FOUL BROOD.

The Alexander Treatment a Success; the Italians Found More Able to Resist the Disease than the Hybrids.

BY WILL A. HORST.

It may be of interest to many of the readers of GLEANINGS to hear something more concerning the effectiveness of the Alexander treatment as a cure for black brood, or, as it is now called, European foul brood. During the past summer I had ample opportunity for applying the treatment to my apiary of eighteen colonies. Having been absent from home during the winter and spring, I was unable to examine the bees before the first of

June. My examination revealed a discouraging state of affairs. Sixteen out of the eighteen colonies were badly diseased. This rapid spread of the disease was undoubtedly due to the fact that the bees had, early in the spring, engaged in a general melée and overpowered two diseased colonies. The two colonies remaining healthy were pure Italians—the only pure stock in the apiary. One of these, a red clover, remained healthy throughout the season. The other, a golden, along toward the middle of June showed a very few diseased cells, but later on entirely rid itself of the disease, without treatment. The honey-flow throughout the summer was very light; in fact, the bees did nothing more than make a living up to the fall flow.

The sixteen diseased colonies were doubled back to eight fair-sized ones, and all queens were removed and killed except one, as I wished to replace them by Italians, being now thoroughly convinced that the Italians were far more able to resist the disease than the hybrids. The hybrid queen which I kept was caged, to be used later as a test case.

I then followed the treatment as given in GLEANINGS, cutting out all queen-cells at the end of nine days, repeating the operation two days later. I had previously made arrangements to have a sufficient number of young Italian queens sent to me when needed.

At the end of 25 days most of the colonies had their brood-nests cleaned up as slick as a pin. I say most of them, for such was not the case with all. Right here it may be noted that individuality plays an important factor. Some colonies, which previously had a very large amount of diseased brood, cleaned up their cells so that they shone like mirrors, while others, even stronger in numbers, and with less disease, left a scattering of capped-over diseased cells throughout the brood-nest. However, with a little assistance they were all apparently cleaned up at the end of 30 days, young laying queens were introduced, and further developements anxiously awaited.

Ten days after the queens began laying, the brood was carefully examined. Those colonies which had shown the greatest aptitude for housecleaning now had as healthy a lot of brood as one could wish to see. With these the cure was complete. But those which had shown some hesitancy in cleaning up showed here and there a few diseased larvæ.

It was into one of the latter colonies that the before-mentioned hybrid queen had been introduced. But as soon as the young Italians became old enough to take charge of affairs in the brood-nest, things took a different turn. The third lot of brood was entirely healthy, and I have not seen a sign of the disease in any of the treated colonies since. But not so with the hybrid colony. The disease stayed, and was on the increase until the treatment was repeated and a red-clover Italian queen substituted. The brood will be carefully watched this coming summer to see if the disease reappears, or if the colonies (now all pure Italians) will again contract it from some outside source.

It is a source of great comfort to bee-keepers to know that this fell disease, which seems to be advancing throughout the country with such rapid strides, can be dealt with so effectively and economically; and the bee-keeping fraternity surely should feel grateful to the originator of this treatment, and to GLEANINGS for placing it at their disposal.

Crown Point, Ind.

[The suggestion made in the foregoing may possibly explain why some have failed with the Alexander plan of treating European foul brood (black brood) and that is, three weeks or even twenty-five days may not be long enough for the colonies to polish up their cells or otherwise disinfect them; and it would seem that, in view of what our correspondent says, it might be wise to keep the colony queenless until such time as the cells fairly glisten. It may be twenty-one days or it may be a whole month. Then do not forget the other important requisite, to have pure Italian blood.

We have received some reports favorable and some unfavorable regarding this treatment; and it is so simple to apply that possibly some of our subscribers, in sheer desperation, would be willing to grasp at a straw. But we are frank to confess that, if we had black brood in our yard, we would follow the advice of the York State Inspectors, to shake on foundation, *a la* McEvoy, and then shake again. And we would go further. We would dequeen and keep the bees queenless for three weeks, thus combining the McEvoy and the Alexander treatments together. When supplying a new queen we would put in young and vigorous Italians, which we would rear at an out-yard and thus be ready to supply all colonies under treatment.—ED.]

HIVES.

What Style is Best for a Farmer Bee-keeper?

BY B. W. FISHER.

Dr. C. C. Miller:—I wish to ask many questions, as I have purchased four very large hives with lots of bees—yes, the largest hives and most bees in them I have ever seen. But I don't like the hives, as they are unhandy, open at the side. I have nine hives with bees in, eight-frame Dovetailed hives; but I think they are too small, and require too much attention.

What hive would you recommend for a farmer on the let-alone plan, or not that, but one giving the best results with the least manipulation? I see The A. I. Root Co. catalogs a divisible-brood-chamber hive, which in ten-frame size I think would suit me, if there is no drawback to it. I don't know any thing about it, so I come to you for your advice and opinion.

Then the Dadants advocate a large hive with deep frames. I don't think I should

like them; still they may be best. I know you don't advise the Danzenbaker. I have been thinking of a hive just 20 inches square, outside measure. This would take the regular Langstroth frame. But I would want closed-end self-spacing frames without the V edge, with two division-boards to each hive, ⅞ thick, with self-spacing end-bars to them, supers to match. For extracting, frames 5⅞ deep, closed-end frames, and two division-boards. Please help me by pointing out all undesirable features, and also the advantages of such a hive. I am compelled to purchase some hives and supplies, and I am not certain which is best, and can not afford to make any mistake.

Phillippi, W. Va.

[Dr. Miller replies:]

It would be easier to make reply if you should ask about getting the most honey possible from each colony, without regard to the amount of labor on the part of the bee-keeper. Most of the study goes in that direction; yet I think some attention should be paid to those who are, like yourself, desiring to have the bees mostly take care of themselves.

The first requisite relates to size. The hive must be large; and seeing that you are working for extracted honey, there is little danger of having it too large. A strong colony will not be disturbed by one or more frames that are not occupied; but it may be damaged no little if it has a single frame less than its queen would supply with brood.

The divisible brood-chamber seems to strike you favorably. The chief advantage of a divisible brood-chamber lies in the fact of its elasticity. You can have your hive small or large, according as you use one story or more than one story. When you have a small colony, one story is enough for it; when it becomes stronger you can add a story, making the hive larger or smaller according to need. But there you are, getting directly away from the let-alone plan, for it might need pretty close attention to make the hive smaller or larger at the right time. The safe way to use such a hive would be to keep it two-story all the time. But in that case, what advantage would there be in the divisible feature? No one claims that two shallow frames, one directly above the other, are any better than a single deep frame of the same capacity, if the two are to be used always in that way; and it can not be denied that at least at times there is a disadvantage in having a space right in the middle of the brood-nest. Besides, it costs more for the two shallow stories than for the single deep one.*

I don't know what your objections are to the Dadants' deep frames; but if you are to use two sets of shallow frames permanently, it certainly looks an advantage to have them made into a single set of deep ones. Besides, the success of such bee-keepers as the Dadants with these frames, and the small amount of swarming they have with them, are things not to be lightly esteemed.

*They are listed at the same price in the supply catalogs.—ED.

Now as to the disadvantages and advantages of your proposed 20-inch-square hive (should it not be at least 20⅛ with ⅞ stuff?). It would hold 12 Langstroth frames—beside the dummies—a very good size for the let-alone business; and, indeed, some who do not go on the let-alone plan would not consider it any too large. The closed-end frames with the dummies on the two sides quite give the advantage of a double-walled hive. The disadvantage of the closed-end frames would be the danger of killing bees every time you put the frames in place; but that would not count for a great deal when the hive is not often to be opened.

The Dadant or the Jumbo with extra-deep Langstroth frames would give you the same capacity with fewer frames to handle, and the deeper frames would have some advantages for brood-rearing, although that would count for more further north. On the other hand, the 12-frame Langstroth has the advantage that it was thought out by yourself.

Really it's a hard thing to say which would be best—the hive you have proposed, or the Dadant or the Jumbo. Either of them ought to suit you well; but I don't believe the thing for you is the divisible brood-chamber.

Marengo, Ill. C. C. MILLER.

[There will be a series of articles soon from Mr. J. E. Hand that will set forth the advantages of the divisible-brood-chamber hive. We advise Mr. Fisher to wait till he has read this series of articles before he builds a special odd-sized hive—not because they will discourage the divisible-brood-chamber feature, but because they may enable him to build more intelligently.—ED.]

STARTERS MADE OF STRIPS OF OLD COMB.

Thinking to interest some of the small bee-keepers like myself I wish to describe a comb-guide for brood-frames that pleases me better than any thing else for the purpose I have ever used. It is simply strips of old brood-combs, and the way I use them is like this: I take old tough brood-combs and cut them in strips one inch or even less in width, being careful to cut them square—that is, not on a bevel. I use a very thin knife and straight-edge. The older and tougher the comb the better it pleases me; and to fasten them in the frames I proceed as follows:

Stand your frame bottom up on a bench or board, then with a spoon pour some melted wax with a liftle resin added, having it quite hot, along the top-bar the whole length where the comb is to be attached. This be-

ing done, place the strip of comb in position, pressing it into the melted wax, care being taken that the comb shall come in the middle of the top-bar.

Right here let me say that for one I have no use for frames with grooves and wedge device, not even if I were to use full sheets of foundation, as I consider the melted-wax plan far ahead for several reasons.

The strips of old combs being tough, and as they are at once securely attached to the top-bar by the bees, they very seldom break loose from their fastenings, and with me they prove far more substantial and satisfactory than strips of comb foundation. Of course, if I were building up and wanted lots of combs at short notice I would use full sheets of foundation; but as it is I always have more combs than I need, for I manage to prevent swarming by allowing the bees to build comb in their brood-nest.

D. S. HALL.

South Cabot, Vt., Feb. 4, 1907.

TO TAKE A SWARM OUT OF THE BODY OF A TREE WITHOUT CUTTING THE WHOLE TREE DOWN.

I notice in Aug. 1st GLEANINGS, 1906, that Mr. Fisher gives instructions for transferring bees from trees or other natural abodes. Please tell us how one is to construct a platform away up in a tree. I don't understand how one could take a nucleus hive up in a tree, and, after securing the colony already in the tree, let it down with safety. It would be full of bees, and would be very awkward to handle so far from the ground; besides, the bees in the tree would be apt to sting.

Stanley, W. Va. B. G. ELEFRITZ.

[Where a swarm is in a hollow limb, the limb may be sawn off and then let down by means of a rope in the hands of some one on the ground, the rope passing over some other limb. It is easy enough to get hives up in the air by means of this same rope, or to let a swarm down. It should be borne in mind that chopping next to the hollow where the bees are located will soon induce quiet so there will be no stinging.—ED.]

HONEY AND BUTTER; HONEY BREAD.

Mr. J. A. Green wonders why I wish to "freeze" the honey and butter together as suggested. Well, my object is quite different, probably, from what he had in mind. I want to get equal amounts of each, blended perfectly, because such a mixture is ahead of cod-liver-oil emulsion for thin anemic persons, and is highly recommended by some European doctors. They (the doctors) say cod-liver oil is not so useful, because it does not induce a free flow of saliva. Of course, both substances have to be warmed before mixing, and, if possible, should be hardened at once. Stirring helps the process.

Another food of like sort is honey bread, of which I have a loaf before me which is 6 months old. It has more honey in its make-up than flour, and tastes like good confectionery. It is very porous; and as it contains nothing whatever but honey and flour it is healthful and nutritious—just the thing for dyspeptics. The rising, I think, is ammonia; if not that, baking-powder. It was made by a firm in Vesey St., New York, who retail a loaf at 25 cents. Everybody likes it. Mr. Coggshall liked it so much he sent to New York for some so he could fill up on it just for once.—W. K. MORRISON.

SMALLER CROP SECURED WHEN EXCLUDERS WERE USED; THE ALEXANDER PLAN OF BUILDING UP WEAK COLONIES.

In looking over the item on page 232, Feb. 15, regarding queen-excluders, I would say I started keeping bees five or six years ago. The first year I ordered my supplies for the Langstroth hives. I ordered some queen-excluding metal, put it on some of my strongest colonies, and had very little surplus from them, but had a fairly good crop from the others without the excluders. In 1905 I had over 1600 sections from 23 hives, spring count, 8 of them being old box hives, and in only three sections had there been any brood at all. The year 1906 being a poor one I had only a little over 1400 sections from about 40 hives, and not one section had brood in it. I feel confident that, had I used excluders in 1905 and 1906, my yield would have been a great deal less. The only use I have for the excluders is in the spring, when I put the weak colonies over the strong ones as described by E. W. Alexander. I find it to be of great value in building up the weak colonies in the spring. W. G. ASBELL.

Sussex, N. B., Can., Feb. 19, 1907.

[Queen-excluders are scarcely ever used in the production of *comb* honey. It is only when extracted is produced that they are deemed necessary.—ED.]

BOTTOM STARTERS IN BROOD-FRAMES.

In my brood-frames, to make the bees build to the bottom-bar I put a narrow strip of foundation, and at the bottom also. I see many times that the bees build down to the bottom, then stop. What do you think of the plan? I use a narrow strip at the bottom of sections, with a large piece at the top. This makes the combs solid. S. D. BUELL.

Union City, Mich., Feb. 19.

[There is no objection to the plan of putting bottom starters in brood-frames except the labor. It would probably give solid combs as you say.—ED.]

WHICH DIRECTION SHALL A HIVE-ENTRANCE FACE?

Referring to Stray Straws, pages 155 and 156, hives facing north or south, I know it is the general practice to face south or east, but I wish to tell you of something I noticed last fall, and it impressed itself on my mind very forcibly before I read the Straw.

I bought two apiaries last May. They are located in a canyon running north and south.

Hives are standing north and south, with two entrances of about four inches, each one in the south end at the southeast corner, and the others in the north end at the northwest corner. I think that fully nine colonies out of every ten use the north entrance. It is evident that the bees prefer the north entrance, but why? I can think of only two things that would create a preference—sun and wind. Wind blows from two directions, south principally, north occasionally in spring and fall. The south wind is a mild coast breeze. The north wind, if from the desert, is *dry* and *sometimes very hard.*

Perris, Cal., Feb. 10. J. W. GEORGE.

[This is a question in which locality has every thing to do. While in most localities an east or south exposure would be preferred, yet in your locality if the strongest winds were from the south then the bees if given the choice would select the north entrance. —ED.]

LOWER FREIGHT RATES.

"The South Texas Bee-keepers' Association met lately for business at the residence of Pres. E. J. Atchley, and by united effort on the part of the officers a reduction on freight rates from $1.85 per 100 lbs. on live bees in carload lots, down to 79 cts. per 100 lbs. to all points in Kansas, Missouri, Oklahoma, and other western points of the Ft. Worth & Denver R. R., and 81 cts. to Denver and intermediate points in Colorado, was secured. This makes a bright future for the bee industry of Southern Texas; and to get the old rate cut more than half gives cause of rejoicing. We have put in an application to the railroad company to the effect that we want a ruling to go along with the reduced freight, not to allow any one to load bees for shipment until such person first screens the car with wire cloth in such a manner as will not allow bees to escape from cars while in transit. We feel sure we shall get such ruling. The South Texas Ass'n was instrumental in getting a one-third reduction on bees shipped by express from Beeville to all points on Wells-Fargo lines, which reduction was later extended from other points. There are several cars of bees to go from Beeville this spring. This association also secured a lower local freight rate on honey several years ago."

The above notice was sent me by Pres. Atchley. N. E. FRANCE.

Platteville, Wis.

APPLE CROP DOUBLED BY THE BEES; MOVING AN APIARY TO A SHELTERED LOCATION IN WINTER.

I obtained two colonies of bees to aid in fertilizing the blossoms in my orchard; and after reading the A B C of Bee Culture I got a regular chronic case of bee-fever. I expect to start right this coming spring. When I brought the two box hives home last April I put them under a Rome Beauty apple-tree which was about to bloom. The usual crop from this tree was from six to eight bushels of apples; but last year it bore fourteen bushels—enough difference to pay for the bees. Now, with some 700 fruit-trees it's no wonder that I have the bee-fever.

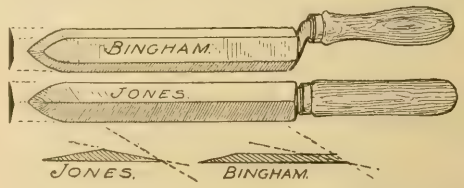
I want to find out about a good *location* (you see I got hold of one of the seemingly most important expressions of "bee-lore," thanks to GLEANINGS). The best place I have for locating my apiary for the summer months is about fifty yards up to perhaps a hundred from the best place to put them in winter. The summer location is a northern exposure with fine shade-trees—in fact, an ideal spot for the purpose. But the winter blasts are too strong here for bees, and the location best for winter would be too hot in the summer. Now, could there be any objection to moving bees that short distance, say late in November? Sometimes bees are dormant here for a little while, a week or two, and again they will fly day after day for weeks in winter.

Pilot Knob, Mo. OTTO LUEDDECKE.

[No objection at all, but why not put a fence around them to protect them from the wind?—ED.]

UNCAPPING-KNIVES; THE CONSTRUCTION OF THE BLADE.

About a year ago GLEANINGS had something to say about getting out a better honey-knife. From my experience with honey-knives the past summer I don't wonder at you trying to get something better. I thought I would look at my A B C and see what you said about honey-knives, and I felt somewhat indignant when the Bingham-Hetherington knife is recomended as being the best for uncapping. If some of you United States people had sent over to Canada and got some of our knives, and used them in comparison with your make, you would not be a generation behind the times as regards honey-knives. What I refer to more particularly is the shape of the blade.



By the construction of the Bingham you have practically to scrape the cappings off the thick part of the knife in wading into the comb or you run into the same trouble your men who run circular saws would should they happen to have the back of the teeth of their saws project further than the points.

In regard to that thumb-rest, I think it should be on top of the handle so as not to tire the fingers; but if you have a *flat* handle put on right, of the right proportions, there will be little to be desired.

Chatham, Ont., Can. W. A. CHRYSLER.

[Many men of many minds. What suits one does not another, All people can not be persuaded to wear the same style of shoe;

and the same is true of honey-knives, and, in fact, any other tool offered to bee-keepers in supply catalogs.

It is our opinion that most of our American readers will take issue with Mr. Chrysler on the shape of the blade of the honey-knife. When Mr. D. A. Jones first introduced this wide bevel, many years ago, the question received some discussion. Mr. Bingham argued that the narrow bevel, such as he adopted in his knife, caused less cohesion or suction to the comb—less in proportion as his narrow bevel was narrower than the Jones wide bevel, and in that proportion less of muscular strength. We are aware of the fact that many bee-keepers have tried the Jones knife, and discarded it in favor of the Bingham. It may be true that some users of the regular Bingham, after trying the Jones, preferred the wide-bevel form.

The buzz-saw argument need hardly apply, it seems to us, for the reason that the chisel edge of the Bingham should be held exactly flat on the comb surface. If so, the heel will not be higher than the rest of the bevel surface. But this narrow surface may be more difficult to hold in line than a knife with a wider surface. We don't know.

There, are, doubtless, a good many readers who have tried the two styles of knives and made a comparative test. It is these people from whom we should like to hear. Give us a brief note telling us of your experience, without fear or favor. Supply-manufacturers can make the one form as cheaply as the other, and they, as well as the general bee-keeping public, would like to know which is the better.—Ed.]

AN ENTRANCE-CONTRACTOR; TAR PAPER FOR AN ALIGHTING-BOARD.

The drawing here given shows my entrance-regulating cleat. This is notched as shown, to give the two different sizes of entrances. I simply lay this stick on the bottom-board, close to the hive-body. The wind never blows them away, and they are always easily adjusted.

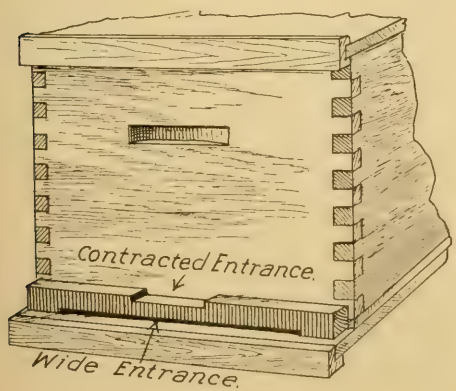


FIG. 1.

Fig. 2 shows my paper alighting-board. Spring clothespins are handy to fasten the paper to the bottom-board. I use 2-ply roofing-paper, painted white on the upper side. This will keep out the rain and keep the alighting-board (or, rather, paper) from getting so hot by the sun's rays that it might warp and get out of shape.

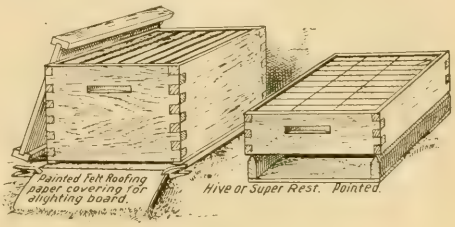


FIG. 2.

The hive-rest as illustrated makes a very convenient place to set upper stories or supers, when looking through a colony. The sharp edges afford but a small amount of contact, so the killing of bees is reduced to a minimum. The supers may be set down cornerwise or straight, without danger.

Wickliffe, O. W. C. Sorter.

SWEET CLOVER ON CULTIVATED LAND.

With your experience with honey-plants, would it pay the time and expense to cultivate the Bokhara or sweet clover as a honey-plant? Where there are a few plants by the roadside the bees are busy; but do they get much nectar? or how long does it last? is the point. Will you give us some light on the subject? John Sheffer.

Auburn, Ind.

[The Bokhara clover is not cultivated to any extent in this country as yet, though it deserves to be. As a bee-plant, few flowers excel it. It is a very good plant for renewing the fertility of worn-out misused farming land, for it will grow where other clovers refuse to grow at all. It is good for planting along railway cuts and embankments to prevent washing of the soil. It contains a large amount of cumarin as a substitute for vanilla. If the new pure-food law bars the artificial vanilla, there is some chance of the Bokhara clover being grown for cumarin as a substitute for real vanilla, which is too high in price except for rich folks.—W. K. M.]

ANTS; PETROLEUM TO PREVENT THEM FROM GETTING INTO HIVES.

I often see in Gleanings accounts of troublesome ants in some parts of the world—so much so as to make bee-keeping a hard job. My honey-house was visited by ants, and I painted the stone underpinnings with petroleum. The thickest and most worthless is the best. For hives, paint the standards or legs and let the alighting-boards be about two inches from the ground—a jump that the bees will make easily, but which will prevent the ants from entering. They will climb up weeds or any old thing to get in.

We are bothered by ants in the house pantry, getting into sugar and cake and pies. I take a square board and put four two-inch screws in the corners for legs, then paint the under side of the board and the screws. Jars and boxes may be set on the board, but they must be away from the wall so that the ants can't climb up and get in that way.

Corydon, Pa. GEO. WHITCOMB.

POULTRY-RAISING INDOORS AND OUTDOORS.

While writing up my experiments on my Florida island, I told you I had decided to visit some of the large poultry establishments. The first one I ran across on my trip was in the suburbs of Tampa, Florida. This is four miles out on a trolley line. As you near the place a large bulletin-board very tastily gotten up tells you this is "Stuart's Tampa Bay Poultry Farm." Right along the side of the car-track are specimens of their fine poultry, with nothing but poultry-netting to cut them off from the car-track. From the side of the hill that slopes down from the car-track to the bay are baby chicks by the hundreds if not thousands. The proprietors have evidently decided very much as I did, that the *mother-hen* is ahead of any brooder yet devised; therefore their chicks are nearly all in charge of a hen, each hen being allowed from 30 to 40 chickens. Unless given considerable room there are likely to be "differences" between the different mothers; and one mother-hen that was part game had already been guilty of killing chickens that belonged to some other hen; so we may have to go a little slow on the "fighting-mother" business.

The mothers with very small chicks are kept by themselves, and protected by wire-netting of only one-inch mesh. Any thing larger will let baby chicks get through, and they sometimes get stuck in the meshes, especially if you undertake to use the 1¼ or 1½ mesh.

This establishment has the nicest watering-arrangement I have ever seen. They have their own waterworks, and the water is carried everywhere in pipes. Well, these pipes are so arranged that water is constantly dropping slowly into a little cup elevated above the ground as much as possible and yet give the little chicks a chance to drink. Dropping water means pure water and clean drinking-utensils. It is exactly on the plan I told you about a year ago, of letting the water drop from my barrelful of rain-water into a clamshell.

In the beautiful climate about Tampa, little or no shelter is needed. In fact, I am not sure that every mother-hen has a shelter to get under during a severe rainstorm; and I know by experience that there is seldom any trouble with a hen and chickens in that region, even during a storm. Perhaps it would be safer, however, to have a hen and flock of chickens placed where they will be pretty sure to find shelter in case of a sudden and severe storm.

Well, while this establishment runs a dozen or more incubators they also make use of sitting hens for hatching eggs. Each hen with her nest of eggs is enclosed in a little yard containing water, feed, and a dusting-place, on the plan of the "natural-hen incubator" that I wrote about a while ago. This poultry-farm has twenty different varieties of fowls, all, of course, in that many different yards. At the Florida State fair last fall their stock won 80 prizes. They agreed with me that it was desirable to have every thing out of doors as much as possible, not only to keep the fowls healthy, but to get rid of every thing that can foster vermin and disease. They have settled down on dry mash for a feed, like most other large establishments of the present day, if I am correct. Their feeding-apparatus is so simple that I will describe it here. Get a shallow box at the grocery, of any convenient size, not over three or four inches deep. Fill the box half full or more with the dry mash; then, to prevent the hen from getting in and scratching it to the four winds, a piece of poultry-netting with a 1-inch mesh is dropped on top of the feed. For convenience in handling this piece of netting, a strip of wood is tacked across each end. The hens can reach down through and pick up the feed, but they can not scratch it.

To prevent their droppings from getting into the feed this box is pushed under a shelf or nest-box in the building. Of course, there is a space over the top of the box for hens to reach over. If used in the open air, a little roof is put over the box, of sufficient slope so the fowls can not sit on top of it. This roof is supported on legs or posts high enough for the hens to get their heads under.

As I was curious to know about the grains used for their dry mash, the superintendent kindly furnished me the following formula:

Mr. Root:—I promised you my dry-mash mixture, which is as follows: Wheat bran, 22 lbs.; wheat shorts, 17 lbs.; clover or alfalfa meal, 18 lbs.; feed meal, 17 lbs.; granulated milk, 20 lbs.; salt, ¼ lb.; blood meal, ¼ lb.; cotton-seed meal, 1 lb.; charcoal, 2 lbs.; fine bone, 2 lbs. Total, 100 lbs.

Tampa, Fla., Mar. 23. GEO. L. CLEMENS.*

Perhaps I might mention that, at different times in my life, I have been deterred from keeping poultry because the premises are generally sure to become untidy and foul-smelling; but it was one of my happy surprises to find that this great poultry establishment was so nicely managed that there was almost nothing offensive either to the eye or nostril anywhere on the premises.

* Mr. Clemens is also superintendent as well as secretary and treasurer of the Florida State Poultry Association.

When I arrived in New York I told the Cyphers people that I should like to visit some of the largest and most up-to-date establishments in that vicinity. I visited two of them. As they are managed so much alike, one description will suffice, perhaps—that of the one at Locust Valley, Long Island. Perhaps you might care to know that this is only four miles from Oyster Bay, the summer home of our esteemed President. Before I reached Locust Valley I saw the long rows of poultry-houses stretching far out in the distance. The establishment is called the Weir Poultry Farm. There are two houses, each 500 feet long, for laying hens; and there are now about 3500 laying hens there, mostly White Leghorns. They hatch each season from 25,000 to 30,000 chickens. From 40 to 50 hens occupy a room where they lay eggs for the market. There are breeding-pens, however, where the eggs are produced for the incubators, of only 10 or 15 hens to the male bird. There is no need of going through a 500-foot house, for each room is exactly like every other room.

The problem of taking care of the manure in this great establishment is accomplished very simply. The floors are all of cement. Under the roosts they spread a kind of peat moss that is much used in the vicinity of New York for horse-stables. This dry moss is a great absorbent. The hens scratch it over every day, and almost immediately in the morning after getting down from the roost. This mixes the manure with the dry peat so as to get rid of every thing that would be offensive to either sight or smell; and Mr. Weir informs me that, if the houses are cleaned once a month, the thing can be kept in good shape. This is a great saving in time over the shelf arrangement. The roosting-poles are movable, and, if I am correct, they are dipped in a trough of kerosene often enough to banish and keep out vermin. The nests are made of long boxes with loose top and bottom, so that every thing that goes to make up the nest can be quickly cleansed from vermin, the straw removed in an instant, and replaced with new and fresh material.

Now, I should be glad to report that these chicks hatched and brought up under the influence of artificial heat were as bright and happy as those raised in the Florida climate outdoors, or like mine that I suppose are *still* happy and bright down in the island, scratching and singing, and praising God every day. Perhaps I am drawing on my imagination a little in regard to the latter part of the statement; but I know those dear little chicks of mine—yes, young and old—feel thankful to *somebody* for their happy busy lives; and I think I am excusable for taking it for granted they are thanking their Creator and our Creator.

The eggs of those large establishments furnished for table use are sold to hotels in and about New York. The eggs are stamped with the date on which they are laid; and the extra prices they get for their fresh eggs are secured only by their reputation for strict honesty in the use of the rubber dating-stamp.

Now, these people who run establishments costing ever so many thousand dollars know their business better than I do; but I can not help believing that they would have brighter, handsomer, and healthier chicks if they tried *still harder* to give them more open air, and heat from the sun, instead of artificial heat, and air to breathe that is more or less confined. Of course, it would not do to let the March breezes blow right on to very young chicks; but I would let it in through curtains of cotton cloth or burlap, or something of the kind, and give them God's air and sunshine whenever it can be possibly managed. And while I am saying this in regard to the care of chickens, I feel every day more and more sure that the same thing is needed for human beings. I am continually impressed with the fact that we are more and more alike in our needs—especially in regard to the good we get by having plenty of outdoor air.

Now, instead of making my travels a record all of poultry, I want to digress a little. My son-in-law in New York, Mr. Boyden, said, as I was planning my visit to the poultry-farm, "Why, father, you are going right past Floral Park, where John Lewis Childs holds forth. You certainly want to stop and see him," and I did stop. First I visited the establishment of Miss Mary Martin, also of Floral Park. You may remember I mentioned her name about a year ago in connection with jadoo fiber. She is at the present time the only seed-dealer or florist I know of who imports this material for potting-soil and offers it for sale. Let me add right here that I could not succeed in growing greenhouse-plants in Florida to my satisfaction until I got a bag of jadoo fiber, adding ten per cent of it to my potting-soil. After doing this, every thing succeeded clear up to my highest expectations, even in Florida. While Miss Martin has not a large establishment, it is certainly a busy place. As my time was limited I did not go through the greenhouses very much. I said in parting, "Miss Martin, I had a particular object in view in making you even this brief visit. I am told there are a good many *women* florists in our land who are such only on paper." As I paused she finished the sentence for me.

"Mr. Root, you mean that *some* of them do not exist at all except in the catalog. Well, you are satisfied now, I suppose, that *I* do exist." I wonder if Miss Martin will excuse me if I say that, when I first met her, especially before she remembered A. I. Root, with whom she had had some pleasant correspondence a year ago, I did not take her to be particularly sociable in her disposition; but when she found out that an old friend, instead of some unknown stranger, was there, her face lighted up with a genial and pleasant smile that made me really sorry my visit would have to be so brief.

When I commenced going through John Lewis Childs' greenhouses I was impressed at once by the fact that every bit of his stock,

even that in the out-of-the-way corners, was first-class and in tiptop condition. As it was just before Easter, everybody was so busy they asked me if I would not just look around myself and go anywhere I wished.

After I had been through the rows of long greenhouses where they put up stock to fill orders, some one remarked that I must be sure to visit Mr. Childs' private greenhouses before I went away. As I came near one of them an elderly gentleman directed me where to go. I found a six or eight sided greenhouse with wings radiating out from it like the petals of a flower. The first one I looked into contained a bed of cinnerarias in pots. The blossoms were larger and more glittering in their wonderful beauty than any thing I had ever seen before. And then I remembered that Mr. Childs, in his new catalog, mentioned a new and superior strain of large or giant cinnerarias. There was no mistake about the catalog. This bed eclipsed any thing I had ever seen, by all odds. I went clear around and then came out and started in to the next similar greenhouse. I was all alone—nobody seemed near, and there was nothing to hinder my talking out loud or *praying* out loud. I lifted my cap from my head in token of the reverence I felt for the sight that met my eye. I said, "May God be praised that I have been permitted to live long enough to see the sight that now greets my eyes."

A lot of plants of what I took to be something with tropical ornamental foliage were scattered about in pots. From the descriptions I had seen in floral books, I supposed they were some high-priced things like orchids. While I was looking and thinking if it was not wicked, if I would gladly pay a lot of money for some of these wonderful creations, the elderly gentleman I have mentioned stood in the door. I said, "My good friend, will you please tell me the name of these wonderful plants with such gorgeous leaves?"

"Why, those are our new creations that have been recently developed from our ordinary caladiums."

"Caladiums!" I exclaimed. "Why, is it possible that these are caladiums? and are they hardy?"

"Hardy? Why, surely. Don't you see the ventilators are wide open? The temperature is between 60 and 70."

"But where did these come from? How long has Mr. Childs had them?

"Why, we have been developing along this line for two or three years past. Some of the finest have just been brought out. You are right about it. Nobody ever saw them until this season. Have you not seen Mr. Childs' description and his colored plates of them?"

Then he opened a catalog. You may be sure we soon became acquainted. My companion, Mr. Adolph Jaenicke, is the specialist who has the credit of giving these beautiful things to the world. I began asking the prices, and was rejoiced to know that I could have small plants of nearly all of them for 25 cents each. There were quite a few, however, that were new and rare, and somewhat difficult to propagate, that he said were not for sale—no, not even for $50 a plant, and it might have been $500—I do not remember. Let me digress a little.

At the recent great poultry show in New York they had a $1000 rooster; and when some people laughed about the price, the owner said he had already taken orders for cockerels, at $25 each, that would more than pay for the bird if he lived. Now, I am not well enough posted in poultry to say whether a bird could be worth $1000 or not; but I can readily understand how a man who has a monopoly of these wonderful foliage plants might pay $50 or even $500 for the control of the stock of something that will give the world such a treat.

Perhaps I had better try to describe some of these caladiums. One that took my attention first had a background of milky whiteness; but the veins formed a beautiful network or linework of jetty black. Then there were touches of gold and silver, and dazzling shades of green. I have sometimes explained to the children that it was God's own hand, or, if you choose, God's own *fingers* that painted the lilies. Well, this friend of mine—I have a right to call him a friend—has been for years feeling his way along, and seeing what he could do in making a new creation of ornamental-leaved caladiums. He explained that some of the plants in his charge blossom only in the night—some of them just about midnight, and the flowers stay open only a little while—a limited number of minutes. In order to secure the highly prized pollen he was obliged to sit up and watch the flowers unfold. He must handle the plant, not only just at such a time, but in just such a way, in order to encourage and develop these beautiful forms. I told him that he was a rival of Luther Burbank; and he seemed greatly pleased to find somebody who could appreciate and drink in beauty that he had, through God's providence, been able to unfold to the world. I suppose I am giving friend Childs a big free advertisement here; but I can not help it. It is only once in a while that I find something that gives me such a thrill as did this display. I did not see Mr. Childs at all—in fact, I have never seen him. Although I have written up the things he has sent out several times in years past he has never made me a present of five cents' worth of plants or seeds, and I am glad of it. If he had, I should not have felt like writing as I have in the above. By the way, I ordered about a dozen small caladium plants from such varieties as were for sale, and I will tell you more about them when I get them in my little greenhouse.

In Philadelphia I went over the great greenhouses of Robert Craig & Son. It took about an hour to walk through them. They were busy in putting up azaleas, Easter lilies, etc., for the coming Easter Sunday. The display of azaleas was beyond any thing I ever saw before. As I approached a group of men who were loading up the beautiful plants in

different kinds of vehicles for shipment I said, "Friends, I hope you are a happy lot of men—you ought to be."

I smiled as I said it. One of them asked why *they* should be particularly happy. I said, "Because it ought to make any man happy to have so much beauty all around on every hand, and I hope you appreciate it."

"Well, stranger, I believe we are, as a rule, tolerably happy, and thankful too; but Jim there is the happiest man in the lot, for he belongs to the Salvation Army."

"Yes," piped in another, "Jim does belong to the Salvation Army; but, although it is not very long since he joined, he is already a 'leftenant.'"

Then they began making jokes at poor Jim. One said, "Yes, they put him in 'leftenant' so he could handle the money; and I guess it is that part of it that makes him *particularly* happy."

Jim's face began to color up, notwithstanding he had recently joined the Salvation Army. His temper was aroused. I saw it, and began to feel anxious. I said, "Jim, I am very glad to know that there is at least one man who has united with the Salvation Army. I hope there are more of you, and that you will not be afraid to show your colors, even though they do try to run on you." But before I could stem the current poor Jim got mad, and swore at his tormentors. It made me think of poor Peter when the damsel said, "This man also was with him."

As my time was very limited—in fact, I had to catch a train where Mrs. Root was to meet me—I did not find out poor Jim's name; but I could only pray that the Holy Spirit would prompt him to stand up at the "barracks" in Philadelphia at the first opportunity, and confess to his comrades how he had been tempted and had fallen, and ask the dear Lord and Savior to forgive him for his want of courage to hold the fort at a critical time.

On page 1595 of last year I said I would try to visit the locality near Philadelphia where mushroom-growing was such a great success. Through the kindness of Mr. H. P. Fawcett, of Brandywine Summit, I spent an hour or two in looking over the mushroom-growers. The first one was where they were grown under the greenhouse-beds. The firm of Harvey & Sons makes a specialty of carnations, and they have some of the finest up-to-date glass and steel structures it has ever been my fortune to visit. A little incident of recent occurrence particularly interested me. Lord & Burnham, the celebrated greenhouse-builders, furnished them the material, drawings, specifications, etc., for a large up-to-date greenhouse. I have forgotten the dimensions, but it was an immense affair. Harvey & Sons decided they could put up the buildings themselves if Lord & Burnham would furnish the materials. They did so; but during one of the recent heavy snowstorms the weight of the snow broke the house down. The loss on the house and contents was something like $2000. As they put up the building themselves, they supposed the Lord & Burnham people would not consider themselves responsible. But it was one of their happy surprises when this great company looked the thing over and decided to *make good* the entire loss, because the engineer who had furnished specifications for material to be used had made an error. I mention this because I am glad to say a word for a worthy manufacturing firm.

The mushroom houses, or caves, that pleased me most were cheap wooden structures covering a mushroom-bed placed on the ground, not unlike beds in an ordinary vegetable-garden. The roof is made double, and filled with shavings to keep out the frost. A boiler and hot-water pipes keep the temperature at about 50 or 60 degrees. About 56, I think, is the most successful for mushroom-growing. A successful bed will begin to furnish a crop after about five or six weeks, and the mushrooms may be gathered every day for a period of three or even four months. Both the American and European spawn are now on the market; but the European spawn shows a better yield than any thing grown in America.

Many of the structures are ordinary rough buildings, two or three stories high, including a basement. The mushroom-beds resemble an ordinary wagon-box, only they are very much longer—in fact, as long as the building. These boxes, or beds, are placed one above the other, with walks between them. The overhead walks are simply planks laid between the beds to walk on. The one who does the work will, by stooping over, handle two tiers of beds from one plank. The walls are packed with sawdust or shavings to retain heat. The heat is maintained by means of boilers and hot water in the pipes before described.

Although there are few if any entire failures, the industry is still more or less uncertain. Some beds go away ahead in yield of other similar beds; and it is as yet a hard matter to tell just why one bed does so much better than another one. Experts in the business, or perhaps I might say those who seem to have good luck, especially when prices are good, have several times sold enough mushrooms the first year to pay for the building and all the expense of the plant. Now, do not get the idea into your head, because of this statement, that *you* can get rich by growing mushrooms. May be you can, and may be you can not. From the fact that there are more mushrooms grown around the vicinity of Brandywine Summit—more, perhaps, than anywhere else in the United States—I am inclined to think the soil or climate, or something else, is particularly favorable for the industry in that locality. The prices received for the crop are all the way from 30 cents to $1.00 a pound. I have never learned that the price has gone lower than 30 cents, and several times it has gone as high as $1.25. At present, growers are getting from 35 to 40 cents. The greatest expense for material is for stable manure brought from the livery-barns in Philadelphia.

It is shipped out by the carload, and hauled to the farms where it is used. I confess I can not see any reason why the mushroom houses or caves can not be located near a railroad station to save transportation of the manure. The soil needed to grow the mushrooms that is placed over the manure is taken from the surface of the farming land near by. Any soil that will grow good crops of corn and potatoes seems to answer for mushrooms; and, if I am correct, a well-rotted clover sod answers about the best of any thing.

THE STARVING PEOPLE IN CHINA AND TURKEY.

In our issue for March 15, by an accident the closing paragraph of my Home talk was omitted. It read:

"President Roosevelt has given $100 to the starving Chinese. How many in our United States of America are there who can do as well? The A. I. Root Co. has given $50.00. Why do not Rockefeller and Carnegie do something for the starving people? Does not that part of our text, 'Are ye not much better than they?' include the Chinese? Address all contributions to The China Famine Relief Fund under the direction of The Christian Herald, 402 to 409 Bible House, New York."

Since that time great sums of money have been forwarded in the care of careful missionaries; but we are told that the distress is still just as great as and perhaps even greater than before. Dear friends, if you wish to lay up for yourselves "treasures in heaven," I do not know of any better way. Please consider that, in a very brief time, we must *all* give up and lay down the wealth we have accumulated. Is there any better investment open to humanity than to relieve the starving? Few of us here in this land of ours have ever had even a taste or a touch of the pangs of hunger. Is it not high time, dear friends, that, with the great abundance there is all around most of us, there should not be a spot on the face of the earth where people can be found dying of starvation—especially innocent and helpless women and children? If you read the papers that are right before you, you can have an opportunity of knowing something about the terrible things that are constantly going on in these foreign climes, and through no fault of the people themselves who are the greatest sufferers. May God help us to be ready to give or deny ourselves, and that, too, with alacrity, that which we do not need, and that which we can not take with us when our mission in this world is finished.

Almost immediately after the above was dictated the following was put in my hands with the request that we give it a place in our first issue:

HOMELESS IN TWENTY-FIVE FEET OF SNOW.

An earthquake has left homeless the people and missionaries of Bitlis, Turkey. The poor people had not recovered from the massacre, and now, oppressed by the Turk, laden with unjust taxation, suffering famine through prices four times higher than usual, they are encamped in twenty-five feet of snow which will not melt before summer gives a chilly welcome to the poor. Immediate assistance is urgently requested by cable from Mr. W. W. Peet, of Constantinople, the treasurer of the American Mission. Those who have known of the heroic missionary and relief work of Rev. and Mrs. R. M. Cole, Miss Nellie Cole, and the Misses Charlotte and Mary Ely, will need no urging to lend a helping hand. Mr. Cole, a partial invalid from a fall received last year while on a tour to succor refugees in the Moush region, has bravely remained at his post waiting for reinforcements before leaving for America.

The Misses Ely, graduates of Mt. Holyoke, have built up a Mt. Holyoke in Bitlis amid the mountains of Kurdistan, often touring in the winter on snow-sleds among the villages where their pupils are working as teachers, Bible-readers, and pastors' wives. With their buildings and industries destroyed, what shall these missionaries do with the pupils and orphans whom they have sheltered and trained? How shall they aid the refugees crowding upon them for succor? Funds may be sent to Messrs. Brown Brothers & Co., 59 Wall St., New York, treasurers of the National Armenia and India Relief Association, and will be cabled.

In behalf of the suffering,

MISS EMILY C. WHEELER, Sec.

765 Main St., Worcester, Mass., April 4, 1907.

Permit me to add that we are well acquainted with the Brown Brothers mentioned in the above. They have for years past been forwarding sums to starving people in foreign lands by cable, and they are absolutely trustworthy in every respect.

BASSWOOD SEEDS—GETTING THEM TO GERMINATE.

In spite of all the suggestions we have been having in regard to this matter, there still seems to be much difficulty. Several times I thought I had succeeded; but before I got the trees to growing nicely in nursery rows I had troubles of different kinds. At the present writing, my plan is to take up the seedlings that come up under the trees of their own accord, and plant them in very rich soil, using dirt that is made rich with old well-rotted manure. Under favorable circumstances we get trees three feet high the first season—that is, where the seeds come up in very rich ground and grow right along. Our old friend E. E. Hasty gives us some valuable suggestions as follows:

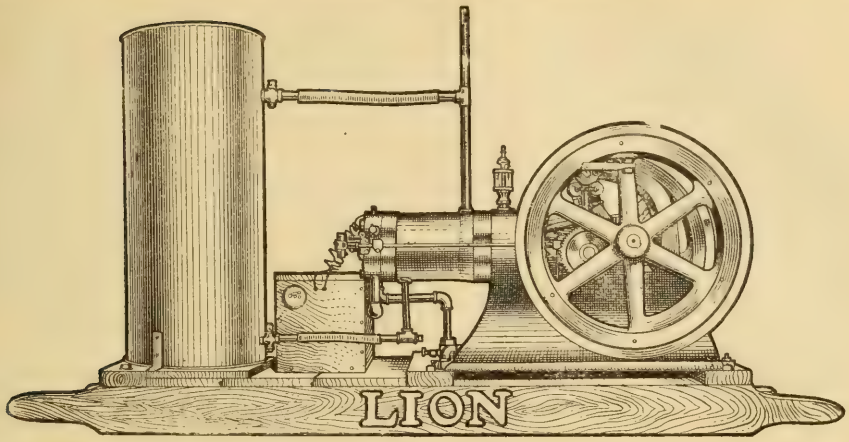
Friend A. I. Root:—I note in a recent GLEANINGS that you are trying to make basswood seeds come up. The government folks don't seem to be any too well posted themselves, though what they tell you is excellent so far as it goes.

The trouble seems to be that basswood appears deliberately to set about having its seeds come up the *second* year—at least a part of them. In the forest it would likely be an advantage to the species to have part of the seeds come up the first year and part the second. But when man undertakes to plant them (in his usual way) they *all* hold back. Then what with the weeds, and what with pulling the weeds, and what with careless hoeing, and what with the burrowing mice, the seeds all disappear—else perish altogether. I contrived a kink to get on nature's blind side, and it worked with me. *Plant the seeds before they are ripe.* Fully ripened seeds are ash gray in color, and, earlier, they are a lively green. Watch out right sharp. Let the contents of the seed get pretty well formed, but pick it off and plant it quite a bit before it begins to turn gray. It wouldn't be a bad plan to make two plantings a week apart.

I got about 40 per cent to come the first year by this method. Allowed to get fully ripe, seeds from the same tree, treated in the same way (except as above) none of them came—in fact, none of them ever came. I drenched the soil on planting, but did not shade the ground. No doubt partial shade would be a very great help, and additional waterings also.

E. E. HASTY.

Station B, Rural, Toledo, Ohio, Jan. 12



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The Lion Engine

It is **not** an experiment but an engine that has **made good** wherever used. On the farm it proves especially valuable for operating feed grinders, wood saws, cream separators, corn shellers, pump, etc. It furnishes ideal power for operating machinery used in mills, shops, printing offices, private electric-light plants and water-works. Speed can be changed from 100 to 600 revolutions per minute while engine is running—a very desirable feature.

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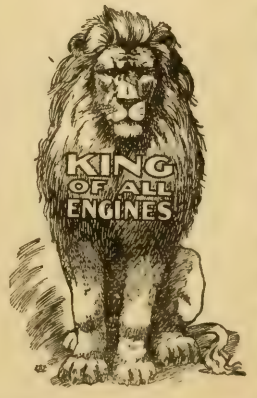

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Successors to Lyons Engine Co.
Belding, Mich.

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St. Louis, Mo.

I Guarantee Freight Charges

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Before my plan was invented paint was sold in two ways — either ready-mixed or the ingredients were bought and mixed by the painter. Ready-mixed paint settles on the shelves, forming a sediment at the bottom of the can. The chemical action in ready-mixed paint, when standing in oil, eats the life out of the oil. The *oil* is the very life of all paints.

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My paint is *unlike* any other paint in the world. It is ready to use, but not ready-mixed.

My paint is made to order after each order is received, packed in hermetically sealed cans with the very day it is made stamped on each can by my factory inspector.

My $100.00 Cash Guarantee

I guarantee, under $100 Cash Forfeit, that the paint I am offering you does not contain water, benzine, whiting, or barytes—and that my Oilo is pure, old-fashioned linseed oil and contains absolutely no foreign substance whatever.

Two full gallons free to try—6 mos. time to pay

NOTE
My Eight-year Guarantee backed by $50,000 Bond

I ship my thick pigment, which is double strength, freshly ground, in separate cans, and in another can, I ship the pure, old process Linseed Oil—the kind you used to buy years ago. Any child can stir them together.

I sell my paint direct from my factory to user—pay no dealer or middleman profits.

I guarantee freight on six gallons or over.

My paint is so good that I make this wonderfully fair test offer:

When you receive your shipment of paint, you can use *two full gallons*—that will cover 600 square feet of wall—two coats.

If, after you have used that much of my paint, you are not perfectly satisfied with it in every detail, *you can return* the remainder of your order and the two gallons will not cost you one *penny*.

No other paint manufacturer ever made such a liberal offer.

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I go even further. I sell all of my paint on *six months' time*, if desired.

This gives you an opportunity to paint your buildings when they need it, and pay for the paint at your convenience.

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O. L. CHASE, The Paint Man : Dept. 24, St. Louis, Missouri

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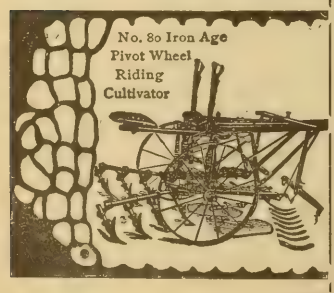

THE great adjustability of these light strong tools makes them valuable to all farmers from the corn-grower to the market gardener.

Adapted for cultivating a large variety of crops—in any kind of soil, and quickly adjusted for rows of different width, without reducing the number of teeth. Parallel movement of gangs is a valuable feature—teeth always face forward and don't turn soil to or from the crop unless desired. Pivot wheels make these tools easy to guide, adapt them for use on hillsides and for crooked rows, and make them easy to turn in smallest possible space.

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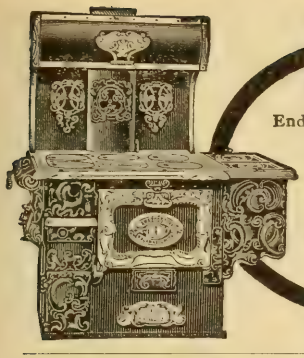

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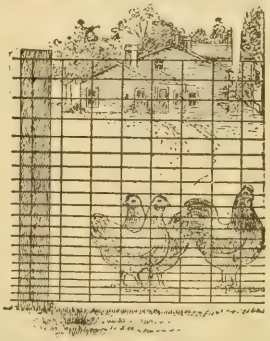
LET US SHOW YOU HOW WE CAN SAVE YOU
40 TO 70 PER CENT ON YOUR POULTRY FENCES

Suppose a rod of four-foot netting costs you 40c. Two posts at 15c each will cost 30c. A 2x4 railing at the top, and a 1x6 board at the bottom will cost you at least 35c per rod, or a total cost of $1.05 per rod.

SQUARE DEAL POULTRY FENCE will cost you about 50c per rod delivered at your place (depends somewhat how far you are located from factory). One post per rod is plenty with our fence because it can be stretched and won't sag. Railings are absolutely unnecessary. At 15c per post that would make the whole business cost 65c per rod as compared with $1.05 for flimsy netting.

That means a saving of about 40 PER CENT in first cost. Now, if you further consider that our Square Deal Poultry Fence will last about four times as long, you will realize the astounding fact that 70 PER CENT of your fence expense can be saved by using our new heavy weight, long lived, close spaced Square Deal Poultry Fence. These are facts and figures which cannot be disputed.



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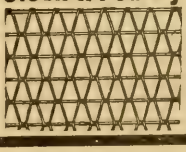

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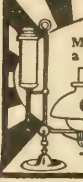

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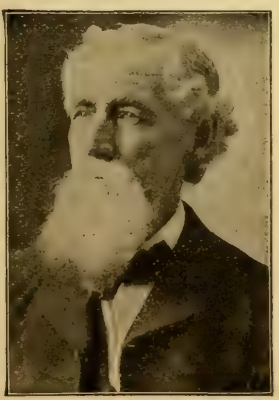

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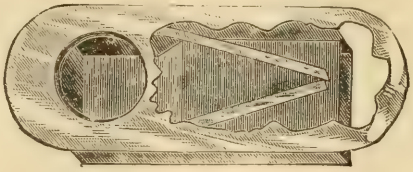

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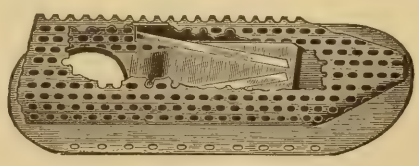

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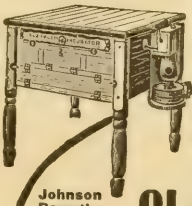

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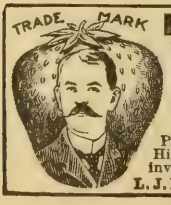

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FOR SALE.—Best Wisconsin sections, per 1000, $4.00; No. 2, $3.40; plain, 25 cts. less. Discounts on Danz. hives and other Root's goods; also berry-boxes. Italian bees for sale. H. S. DUBY, St. Anne, Ill.

FOR SALE.—A quantity of second-hand chaff hives, consisting of 10-frame Quinbys and 13-frame Gallups; no inside furniture; only $1.00 each.
E. D. TOWNSEND, Remus, Mich.

FOR SALE.—100-acre farm, house and barn, some fruit, situated about four miles from Delanson, N. Y. Price $2000. Terms: $500 cash and balance to suit the purchaser, or would rent to a desirable tenant.
F. C. SAUTER, 391 6th St., Brooklyn, N. Y.

FOR SALE.—One-piece sections, of all the standard sizes, 1000, $4.00; No. 2, $3.50; plain, 25 cts. less. These sections are strictly first-class. Also other supplies very cheap. JAS. E. MORGAN,
Dansville, Ingham Co., Mich.

FOR SALE.—One German wax-press, good as new, one steam wax-extractor, one single-comb honey-extractor, one uncapping-can and knife, ten 8-frame Dovetailed hives, complete for comb or extracted honey; one smoker, and about all the tools for the bee business; starter machines, etc. For particulars, write. I offer these articles one-fourth less than cost, and all are of Root's manufacture; *all in good condition.*
JAMES P. HALL, Wyanet, Bureau Co., Illinois.

FOR SALE.—The following foundation-mills. Wish to dispose of them at once. Write for sample if interested, and fuller information will be given about any mill.

Mill No. 1—14-in., old-style high frame, in perfect order, price $15.00.

Mill No. 2—6-in., old-style high frame; has had a pin run through the rolls, otherwise is in good order; price $8.00.

Mill No. 3—12-in. new style, large rolls, used but very little, in perfect order: price $25.00.

Mill No. 4—12-in. blank rolls, used but little, in perfect order; price $20.00.

Mill No. 5—6-in. mill, new style, in perfect order, used but little; price $12.00.
W. W. BLISS, Duarte, Cal.

Bees and Queens.

FOR SALE.—70 colonies Italian bees and supplies.
OTTO SUELTENFUSS, San Antonio, Texas.

FOR SALE at a bargain—fifty colonies of bees. Address D. B. MAHAN, Mechanicsburg, Ohio.

FOR SALE.—200 colonies Italian bees in good condition; Dov'd hives. W. F. STUART, Ottawa, Kan.

FOR SALE.—400 colonies pure Italian bees in lots to suit. Write for prices. F. A. GRAY,
Redwood Falls, Minn.

FOR SALE.—Italian queens, hustlers. Untested, 65 cts.; tested, $1.00. Select tested, $2.00. Breeders, $3.00 each. MRS. J. W. BACON, Waterloo, N. Y.

FOR SALE.—Ten hives good bees in nearly new Danzenbaker and Langstroth hives at $4.00 each.
G. A. WATT, Bellevue, Ohio.

FOR SALE.—Bees, queens, and bee-keepers' supplies (Root's goods), at factory prices.
F. W. VAN DEMARK, Mehan, Okla.

FOR SALE.—Direct imported Italian queens and Chicago 1st prize red Belgian hares. For particulars write A. ZIEGLER, Bippus, Ind.

FOR SALE.—Five stocks of Italian bees in 8-frame portico hives, at $5.00 per stock; or for $4.00 in shipping-cases. C. G. FENN, Washington, Conn.

FOR SALE.—Thirty colonies Italian bees in shipping-boxes, on seven L. or H. frames, in good condition, at $3.50 per colony. WM. AMELANG, Ottumwa, Iowa.

FOR SALE.—Untested golden Italian queens. Good queens. Safe arrival guaranteed. One, 50 cts.; three, $1.25; five, $2.00. D.T.GASTER, Rt. 2, Randleman, N.C.

FOR SALE.—120 colonies of bees in splendid condition; 9-frame Langstroth extracting-hives; excellent range. No disease. Address
Y K, 843-4 Fourth St., San Diego, Calif.

FOR SALE.—Three and five banded untested queens, $1.00; tested, $1.25. Prompt delivery and satisfaction guaranteed. Write for special prices on large quantities. C. B. BANKSTON & CO.,
717 Marshall St., San Antonio, Texas.

FOR SALE.—Mechanic Falls, Me., branch of The A. I. Root Co. will ship full colonies, nuclei, and queens of same grade direct from Mechanic Falls, Me., at regular catalog prices. Safe arrival and satisfaction guaranteed.

FOR SALE.—12 strong colonies of bees in 8-frame Dovetailed hives; also 20 or more empty 2-story hives, 20 shallow extracting-supers, Novice extractor, 10 zinc honey-boards, knife, and smoker; all in good condition and all for $75.00. Bees sold separately if desired.
R. Q. TURNER, box 81, Woodstock, O.

FOR SALE.—Three-frame nuclei with untested queen in the ten-frame hive; new, and painted white; Hoffman frames; starters in other seven frames. Price $5.00 per hive. Orders delivered in rotation after May 15. Untested queens, 75c each.
F. N. CHAMBERLAIN, Pattersonville, N. Y.

Poultry Offers.

FOR SALE.—15 choice R. C. Br. Leg. eggs, 75c; sample feathers free. H. TIEDEMANN, Hammond, Ind.

FOR SALE.—White Wyandottes; 15 eggs, 75 cts.; 30 eggs, $1.25. J. F. MICHAEL, Winchester, Ind.

FOR SALE.—S. C. W. Leghorns; heavy laying strain; eggs, $1.00 per 15. F. BURDETT, Clifton, N. Y.

FOR SALE.—Thoroughbred Toulouse goose eggs; $3 for 15. M. L. CALDWELL, Otsego, Mich.

FOR SALE.—Barred Plymouth Rock eggs; 75 cts. per setting of 15. HARVEY J. AVERY, Katonah, N. Y.

FOR SALE.—R. C. Brown Leghorn eggs and cockerels; or will exchange for bees. C.H.CLARK, Cobalt,Ct.

FOR SALE.—White Wyandottes exclusively (Duston strain), $1.50 per 15.
HARRY C. DRIVER, Rt. 1, Beech Creek, Pa.

FOR SALE.—Mammoth Imperial Pekin duck eggs. Will supply customers strictly fresh eggs, $1.00 per 13.
JOHN W. OLSON, Rt. 1, Box 50, Stratford, Ia.

FOR SALE.—Eggs for hatching. W. P. Rocks, 75c per 13; $1.25 per 26; $2.00 per 45; $4.00 per 100. White guinea, $1.00 per 15. Duck eggs all sold.
F. E. SCHRIVER, Rt. 3, Grafton, O.

FOR SALE.—R. C. Brown Leghorn eggs, 18 for $1.00; 50, $2.50; 100, $4.00. White Holland turkey eggs, $3.00 for 12. ELLA THARP, Box 6, Mt. Sterling, Ia.

FOR SALE.—Extra-fine rose-comb Rhode-Island Reds exclusively. Eggs, $2.00 per 15; $5.00 per 50.
MRS. R. J. DEEBLE, Lucas, Kansas.

FOR SALE.—S. C. W. Leghorns of the best strain, bred for purity and profit.
BORDNER POULTRY FARM, Prairie Depot, O.

FOR SALE.— Single-comb Buff Leghorn eggs, Arnold strain, 1906 egg record, 177½ eggs per hen; per setting of 15 eggs, $1.50. FRANK RAUCHFUSS,
1440 Market St., Denver, Col.

FOR SALE.—Eggs for hatching from my celebrated strain of S. C. Brown Leghorns; line bred for winter layers; greatest layers on record; farm range; fertility guaranteed; $1.00 per 15. Incubator eggs at reduced prices. Prompt shipment.
J. E. HAND, Rt. 1, Birmingham, Ohio.

Wants and Exchange.

WANTED.—Simplicity hives. For Sale.—S. C. W. Leghorn stock and eggs. PETRIE, Plessis, N. Y.

WANTED.—Feathers. What have you to sell? Mail samples. BANGOR MATTRESS CO., Bangor, Me.

WANTED.—25 queens, Italian or hybrids; daughter of pure Italian queen; April or May delivery.
CHAS. E. FRIEND, Clarksville, Va.

WANTED.—To sell drawn combs (extracting combs) standard size, from healthy bees. Going out of business. Write for prices.
D, S. JENKINS, Las Animas, Colo.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—Every reader of GLEANINGS to write for our price list. Two per cent discount April cash orders. Other concessions.
PUTNAM & PEAKE, River Falls, Wis.

WANTED.—To exchange strawberry, blackberry, and raspberry plants of leading varieties for queens and bee-supplies. JOHN D. ANTRIM, Burlington, N. J., R. F. D. No. 1, box 55.

WANTED.—Western bee-keepers, notice! Two carloads of Root's bee-supplies. Write us for prices, stating goods wanted. Would also like to quote distant bee-keepers delivered prices.
SUPERIOR HONEY CO., Ogden, Utah.

WANTED.—Every Western bee-keeper to send for our new illustrated catalog. We can save you money Write to-day.
THE COLORADO HONEY-PRODUCERS' ASS'N,
Denver, Colorado.

Honey and Wax Wanted.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.
R. A. BURNETT, 199 S. Water St., Chicago, Ill.

WANTED.—Beeswax, any quantity; will make remittance the day wax arrives.
THE COLORADO HONEY-PRODUCERS' ASS'N.,
Denver, Colorado.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

Honey and Wax For Sale.

FOR SALE.—20 (60 lb.) cans white ripe clover honey. Case $10, can $5.40 (samples). MOREY, LaGrange, Ill.

FOR SALE.—Fancy water-white sage honey, 60-lb. cans, at 8c per lb.
E. R. PAHL & CO., Milwaukee, Wis.

FOR SALE.—A quantity of fancy buckwheat comb honey in 4¼ sections, 24-section no-drip shipping-case.
E. D. TOWNSEND, Remus, Mich.

FOR SALE.—800 pounds of pure beeswax for sale. Refuse from wax-extractors wanted. Will pay cash.
W. L. COGGSHALL, Groton, N. Y.

Bee-keepers' Directory.

ITALIAN queens bred for honey, untested, $1.00 each.
GEO. H. PLACE, 816 No. 49th St., Omaha, Neb.

ITALIANS, CARNIOLANS. No disease. Two-comb nucleus with queen, $3.00. A. L. AMOS, Comstock, Neb.

Extra honey queens and choice mountain honey. Francis J. Colahan, Bernardo, San Diego Co., Cal.

QUEENS.—Pure Gold, Red-clover, Caucasian, Banat. ROSE LAWN APIARIES, College View, Lincoln, Neb.

ITALIAN QUEENS.—Golden and leather, 60c each; worth $1.00. G. W. BARNES, Box 340, Norwalk, O.

Bee-keepers' supplies, Italian queens. Send for a free catalog. ARTHUR RATTRAY, Almont, Mich.

ITALIAN BEES and queens—Red-clover strain imp'd mothers. A. W. YATES, 3 Chapman St., Hartford, Ct.

ITALIAN BEES, queens, and Root's bee supplies.
E. SCOGGIN, Carlsbad, N. M.

I club a high-grade Italian queen with GLEANINGS, new or renewal. W. T. CRAWFORD, Hineston, La.

WANTED.—500 colonies of bees in Texas, Arizona, or California. N. E. MILLER, Box 373, Logan, Utah.

ITALIAN BEES and queens—red-clover and golden strains. E. A. SIMMONS. Greenville, Ala.

ITALIAN bees and queens bred for honey; price list free. B. F. YANCEY & SON, Angleton, Tex.

FINEST Golden and red-clover queens, Caucasian and Carniolan. DANIEL WURTH & GRANT, Pitkin, Ark.

ITALIAN AND CAUCASIAN bees and queens of best quality; price list free. A. E. TITOFF, Ioamosa, Cal.

MAPLEWOOD APIARY.—Choice comb honey, Italian bees and queens. GEO.H. REA, Reynoldsville, Pa. R. 2.

ROOT'S SUPPLIES at factory prices; wholesale and retail. ANTON G. ANDERSON, Holden, Mo.

ITALIAN BEES, queens, and bee supplies.
H. H. JEPSON, 182 Friend St., Boston, Mass.

ITALIAN BEES, queens, nuclei, and bee-keepers' supplies. A. T. DOCKHAM, Rt.1,Box 95, Eagle Bend,Minn.

ITALIAN BEES, queens, beeswax, honey, and bee-keepers' supplies. M. E. TRIBBLE, Marshall, Mo.

FOR SALE.—Bee-keepers' supplies. Write for catalog. Lengst & Koenig, 127 S. 13th St., Saginaw, Mich.

FOR SALE.—Golden and red-clover Italian queens. WM. A. SHUFF, 4426 Osage Ave., Philadelphia, Pa.

ITALIAN BEES and queens—red-clover and golden strains. E. E. MOTT, Glenwood, Cass Co., Mich.

SWARTHMORE Golden-all-over, Caucasian, Banat, Carniolan,Cyprian queens.E.L.Pratt,Swarthmore,Pa.

QUEENS. Free list giving safe method of introducing, ready Feb. 15. E. E. LAWRENCE, Doniphan, Mo.

ITALIAN BEES, queens, honey, and ROOT'S bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

FOR SALE.—Root's bee-supplies, wholesale and retail; factory prices; catalog free. Beeswax wanted.
W. E. TRIBBETT, Staunton, Va.

KODAK and Camera users, send us your developing and finishing. Send for price list. A full line of kodaks, films, and all photo supplies.
FURNAS & MADDOX, 552 A, Louisville, Ky.

Improved Carniolans always winter best, breed up strongest early in the spring; the finest comb-honey builders. (Italians for those preferring them.) Catalog free. W. W. CRIM, Pekin, Ind.

GOLDEN-ALL-OVER Caucasian Banat bees and queens. We book orders for early queens from our best imported breeding stock for honey, with 600 twin mating-boxes. THE SNYDER APIARIES, Lebanon, Pa.

QUEENS.—Improved Red-clover Italians bred for business; June 1 to Nov. 15, untested queens, 60c; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

IMPROVED ITALIAN QUEENS now ready; nuclei and colonies about May 10, Danzenbaker or L. frames; 20 years a queen-breeder; 500 colonies to draw from. Circular and testimonials free.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

BOOKS ON POULTRY CULTURE.

POULTRY HOUSES AND FIXTURES. Shows plans of low-cost, practical and labor-saving houses, designs for inside fixtures, roosting-coops and coops for young chicks, and all necessary appliances for the poultry-yard; 96 pages, 9x12 inches, illustrated. Price 50 cts.

ARTIFICIAL INCUBATING AND BROODING. Solves all problems of artificial incubating and brooding. Tells how to obtain strong-germed, fertile eggs, etc. Results gained from practical experience; 96 pages, 9x12 in., illustrated. Price 50 cts.

EGGS AND EGG-FARMS is made up of articles of experienced breeders, giving methods of housing, breeding, rearing, and feeding to increase egg production. Contains chapters on pedigree breeding; 98 pages, illustrated. Price 50 cts.

THE PLYMOUTH ROCKS. Barred, buff, and white. Gives rules for mating followed by the most successful Plymouth Rock breeders, with a chapter and chart on line breeding. Contains color-plate of each variety; 110 pages, 9x12 inches, illustrated. Price 50 cts.

THE LEGHORNS. The best illustrated standard of all varieties of the popular Leghorns. Mating schemes clearly described. Color-plate of S. C. W. Leghorns; 78 pages, 9x12 in., illstd. Price 50 cts.

ASIATICS. A work on Brahmas, Cochins, and Langshans Contains "inside" information necessary to success, with standard and ideal charts for all varieties. Color-plates of Buff and Partridge Cochins; 100 pages, 9x12 inches, illustrated. Price 50 cts.

DUCKS AND GEESE. Gives all details of hatching, rearing, fattening, and marketing. Describes labor-saving methods; 68 pages, 9x12 inches, illustrated. Price 50 cts.

TURKEYS. Every detail of the turkey business explained fully and clearly. Written by the world's foremost turkey-growers. Contains color-plate of ideal Bronze turkeys; 84 pages, 7x12 inches, illustrated. Price 50 cts.

THE BANTAM FOWL. Mr. T. F. McGrew,judge and breeder, tells how to house, feed, and grow bantams, how to treat their diseases, etc ; 72 pages, 9x12 inches. illustrated. Price 50 cts.

RELIABLE POULTRY REMEDIES. Points out the causes, describes symptoms, and gives simple and tested remedies for all diseases; 6x9 inches, 84 pages. Price 25 cts.

THE A. I. ROOT CO., MEDINA, OHIO.

Convention Notices.

A meeting of the Middlesex Bee-keepers' Association will be held at city hall, London, Ont., May 4, morning and afternoon sessions.

E. T. BAINARD, Sec.

The Minnesota Bee-keepers' Association's spring meeting will be held on Saturday, April 20, 1907, at the old State Capitol, St. Paul, Minn. The afternoon session will commence at 1 o'clock, and the evening session at 6. Free refreshments will be served from 5 to 6 by the lady members of the Association.

A leading feature of the afternoon session will be a practical demonstration of the modern method of queen-rearing by Mr. Chas. Mondeng; and at the evening session, of the simplest way to cure foul brood.

Papers will also be given on spring management, by Wm. McEwen; production of comb honey, by Chas. Blomquist; shipping bees and honey, by Mr. Gent, of Rockford, Minn.; bee-keeping in connection with farming, by Pres. H. V. Poore; bee-keeping for the beginner, by W. R. Ansell; paper, by Mrs. E. E. Merrill.

Questions on bee-keeping by any one interested will be fully discussed and answered.

Lay every thing aside and attend this meeting; you will never regret it. We want every one to come, whether a member or not. Brother and sister bee-keepers are all cordially invited.

CHAS. MONDENG, Secretary.

THICK-TOP STAPLE-SPACED FRAMES.

We have at Philadelphia an overstock of thick-top staple-spaced frames with ends not pierced with wire, which we offer at $10.00 per case of 500; smaller lots at $2.25 per 100. If you can use any of these this is a bargain while they last. Send your orders direct to The A. I. Root Co., No. 10 Vine St., Philadelphia, Pa.

SLOTTED SECTION-HOLDERS.

We have at Chicago several hundred slotted section-holders, nailed, which have been used and taken back in exchange for other style of fixtures. These new cost $2.00 per 100 in the flat. We offer these nailed, ready for use, packed for shipment at $1.25 per hundred, while they last. While they are somewhat stained with propolis from use they are a bargain at this price to any one needing this style of section-holders.

FRAMES, ETC., AT OGDEN, UTAH.

We have in stock at Ogden, Utah, to dispose of, 300 thick-top staple-spaced frames at $2.50 per 100; 300 all-wood frames at $2.00 per 100; 2 No. 4 Novice extractors, at $8.50 each; 1 bee-tent at $1.75; 250 folding cartons for 4¼×1⅞ sections, $1.25; 1000 cartons, wrappers, labels, etc., for brick honey, at $10.00. These goods are offered free on board at Ogden at catalog prices as above, less 10 per cent discount for cash order before May 1 to close out the stock quick.

WIRE POULTRY-NETTING.

We have in stock here at Medina some narrow poultry-netting which we will close out at less than cost as follows:

Seven rolls, 12 inches wide, 2-in. mesh, No. 19 wire, at 60 cts. per roll.

Five rolls, 18 inches wide, 2-in. mesh, No. 19 wire, at 90 cts. per roll.

Six rolls, 18 inches wide, 3-in. mesh, No. 18 wire, at 90 cts. per roll.

Five rolls, 24 inches wide, 3-in. mesh, No. 18 wire, at $1.20 per roll.

Eight rolls, 30 inches wide, 2 and 3 inch mesh, $1.50 per roll.

In ordering, send a second choice in case what you order may be taken already.

BUSINESS OUTLOOK.

Prospects are bright in many localities, and trade is very brisk, judging from the orders received and the urgency for shipment. Our branches and agencies are pretty well supplied, but are crowding us for further shipments to such an extent that we are obliged to disappoint some in time of shipment. We can not get off more than five or six cars a week; and when from twelve to fifteen are wanted in a hurry, some have to wait. We advise all to anticipate their wants as far ahead as possible, because many things conspire to delay shipments. We never before experienced such difficulty in securing cars to load as we have this year.

Special Notices by A. I. Root.

WANTED—SEED OF THE CALIFORNIA MOUNTAIN SAGE.

If any of our California friends have any seed of this sage in stock, the kind that produces sage honey, we shall be glad to have them send us samples with prices. Or if they will undertake to gather seed for us the coming season, please let us know.

MUSHROOM CELLARS AND BUILDINGS.

I omitted saying on page 573 that mushrooms are always grown in darkness or semi-darkness. Where grown underneath the beds in a greenhouse, a curtain of cotton cloth or burlap cuts off the light, and at the same time gives access by pushing it aside when working with the beds. I think, however, the best yields are in specially constructed cellars or buildings made perfectly dark.

BASSWOOD-TREES FOR SPRING PLANTING.

Now is the very best time in the year to plant basswoods. We have at present only one size—1 to 5 feet tall. We are prepared to fill all orders as follows: One tree, 10 cents; 10, 75 cents; 100, $5 00. These are too large to be mailed, but we can pick out the smallest ones to be sent in that way. Ten trees, 40 cts. postpaid. The basswood is a very hardy tree; and where they are put out with reasonable care, either in the fall or spring, not one in ten should fail to grow.

CONTRIBUTIONS FOR THE CHINA RELIEF FUND.

Just after the matter on page 574 was in type I thought fit to clip the following from the *Home Herald*, formerly the *Ram's Horn:*

DEPARTMENT OF STATE,
WASHINGTON, Feb. 1, 1907.

Dear Dr. Klopsch:

The President has asked me to say to you that he is much interested in your work to raise funds for the sufferers by the dreadful famine in China. He hopes that you will meet with the same success that you have had in similar appeals to the humanity and liberality of our people.

As a contribution to the fund he has handed me his check for $100, which I inclose, together with a similar check of my own. With best wishes I am

Very sincerely yours, ELIHU ROOT.

Dr. Louis Klopsch, *The Christian Herald*, New York.

HELP OR THEY PERISH.

We urge upon every reader to join this life-saving crew, and to throw out to these starving people the life-line before it is too late. Pray that God's people everywhere may realize the importance and urgency of the case, and may willingly and cheerfully give, even as God has prospered them.

Young People's Societies, Epworth Leagues, Christian Endeavorers, work earnestly, for the night of death threatens to enshroud a continent. You can give the clouds a silver lining, and you will do it. This is the King's business. It requires haste. Every day's delay may prove fatal. Let us, then, be up and doing. He that sitteth in the heavens watches. His eye is upon us. What we do, let us do it as unto him, and he that seeth in secret and rewardeth openly will bless us with an everlasting blessing.

THE DAUGHTERS OF THE KING.

There are in every community godly women, sympathetic and kind—consecrated women who long to do good, as they have opportunity, and to aid the poor, the suffering, and the distressed. We look confidently to them for aid at this time. They can work, they can speak, they can plead, pray, and give. May God call them to this mission, and graciously prosper the work of their hearts and their hands.

LOFTIS SYSTEM **Diamonds** on credit

YOU CAN EASILY OWN A DIAMOND OR WATCH, or present one as a gift to some loved one. Whatever you select from our beautiful catalog, we send on approval. Pay one-fifth on delivery, balance in 8 equal monthly payments. Your credit is good. As a pure investment nothing is safer than a Diamond. 20% annual increase in value. Written guarantee of quality and value. Catalogue free. Write for it today. *Do it now.*

LOFTIS BROS. & CO. Dept. D637 THE OLD RELIABLE ORIGINAL DIAMOND AND WATCH CREDIT HOUSE, 92 to 98 State St., Chicago, Ill.

BUGGY BOOK FREE

I Want to Send You One FREE!

Write me a post-card and you will get the Book by return mail free.
GREATEST BUGGY BOOK EVER PUBLISHED
for those who have use for a Vehicle.

OVER 150,000 OF THESE BOOKS SENT TO VEHICLE BUYERS THROUGHOUT THE U. S.

This wonderful Buggy Book explains all the factory secrets of how the *famous split Hickory Vehicles* are made from the Hickory Log and raw material into the most *beautiful Buggies of quality*, ready for shipment at lowest factory prices,

ON THIRTY DAYS' FREE TRIAL

Don't buy a Vehicle of any kind from any one until you write me for my wonderful Buggy Book. Write me today. A postal will bring the Book Free.
H. C. PHELPS, President
THE OHIO CARRIAGE MFG. CO., Station 293, Cincinnati, O.

The Famous "SPLIT HICKORY"

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34 Years Selling Direct

Our vehicles and harness have been sold direct from our factory to user for a third of a century. We ship for examination and approval and guarantee safe delivery. You are out nothing if not satisfied as to style, quality and price.

No. 788. Spindle Seat Driving Wagon. Price complete $39.00. As good as sells for $25.00 more.

We are the Largest Manufacturers in the World

selling to the consumer exclusively. We make 200 styles of Vehicles, 66 styles of Harness. Send for large, free catalogue.

No. 653. Top Buggy with late style Stanhope seat, bike gear and 1½ in. guaranteed cushion tires. Price complete $73.00. As good as sells for $30.00 more.

Elkhart Carriage & Harness Mfg. Co.
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Test It 30 Days

Two Full Years Guarantee

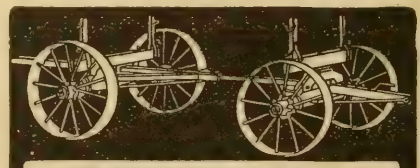
No money; no deposit; no notes. A $25,000 cash bond insures you satisfaction or your money back.

"Try An Anderton"
With Your Money In Your Pocket"

Buggies, Surreys, Stanhopes, Driving Wagons Spring Wagons, Pony Vehicles, Carts, Harness, etc'

Investigate Our Selling Plan, No Other So Liberal. Free 140-Page Catalog Tells All.

Anderton Mfg. Co., 41 Third St., Cincinnati, O.



WHAT DO YOU SAY?

Several hundred thousand farmers say that the best investment they ever made was when they bought an

Electric Handy Wagon

Low wheels, wide tires; easy work, light draft. We'll sell you a set of the best steel wheels made for your old wagon. Spoke united with hub, guaranteed not to break nor work loose. Send for our catalogue and save money.

ELECTRIC WHEEL CO., Box 95 Quincy, Ill.

A New Factory

and also a new firm name, but in the same place with the same management. We have just put in a complete

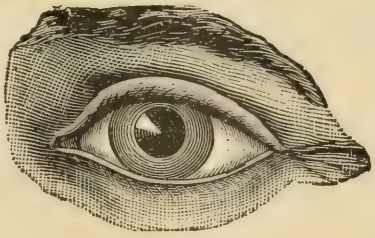
Weed Process Comb Foundation Factory

of the very latest type, and we are now ready to work up wax for western bee-keepers at low prices. . . We want several thousand pounds of beeswax at once, and will pay top market price for same. Let us hear from any one having wax to offer. .· .· .·

Buck & Wilson, Augusta, Kan.

Butler County

Keep Your



Open!

THERE will be need for many "B" Supplies this season. The past two years have been poor ones. Prospects are good for a honey crop this year. Bees are wintering well. If you are in need of hives, sections, etc., better order soon. Railroad companies are crowded. Freight moves slow these days. Don't wait until the last moment. Send for our 40-page catalog of A. I. Root Co.'s goods, which we can furnish you from here on short notice at a low price. . . . . .

John Nebel & Son Supply Co.

High Hill, Montgomery Co., Mo.

Mr. Texas Bee-keeper:

I should like to talk to you *personally.*

First, I want you to know about my supplies. I handle Root's Goods, of course; for I believe in giving my customers complete satisfaction—for that's better in the long run than low prices. My place of business is on the S. A. & A. P. Ry., just opposite the passenger depot, where I have built a warehouse 40×250 feet, and I have filled it full to the brim, for I handle Root's goods by the carload. This means I can furnish you with supplies with the utmost promptness.

Then, too, I have installed a complete Weed-process Foundation factory. I can turn out 500 lbs. a day. I can work your wax into foundation. In fact, my facilities in this line are not surpassed in Texas.

My can business is increasing by leaps and bounds. That is because of the quality of the goods. It will save you dollars to get my prices. Better write for them to-day.

Nothing pleases me better than for bee-keepers to make their headquarters at my office when in San Antonio. You are always welcome. I have fitted up my office with plenty of desks and chairs, with writing-material, a reading-table, and all the bee journals on hand. Consider yourself invited.

If you haven't my catalog just drop a postal.

I can supply Red-clover and Golden Italian queens promptly.

I am now paying 23c cash and 26c in trade for average clean beeswax delivered here. Save your slumgum. I will buy it. Let me know how much you have, in what condition the slumgum is, and in what kind of an extractor it was rendered, and I will make you price I am paying.

Call or Address

Udo Toepperwein, - San Antonio, Texas

1322 South Flores Street

We are Not in a Trust!

Bee-hives, Sections, Brood-frames, Extractors

Every thing that bee-keepers use at LOWEST PRICES. Quality the Highest. We've been making them 25 years.

American Bee-keeper

A profusely illustrated practical bee-journal which we have published for 17 years. 50c year. Sample copy and our 1907 illustrated catalog and price list free. Address

The W. T. Falconer Mfg. Co., Dept. C, Jamestown, N. Y.

New Goods - Big Stock

New Warehouse : Root's Goods : Prompt Shipment : Low Freight

Everything for the Bee-keeper at Savannah, Georgia

We are prepared to furnish promptly a full line of supplies; choice new stock just from the factory. BEES and QUEENS. We have large apiaries of fine stock. Book your orders at once, as there will be a heavy demand this season. Catalog sent free. Correspondence solicited.

Howkins & Rush, 124 West Liberty St., Savannah, Ga.

Beeswax!

We are always in the market to buy beeswax, and pay the highest market prices. We want beeswax from the bee-keepers direct. . . . . .

Dadant's . . . . .

It Excels **Foundation**

Wherever you are you can get our goods. Write us and we will either make you prices or will tell you where you can get our foundation nearer to you. We have agents everywhere. . .

Bee-supplies

We handle every kind of bee-keepers' supplies and only the very best. Early order discounts given now on supplies and foundation. Write us before selling your beeswax or buying your season's supplies. . . . . .

Dadant & Sons, Hamilton, Ills.

Root Goods

for the West

Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS.

My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

Write for estimate with liberal discount for orders sent in now.

Jos. Nysewander, Des Moines, Iowa

565, 567 West Seventh Street

Gleanings in Bee Culture

VOL. XXXV. MAY, 1, 1907. NO. 9.

MASSACHUSETTS AGRICULTURAL COLLEGE

THE A. I. ROOT CO.
MEDINA, OHIO.

Telephone Your Rush Orders

A great many of our customers can reach us through the Michigan State Phone at an expense of from ten to twenty-five cents. When you are greatly in need of goods in the busy season, it will pay you to use the phone.

BEESWAX.

We always pay the same price for wax as The Root Company. Watch the notices in "Gleanings." You can save freight expense by shipping to us. Put your name in the box and ship by FREIGHT to BEECH, Mich., via. P. M. R. R.

We believe in the Goods we Sell

When we say "Root-Quality," we mean that for selection of material, excellence in workmanship, and for up-to-date methods, Root's goods are unequaled.

M. H. HUNT & SON, Redford, Mich.

Jobbers and Dealers in "ROOT-QUALITY GOODS" in Michigan.

The Swarming Season

will soon be here. Are you prepared? Why not order your supplies now, and take advantage of

The Large Discounts

which we offer this month on Bee-supplies? Only remember the

Low Freight Rates

from TOLEDO places our goods in your door cheaper than you can get them elsewhere. We afford you every advantage in both Poultry and Bee Supplies. We sell The A. I. Root Co.'s bee-supplies, Model Incubators and Brooders, Prairie State Incubators and Brooders, Poultry Supplies of all kinds.

Our Large Illustrated Catalog

illustrates and describes our complete line; tells how to raise bees and chickens successfully. . Free upon request.

The Griggs Bros. & Nichols Co.

523 Monroe St., Toledo, Ohio.

European Bee-keepers!

Save Time and Expense

by sending direct all your orders and correspondence to our exclusive agent for the European continent and its colonies. . .

EMILE BONDONNEAU

142 FAUBOURG - ST. DENIS, PARIS

Prompt Service and Satisfaction Guaranteed. . . .

The A. I. Root Company

C. H. W. WEBER

Headquarters for . . .

BEE-SUPPLIES

Distributor of Root's Goods Exclusively at Root's Factory Prices

GIVE ME your orders for the **Best Goods Made.** You will be pleased on receipt of them. You will **save money** by ordering from me. My stock is complete; in fact, I keep **every thing** the **bee-keeper** needs. **Cincinnati** is one of the best **shipping-points** in the Union, **particularly in the South,** as all freight now **goes through Cincinnati.** Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly **free.**

A SPECIAL DISCOUNT ON EARLY ORDERS

I will buy your Honey and Beeswax

I pay **cash on delivery;** or, if you are in **need of honey,** write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of **extracted** or **comb honey.** I guarantee its purity.

Queens and Nuclei

Let me book your orders for queens. I breed the finest **Golden Italians, Red-clovers, Carniolans, and Caucasians.** Can furnish **Nuclei** beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White Sweet-scented Clover, Alfalfa, and Alsike.

C. H. W. WEBER

Office and Salesroom, 2146-48 Central Ave.
Warehouse, Freeman and Central Avenues.

CINCINNATI, OHIO, U. S. A.

Honey Markets.

GRADING RULES.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

The prices here quoted are wholesale, or what the honey brings on arrival.

NEW YORK.—In comb honey there is very little doing; stock of white honey of all grades is practically cleaned up, and small shipments which arrive from time to time fine ready sale at 14 to 15 for choice white stock, and 12 to 13 for off grades. Considerable dark comb honey is left on the market, and there does not seem to be any demand whatsoever. We quote nominally at 10 to 11, but in large lots we doubt whether this price can be realized. Extracted honey, California, stock seems to be well cleaned up, and we are informed that there is very little left on the coast; and before the new crop is marketed, whatever is on the market now will have been consumed. The prospects in California are very good for a large crop, but nothing definite can be said at this time, and there is no surety of a big crop until it is actually gathered. Last season the outlook was just as good; but in the height of the season cold northern winds and generally contrary weather affected the crop to such an extent that it was as small as in previous years. With favorable weather in California for the next two months a large crop will undoubtedly be harvested; and if so, prices will naturally be considerably lower than those of the past season and present prices. We quote white sage at from 8 to 9, and light amber at from 7 to 7½. Near by as well as Southern honey is well cleaned up, and the markets are in good shape for a new crop. Cuban and other West Indian honeys are arriving in large quantities, most of which are sold for export. The market is firm, at from 58 to 60 cts. per gallon, duty paid, according to quality. Beeswax firm and steady at from 30 to 31. HILDRETH & SEGELKEN,
April 13. New York, N. Y.

ST. PAUL.—Honey supply is limited. Fancy white, No. 1, in 1-lb. sections, new, 15 to 16; No. 2 white clover, in 1-lb. sections, 13 to 14; extracted white, in 60-lb. cans, per case, 9 to 10. W. H. PATTON, Sec.,
April 22. St. Paul, Minn.

CINCINNATI.—There is nothing new in the honey market, excepting that this part of the country is bare of comb honey, and it is well, for consumers will appreciate the new crop more when it arrives. We are selling extracted amber honey in barrels at from 5½ to 6½; fancy table honey, 8½ to 9, in crates of two 60-lb. cans. For choice yellow beeswax, free from dirt, we are paying 32 cash, and 35 trade, delivered here.
THE FRED W. MUTH CO.,
April 17. 51 Walnut St., Cincinnati, O.

SCHENECTADY.—The continued cold weather in April thus far has served to stimulate the demand for honey to such an extent that we have been enabled to close out a number of lots that we expected to be obliged to carry over. In fact, we are practically out of fancy white clover, but have some No. 2 and buckwheat still on hand. Prices remain unchanged.
CHAS. MACCULLOCH,
April 18. Schenectady, N. Y.

ST. LOUIS.—Southern extracted honey is commencing to arrive, yet sparingly. We quote our market: Fancy white comb honey, 17; No. 1, 15 to 16; light amber, 14 to 15; broken and inferior, less. Extracted light amber, California, 8; Spanish needle, 8 (all in 5-gallon cans). Southern, in barrels, 6 to 6½. Same quality in 5-gallon cans, ½ to 1 ct. higher. Beeswax firm at 31, for choice pure. All impure and inferior, less. R. HARTMANN PRODUCE CO.,
April 19. St. Louis, Mo.

DENVER.—Our market is now entirely cleaned up of a good quality of comb honey. We have a good stock of fine extracted honey which we are quoting at 7½ to 8½ for No. 1 white, and 6¾ to 7½ for light amber. We are paying 25 to 27 for clean yellow beeswax delivered here. THE COLORADO HONEY PRODUCERS' ASS'N,
April 20. Denver, Col.

BUFFALO.—Demand for white-clover comb honey is extra good at top quotations. Other grades are very much neglected, and buyers will not buy lower grades unless the price is low, and forced to buy it. No. 1 to fancy white comb, 16 to 17; No. 2 white, 11 to 13; buckwheat and amber, 10 to 11. Beeswax, 33 to 35.
W. C. TOWNSEND,
April 22. Buffalo, N. Y.

INDIANAPOLIS.—Market on comb honey is very quiet, and a strictly fancy article is very scarce. I quote fancy white at 17; No. 1, white, 14; amber, 12; demand for best grades of extracted honey is excellent, and I quote white clover 9 to 9½; amber, 6 to 7. Pure beeswax sells here at 35. WALTER S. POUDER,
April 18. 513—515 Mass. Ave., Indianapolis.

MARSEILLES, France, April 1.—Best extracted honey, 10; ordinary, 9; buckwheat, low quality, 8 to 9. Beeswax from France, 32 to 35; from Mozambique and Abyssinia, and similar, 34; Madagascar, 32; Morocco, 33.

BEE SUPPLIES.

We handle the finest bee supplies, made by the W. T. FALCONER MFG. CO., Jamestown, N. Y. Big Discounts on early orders, let us figure with you on your wants.

MUTH SPECIAL DOVE TAIL HIVES, have a honey board, warp-proof cover, and bottom board, think of it, same price as the regular styles. Send for Catalog.

THE FRED. W. MUTH CO.,

51 WALNUT ST., CINCINNATI, OHIO.

THE REPORTING OF THE HONEY MARKETS.

About the middle of February we addressed a circular letter to several of the dealers whose quotations are found in the market reports in GLEANINGS from time to time, relative to a proposed change of the heading of the Honey Market column. Our letter proposing the change, and the comments below, explain themselves.

There has been so much lack of understanding as to just what is intended in the honey-market reports that we expect to run an explanatory note at the head of that department hereafter. The enclosed proof is what we have in mind. Can you suggest any change in the wording that will make it better? Do you think this is the kind of report that will be of most value to bee-keepers?

[The " enclosed proof " referred to was as follows:]

PROPOSED HEADING.

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct, to the retail merchant. When sales are made by commission merchants, the usual commission (from five to ten per cent) cartage, and freight will be deducted, and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

[The following are the comments from the honey-men:]

I think the explanation fully covers the ground.
Zanesville, O. E. W. PEIRCE.

The note attached is very good. We have no suggestions to offer. C. H. W. WEBER.
Cincinnati, O.

We think it quite appropriate, and sufficiently explanatory. We beg to commend you for the evident interest you have in your subscribers. R. A. BURNETT & Co.
Chicago, Ill.

I would suggest that you condense the explanation, as the shorter and the nearer to the point you can make an explanation like this, the more readily it will be understood. I make the following suggestion at your request:

" The prices listed below are intended to represent, as nearly as possible, the average market prices at which sales are made by commission men to retail merchants. The bee-keeper would have to deduct from this the commission of from five to ten per cent; carting, freight, sometimes storage and insurance, according to the individual dealings of the various commission men and merchants."
Philadelphia, Pa. WM. A. SELSER.

As to the explanatory note with which you intend to head the market reports, we have looked it over carefully, and it would seem that a few changes might be made. You call attention to the fact that sometimes insurance and storage are charged by commission merchants. We think that cases like these are exceptional. We have never as yet charged storage and insurance unless we received the honey by the carload and were obliged to hold it for a length of time and had to store it in the general warehouse; but, as said above, these are the exception and not the rule. You also say that the prices which are quoted are those at which sales are being made by the commission merchants or by producers direct to the retail merchants. It would occur to us that this last sentence might be eliminated, as we do not think there are many producers who sell direct to the retailers; and at any rate, market reports do not come from retailers but jobbers. We would suggest the following notice:

" The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the various cities mentioned. It should be generally understood that these are the prices at which sales are being made by commission merchants, less the general charges, such as commission, freight, and cartage. Where sales are made direct by the producer to the merchants, such charges are eliminated."
New York. HILDRETH & SEGELKEN.

This department interests a great many readers, but it has been confusing, and in some instances it has been misused, some quoting low in order to aid in buying low, and still others quoting only what they have to offer. Some quote what they pay, leaving others in doubt as to whether quotations are selling or buying prices. I think the heading which you have prepared for this department is good. I believe, though, that a constant warning should be kept in this department about producers consigning their product to irresponsible commission men. There are enough cash buyers throughout the country to take up all the honey produced; but the cash buyer can not compete with the dishonest commission house. There may be honest men in the commission business, but—
Indianapolis, Ind. WALTER S. POUDER.

Your explanatory note is all right, and should have stood at the head of the column all the time, and would have saved us a lot of trouble. This present week a producer brought us a load of honey and demanded that we pay him 15 cents for the clover and 12 for the buckwheat, simply because we quoted

Continued on page 599.

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize
A GOLD MEDAL
at the World's Fair,
St. Louis, 1904.

IS THE BEST, STRONGEST, COOLEST, CLEANEST, CHEAPEST, AND LARGEST SMOKER SOLD FOR A DOLLAR.

It has a side grate that strengthens the fire-cup and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to clog **WITH SOOT.**

ALL THAT IS CLAIMED.—N. E. FRANCE, Platteville, Wis., General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

GRANT STANLEY, Nisbet, Pa., July 24, 1905, writes: "After giving the Danzenbaker Twentieth Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until the fuel is all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker."

Price Dan-ze, Large 3½-inch Smokers:
Postpaid—one, $1.15; two, $2.10; three, $3; five, $4.50.
By Express or freight—one, $1; six, $4.20.

F. DANZENBAKER, NORFOLK, VA.
(Jamestown Exposition Sta. Money-orders on Norfolk.)

WE WILL BUY AND SELL

HONEY

of the different grades and kinds.

If you have any to dispose of, or if you intend to buy, correspond with us.

We are always in the market for WAX at highest market prices.

HILDRETH & SEGELKEN,
265-267 Greenwich St. 82-86 Murray St.
NEW YORK.

BEESWAX ADVANCED.

From this date until further notice we will pay 31 cents cash, 33 trade, for average wax delivered here or at our branch offices. This is a higher price than we have ever paid before at this season of the year. If any of our readers have any wax to dispose of we shall be pleased to hear from them. Be sure to mark your shipment with your name so that it may be identified on arrival, and mail us shipping receipt with gross and net weight of shipment.

The A. I. ROOT COMPANY, Medina, Ohio.

Established 1873
Circulation 32,000

72 pages, semi-monthly
$1.00 per year

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

Published by
THE A. I. ROOT CO., Medina, Ohio

J. T. CALVERT, Business Manager

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DISCONTINUANCES.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

HOW TO REMIT. Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of The A. I. Root Company, Medina, Ohio. Currency should be sent by Registered Letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at he prices shown:

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Or any class 4 magazine.		
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Any class A may be substituted.		
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Woman's Home Companion	" 1 00	$4 65
Or any class A magazine.		
Scribner's Magazine	1 yr. $3 00	
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Any class 8 may be substituted.		
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Or Scribner's or Kermaic Studio.		
American Boy	1 yr. $1 00	
Pearson's Magazine	" 1 50	
Pictorial Review	" 1 00	$3 30
Or any class A magazine.		
American Inventor	1 yr. $1 00	
Scientific American	" 3 00	
Automobile Magazine	" 2 00	$4 80
Or any class A magazine.		
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Etude (for music lovers)	" 1 50	
Recreation or Pearson's	" 1 50	$3 65
Or any class 4 magazine.		
Century Magazine	1 yr. $4 00	
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Cassell's or Appleton's	" 1 50	$7 65
Or any class 4 magazine.		
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Good Housekeeping	" 1 00	$7 15
Or any class A magazine.		
Children's Magazine	1 yr. $1 00	
Etude (for music lovers)	" 1 50	
Appleton's or Pearson's	" 1 50	$3 65
Or any class 4 magazine.		
Harper's Mag. or Weekly	1 yr. $4 00	
Reader or Outing	" 3 00	
Lippincott's Magazine	" 2 50	$7 40
Or any class 6 magazine.		

ALL OF THE ABOVE OFFERS INCLUDE *GLEANINGS* ONE YEAR.

SEND ALL ORDERS TO THE A. I. ROOT COMPANY, MEDINA, OHIO.

THE REPORTING OF THE HONEY MARKETS.

Continued from page 597.

these prices in GLEANINGS, and we had to explain to him that these prices were what we were selling at, and that, of course, we could not pay him so much as that. Previous to this, another party wrote and wanted to know why we offered him but five and a half cents for dark extracted honey in half-barrels when we quoted six in GLEANINGS (our selling price). While we are considering this subject we should like to say that one of the worst difficulties that we have to contend with in maintaining prices here is caused by producers coming to town with a load of honey and selling direct to retailers. They will start out and make a few sales at market price; but meeting with many indifferent customers, and not caring to be at the expense of remaining over night in town they begin to cut the price, and close the last out to some shrewd buyer from two to three cents under the market price. Then the latter will cut the retail price to head off a competitor, and, of course, this helps to demoralize the whole market. We bought one lot, second hand, in town this season for a cent a pound less than we could have purchased it from the producer at his apiary. We claim that, with 25 years' experience in selling honey, we are in a better position to sell than the producer, while, with his knowledge, he is in a much better position to produce honey than we are. CHARLES MACCULLOCH.

Schenectady, N. Y.

We have copied these letters quite at length, as they bring some rather unusual information. For instance, Hildreth & Segelken say they do not charge for storage and insurance except in certain cases, yet we find that a number of commission houses in other cities do charge these items regularly—at least we have understood that this was the practice.

We lately investigated the matter of commissions charged, and found that some commission houses charge regularly 5, 7½, and 10 per cent, and to our surprise we learned of a commission house in pretty good standing that had the audacity to charge 20 per cent. We took the matter up with them in behalf of our subscriber, and we believe they made a refund of 5 per cent, adding that 15 per cent was their usual rate, but offering no satisfactory explanation for having charged 20 in the first place.

Mr. Pouder doubts the necessity for any honey being sent to the commission houses at all, saying that there are enough cash buyers throughout the country to take all the honey produced.

We have at present no opinion to express on the matter; but we think this is a question on which something further of value may be said. Is it really advisable to send honey to commission houses? or shall it be held for cash buyers? You will note that Charles MacCulloch believes that a dealer in his position is better able to handle the market than the producer, who, he thinks, should not enter the field at all.

Some valuable information may be had if our readers will express themselves on the matter of marketing honey. The active season with the bees is right here, and it may be thought there is but little time to give to the subject of marketing; but the marketing season will be here very soon; and if you have any thing of value to add, now is the time to bring the matter before our readers.

In a later issue we shall present the views of Mr Frank Rauchfuss, of the Colorado Honey-producers' Exchange.

Well-bred Queens!

For the purpose of securing an ample supply of select-bred queens, I have engaged an experienced breeder in the South to rear queens for *me only*, and confidently expect to fill orders promptly soon as weather permits mailing. . . . . .

Cook's Square Honey-jar

is the best, cheapest, and most sanitary package for retailing honey. Send for circular and price list of hives, bees, and useful implements. . . . . .

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail. . . .

North Texas . . . . Bee-keepers

will find Dallas the best point from which to purchase supplies. We have a carload of ROOT'S GOODS IN STOCK, and sell them at the Factory Prices. Don't forget that we can furnish any thing in the way of Field or Garden Seeds, Plants, and Poultry Supplies. Our large illustrated catalog for 1907 free on application. Mention GLEANINGS when you write. . . . . .

Texas Seed and : Floral : Company

Dallas, : : : : : Texas

1884 1907

New 64-page catalog for the New Year now ready

FOR YOU

Twenty-two successful years manufacturing bee-supplies and raising Italian bees and queens. . . . . Root's Goods in Stock.

J. M. Jenkins

Wetumpka, : : Alabama

NOW READY

to fill your orders for hives, supers, sections, and foundation of all grades, We now have a large stock of these goods on hand and can supply your wants for regular goods without delay.

We are booking orders for BEES and Queens, and to assure early shipment you should send in your orders now.

Price list free upon application.

W. W. CARY & SON, Lyonsville, Mass.

Gleanings in Bee Culture

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I do wish you could send GLEANINGS by mail without rolling it up. Rolling spoils its beautiful appearance so much. Why not send "in flat," like the government bulletins? It would be much prettier, and nicer to read. E. B. CLARK,
April 6, 1907. Waxahachie, Texas.

Before this time most of our readers will have noticed that we have sent one or two issues in flat wrappers as above suggested. We have had the matter under consideration for some time, and, after a careful trial of several different methods, we decided to make a further trial of this method to all of our subscribers.

We should like an expression from our readers generally as to the comparative merits of the two methods of wrapping, whether the magazine rolled or wrapped flat reaches destination in the better condition.

Since the above was written we have received the following from one of our Canadian subscribers:

Your issue of the 15th inst. to hand in fine condition. I am much pleased that you have adopted mailing in flat. It is now a *de luxe*, a pleasure either in the hand or on the table. F. J. MILLER.
London, Ontario.

We frequently read letters from our various advertisers, expressing themselves as greatly pleased with the returns obtained from the advertising they do in GLEANINGS; but not often does a publisher hear a more favorable opinion of the value of his paper than that which our representative was privileged to hear a few days ago. In conversation with a newspaper man who knew nothing of GLEANINGS personally, he said: "GLEANINGS must be a great paper, very near to its subscribers." "Why so?" our representative inquired. "Mr.——, of the—— Agency, says that he knows of but few papers that bring so good returns as your paper does. The other day he told me that it really pays better than many papers having a circulation of many times your own." It was our representative's pleasure to hear the same statement from the advertising-agency representative only an hour later, and in both instances the information was given voluntarily.

Our subscribers who appreciate the changes we have made to better GLEANINGS during the last few years are urged to give our advertisers liberal support, and to mention GLEANINGS whenever writing them. Furthermore, while we exercise every care to keep our columns free from any objectionable advertising, and to admit none but those who will deal fairly with our subscribers, should it happen that such are admitted, we shall be glad if they are reported at once to us, that we may investigate the matter and allow none to remain but those who should be admitted to our columns.

WHAT A NEW ADVERTISER SAYS.

I received the frame-lifter all right, also your letter mentioning Mr. Jackson, of Ridgeville, Ohio, as a man likely to buy. I did not take the matter up with him, because I have had orders so much faster than I expected, that I have been unable to keep up with them. GLEANINGS is certainly a great advertising medium. CHAS. E. DOW.
Plymouth, Mass., April 16.

See Mr. Dow's advertisement on page 380, March 15th issue.

The Journal for Less than a 2-cent Stamp.

If you could get several authoritative articles by leading writers on bee culture merely by writing a letter of request for them, you would jump at the proposition, wouldn't you?

But two cents is MORE than the price of the American Bee Journal when you get it by the year (52 weeks for $1.00).

And the articles mentioned above constitute ONLY ONE of the dozen departments of this great up-to-date Bee Journal, one issue of which is worth more to a bee-man than the cost of a whole year's subscription.

Think of getting a 20-page high-class magazine for less than two cents a copy!

Sample copy FREE, or a "trial trip" of three months (13 copies) for only 20 cents.

Special Offer.—We will send the Weekly American Bee Journal for 52 weeks, and a standard-bred ITALIAN QUEEN (to be mailed in May or June) for $1.50. Subscription can begin with January, or with current number—say which.

Address American Bee Journal, 334 Dearborn Street, Chicago, Ill. Write to-day—this offer may not appear again.

AT THE CLOSE OF THE SEASON FOR 1907

ROOT'S HIVES WILL OUTWEIGH NEARLY ALL OTHER STYLES.

SEND IN YOUR ORDER NOW.

The A. I. ROOT COMPANY

Syracuse New York

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Our Advertising Rates.

Twenty cents per agate line, flat.
Fourteen lines to inch.

SPACE RATES (To be used in one issue)

One-fourth page	$11.00
One-half page	21.00
One page	40.00

Preferred position, inside pages, 30 per cent additional.
Preferred position, inside cover pages, 50 per cent additional.
Outside cover page, double price.
Reading notices, 50 per cent additional.
Cash-in-advance discount, 5 per cent.
Cash discount, if paid in 10 days, 2 per cent.
Bills payable monthly.
No medical or objectionable advertising accepted.

"A Square Deal."

We believe that every advertisement in this paper is backed by a responsible person. But to make doubly sure we will make good any loss to paid subscribers sustained by trusting any deliberate swindler advertising in our columns, and any such swindler will be publicly exposed. We protect subscribers against rogues, but we do not guarantee to adjust trifling differences between subscribers and honest responsible advertisers. Neither will we be responsible for the debts of honest bankrupts sanctioned by the courts. Notice of the complaint must be sent to us within one month of the time of the transaction, and you must have mentioned GLEANINGS IN BEE CULTURE when writing the advertiser.

We again call the attention of our readers to our classified columns. More than ever we believe these columns will be alike helpful to those whose advertisements appear and to our subscribers who may find themselves in need of the various items offered there from time to time.

For instance, in the present issue will be found in the For Sale column a very desirable suburban property in New York at a very reasonable rate, and, regarding the advertiser, we have some very hearty endorsements from his banker and other business people.

A large variety of offers will be found of unusual interest, even to those outside of the requirements of bee-keepers alone.

One of our bee-keeping friends makes a specialty of photographic work, and, in writing us in connection with his order for a year's insertion of his advertisement, he says he doesn't know that it will pay, but is inclined to try it. We believe that our subscribers will be glad of the opportunity to get such data as he gives and he will find it unusually profitable. See the advertisement of Furnas & Maddox.

We suggest, too, a further perusal of such other columns as help wanted, situations wanted, exchanges, and poultry; and, if you are in position to buy or sell honey, or want bees or queens, the columns devoted to these will be equally valuable.

Editor of GLEANINGS:

Dear Sir:—Please discontinue our ad. for help in your journal, as during the last few days we have been almost swamped with answers to the ad. in the March 15th issue. We never realized before the real value of a small ad. in your paper.

Yours respectfully,
Delanson, N. Y. E. W. & F. C. ALEXANDER.

The Bee-keepers' Review

For March has for a frontispiece one of the most beautiful winter-scenes that it has been my lot to witness. It is the apiary of Mr. F. J. Miller, of London, Ont., Canada, who tells how he makes a success of hauling honey home to extract it, using a gasoline-engine as power to run the extractor. Mr. Miller says that with his system of management he can manage 500 colonies alone.

Mr. E. F. Atwater, of Idaho, tells how he successfully managed an apiary 36 miles from home, warming up the last batch of honey in a 12x16 honey-house before extracting it.

The April issue shows how to protect a hive with tarred felt by tying it on—only the work of one minute, and one man can do the work alone.

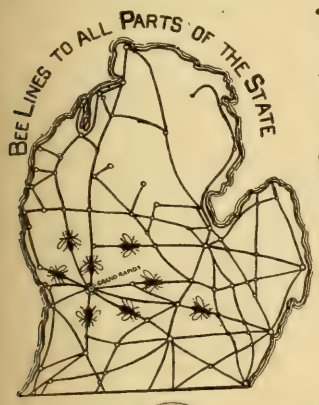
Mr. Townsend is continuing his series of articles on "Helpful hints for Extensive Bee-keeping," and he makes the articles very seasonable, and very helpful.

The foregoing are only a few of the good things that may be found in these issues of the Review; but they show the character of the reading that may be found in the Review.

There are still a few sets of the Review for 1906 on hand, and, as long as they last, a set will be sent free to each subscriber for 1907.

The book, Advanced Bee Culture, is $1.20; or with the Review, only $2.00 for both.

W. Z. Hutchinson, Flint, Mich



BEE-HIVES SECTIONS

Why Buy of Us?

A. G. WOODMAN: Remus, Mich., Feb. 18, 1907.
The *Lewis Hive Bodies* are far superior, both in material and workmanship, to any I ever bought. As ever yours, E. D. TOWNSEND.

A. G. WOODMAN, Grand Rapids, Mich. Remus, Mich., Feb. 25, 1907.
Dear Sir:—I use *Lewis Sections* exclusively, there are none better—the only perfect "V"-cut section that has come to my notice. They fold without moistening. E. D. TOWNSEND.

Several Carloads on hand.
Immediate Shipments.

Beeswax Wanted

ADVANCED BEE-VEIL, 50c.
Cord arrangement, silk face; postpaid,

A. G. WOODMAN CO.
GRAND RAPIDS, MICH.

Our discounts on BEE-SUPPLIES are still in effect.

WE furnish EVERY THING needed in practical bee culture, at lowest prices. We make the DOVETAILED, LANGSTROTH, and ALTERNATING HIVES. The most practical, *up-to-date* hives are the MASSIE HIVES. We make them. Have you seen them? Have you received our new 1907 catalog? It is surely the easiest catalog to order from you ever saw. It is so easy that you can not make a mistake in your orders; a child can order from it as well as an adult. It is something new and entirely different from any you have ever seen. Write us a postal card for it to-day. It is free.

Address Kretchmer Mfg. Co., Council Bluffs, Iowa.
Muscatine Produce Co., Muscatine, Iowa. :: Trester Supply Co., 103 S. 11th St., Lincoln, Neb.
Catalogs issued in German and English.

PRACTICAL WORKS ON BEES

THE books mentioned on this and the succeeding page are all devoted to practical bee culture, although a few of them, as will be noticed by their descriptions, have more or less scientific value. A somewhat careful reading of the descriptions below will undoubtedly show any one just what book will suit him best.

LANGSTROTH ON THE HONEY-BEE. Revised by C. P. Dadant. The original work by Langstroth will always remain a classic book on bee-keeping along with that of Huber, Reaumur, and Swammerdam. This is the old book brought down to date by one of America's foremost bee-keepers, C. P. Dadant, who is also very well known in Europe as the great exponent of movable frames—so much so that frame hives are sometimes known by his name in certain European countries. The new edition is termed the "Twentieth-Century Edition of Langstroth," and contains nearly every thing one wishes to know about bees, and forms a thick cloth-bound book of 575 pages, beautifully illustrated. It is a standard work, both here and in Europe, where it has been translated into French and Russian. The bee-keeper who does not like this book is hard to suit. Price by mail, $1.25; by freight or express, 15 cts. less.

FORTY YEARS AMONG THE BEES. Some 17 years ago Dr. C. C. Miller, of Marengo, Ill., wrote an unpretentious little book entitled, "A Year Among the Bees." This was charmingly written, and in a style so simple and easy that it read more like a story than a treatise on bees. The new book, in one sense a revision of the old, because it uses some of the old matter, is, to all intents and purposes, a brand-new work with a title that certainly covers a large expanse of time for one life, and that of a man who is one of the best-posted bee-men in the United States—a practical bee-keeper, one who produces large crops of honey. He has for years read most thoroughly all the literature on bees, both in Europe and America. With all his practical knowledge relating to the business he is a college graduate, a graduate of a medical school, and one who has had a large experience as a journalist. His training is just such as would enable him to write a book on bees; and his last book from his best and ripest experience is a masterpiece. It is just as much a good story as the old one, and just as interesting. It contains over 300 pages and 100 beautiful half-tone pictures from photos taken by the good doctor himself while he was at his every-day work among the bees. Price $1.00, postpaid. By freight or express, 10 cts. less.

COOK'S MANUAL OF THE APIARY is a very complete treatise on bees and bee-keeping, nothing of any consequence being omitted by its author, Prof. A. J. Cook, formerly of the University of Michigan. Even the anatomy and physiology of the bee has been very completely covered in this work, also bee botany, and yet the practical management of the apiary has not been slighted in the least. The edition was completely revised and partly rewritten in 1902, hence it is up with the times in every respect. Price $1.15, postpaid; 15 cts. less by freight or express.

BRITISH BEE-KEEPERS' GUIDE BOOK. By T. W. Cowan. This is the leading English work on practical bee-keeping in England, and as such has had an immense sale, and has been republished in French, German, Danish, Swedish, Russian, Spanish, and Dutch. The work is condensed into 179 pages, handsomely bound and well illustrated. Price $1.00 by mail; by freight or express, 5 cts. less.

DOOLITTLE'S QUEEN-REARING. This is practically the only comprehensive book on queen-rearing now in print. It is looked upon by many as the foundation of modern methods of raising queens wholesale. Mr. Doolittle has an entertaining way of writing on bee subjects which enables his readers to follow him with pleasure, even if they never intend to raise queens at all. Cloth bound, 124 pages, $1.00 postpaid; by freight or express, 5 cts. less.

THE HONEY-BEE. By T. W. Cowan. This is the standard work on the anatomy and physiology of the bee in the English language. It is packed with information on the subjects indicated, and expresses in a condensed, accurate manner, every thing that has been discovered by the scientists of all countries who have studied the life history of the honey-bee. The book is beautifully bound, printed and illustrated in the highest style of the art of book-making, and is invaluable to a bee-keeper. Last edition 1904, 220 pages. Price $1.00 postpaid. By freight or express, 5 cts. less.

QUINBY'S NEW BEE-KEEPING. This, a modern edition of Quinby's Mysteries of Bee-keeping, is one of the most useful books on apiculture ever written. Mr. Quinby was an intensely practical bee-keeper and greatly assisted Mr. Langstroth in laying the foundations of American apiculture. His son-in-law, Mr. L. C. Root, revised the old book, giving it a new title and bringing it in line with the times. It is a simple, easily understood guide to bee-keeping. Cloth bound, 271 pages, 1905; price $1.00 postpaid; by freight or express, 10 cts. less.

ADVANCED BEE CULTURE. By W. Z. Hutchinson. This, as its name implies, is a book giving the latest methods of keeping bees, and it certainly does what it claims to do. The author is himself a very practical bee-keeper, but in addition he edits and publishes a bee magazine, where he, of course, gets a first-hand knowledge of all that is taking place in the bee-keepers' world. The book is embellished with a number of beautiful illustrations which greatly enhance the value of it to many. The author is an accomplished photographer, and the pictures are therefore mostly original. This is a very useful work to any one who is seriously thinking of becoming a specialist in apiculture, depending very largely upon the bees to furnish bread and butter and food and raiment for the bee-keeper and his family. There are no theories in it. If one can afford to get only two or three books, this certainly should be one of them. Price $1.10 postpaid; by freight or express, 10 cts. less.

HOW TO KEEP BEES. By Anna Botsford Comstock. This is a charmingly written manual for amateurs and beginners, describing in the clearest language all necessary details which are so confusing to a novice. The authoress combines enthusiasm, literary ability, and a knowledge of bee-keeping into a goodly volume. Having herself made a start in the bee-business more than once, she fully appreciates the perplexities of the situation and makes provision accordingly. The book is well suited to the wants of the suburban dweller who wishes a hobby which will give something by way of return for labor and capital expended, or those who wish to keep only a small apiary either for pleasure or profit. If there is any better book than this for the purpose indicated, we do not know of it. Cloth bound, 228 pages, $1.10 postpaid; by freight or express, 10 cts. less.

A MODERN BEE-FARM, by Simmins, is one of those books which will cause you to sit up and take notice if you are a real live bee-keeper with lots of formic acid in your blood. The author is an English bee-keeper of note, who not only knows and understands bee culture in his own home land, but is as well an earnest student of American apicultural methods. He was the first man in the field with a non-swarming system of bee-management, and is otherwise a very original thinker on all that pertains to bees. He is not very orthodox in his views, but his book is all the better for that, seeing he wants to take us out of the ruts. You can read the book right straight through, in the long winter evenings, as it runs along like a narrative or a novel. Cloth bound, 430 pages, 1904; price $2.00 postpaid; by freight or express, 15 cts. less.

THE IRISH BEE-GUIDE, by Digges, is, as its name implies, a guide to the bee-keeping industry of Ireland. This is a closely printed, well-bound book of 220 pages with excellent illustrations on fine paper. It would be useful to any one who wishes to become acquainted with the status of bee-keeping in the old land. Price $1.00 postpaid; by freight or express, 5 cts. less.

AMERIKANISCHE BIENENZUCHT, by Hans Buschauer, is a bee-keeper's hand-book of 138 pages, which is just what our German friends will want. It is fully illustrated, and neatly bound in cloth. Price $1.00; by freight or express, 5 cts. less.

Send orders to your nearest dealer.

To the Readers of Gleanings in Bee Culture

Many of you will have noticed the Square Deal proposition published underneath the index to advertisements in several late numbers of GLEANINGS. On this page we want to call more particular attention to the same and to discuss with our readers the question of advertising.

Many people are interested in the advertising pages of a magazine without really considering why certain articles are advertised. Others give due consideration to the subject and conclude that an advertised article must be more expensive than an unadvertised article. We quote from a late article on the subject of advertising as follows:

"Primarily advertising is to promote and maintain an approximate number of sales by educating the consumer to demand a certain article. As the consumer will not pay more than the article is worth, the price must be a fair one."

"Let us consider the **unadvertised** article. The manufacturer is dependent upon the retailer to force the sale of his goods, so must tempt the dealer with more profits, and keep a larger amount of profit for his own safety."

Take, for instance, the case of bee-keepers' supplies. A certain well-known manufacturer of bee-keepers' supplies, furnishing goods of the highest quality, had an application from a large established house, dealing in agricultural supplies, for terms on bee-keepers' supplies which they desired to add to their line. The manufacturer quoted his usual discounts, and the reply promptly came that the margins were altogether too small. This is often the report received by the best manufacturers, which only confirms the above statement that advertised articles are sold at fair prices. Our readers can rest assured that the goods advertised in our columns are generally well worth the price asked, and, further, that they will be well treated by our advertisers.

QUEENS.—This is the season when the queen trade is most active. Do not think you can save money by ordering of some queen-breeder who may have had little or no experience, or, by continuing your old undesirable stock, but go to some well-known advertiser, whose name you will find in the columns of GLEANINGS, and purchase your queens of him. If you decide that you can afford some of the higher-priced queens, you should be assured that you will get your money's worth. The advertiser has probably spent months and years in a study of the subject, and you can well afford to pay a small additional amount and get the benefit of his experience and early experiments. Bee-keepers are learning that it does not pay to keep a large number of inferior stocks of bees with little or no profit, when, with about the same capital, they could have a good profit annually by improving their bees by the introduction of better queens. It remains with each one to decide whether he will purchase breeding-queens and raise his own stock, or order large numbers of tested and untested queens to requeen his entire apiary. We urge particular attention just at this time of the year to the question of requeening. It is not at all uncommon to find a yard turned from a very unremunerative one to one paying high profits, simply by the introduction of a better stock of bees.

CLASSIFIED COLUMNS.—We can not too strongly urge our readers to look over, each issue, the classified columns. Often it happens that a subscriber wants to dispose quickly of various articles he may have at a very low price; and good bargains are found in every issue of this paper in these columns. Besides, we urge on you the importance of using these columns, if you have something to dispose of. See what one of our subscribers, who had never used GLEANINGS, says below:

GLEANINGS IN BEE CULTURE, November 12, 1906.
Medina, O.

Gentlemen:—GLEANINGS certainly is a fine advertising medium, as, when once the orders started to come in, they continued to come in as fast as or faster than I could fill them. Considering the fact that this was my first appearance before the public as a queen-breeder, and then not until July, I think I did very well, disposing of more than two hundred queens to the evident satisfaction of all my customers. I received many complimentary letters regarding my queens and promptness in filling orders. My ad. will certainly appear in GLEANINGS next year, when, with greatly increased facilities, I expect to do much better.

Wishing GLEANINGS (which I would not like to do without) the greatest possible success, and hoping to be with you for some years to come, I am Yours fraternally,

Philadelphia, Pa., 4426 Osage Ave. W. A. SHUFF.

Books for Bee-keepers and Others.

Any of these books on which postage is not given will be forwarded by mail postpaid, on receipt of price.

As many of the bee-books are sent with other goods by freight or express, incurring no postage, we give prices separately. You will notice that you can judge of the size of the books very well by the amount required for postage on each.

BIBLES, HYMN-BOOKS, AND OTHER GOOD BOOKS.

Postage.]		[Price without postage.
8	Bible, good print, neatly bound	20
10	Bunyan's Pilgrim's Progress**	40
6	Christian's Secret of a Happy Life,** cloth	25
1	Gospel Hymns, consolidated, Nos. 1, 2, 3, and 4, words only; cloth, 10c; paper	5
2	Same, board covers	20
3	New Testament in pretty flexible covers	05
	One-third off on all Gospel Hymns mentioned above.	
5	New Testament, new version, paper covers	10
15	Story of the Bible **	1 00

Years ago, when Huber was a little boy, he got hold of this book and read it clear through, asking his mother questions without number all along through the book. When he got to the end he turned over to the fore part and commenced to read it through again. We laughed at him somewhat, but let him go on. But when he started the *third* time I remonstrated. Now, this illustrates what sort of a book this is. We sold hundreds of them; but finally, when the book got to be old, it was taken out of our book list, I do not know just why; but nevertheless orders have kept coming for that wonderful book by Charles Foster—the Story of the Bible. Almost any child will read it if he gets a chance; and who can tell the effect it may have in fixing his young mind upon things that are good and pure and true? By buying them in considerable quantities we are enabled to furnish such a large book (notice the postage is 15 cts.) for only $1.00.

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BOOKS ESPECIALLY FOR BEE-KEEPERS.

20	A B C of Bee Culture, cloth	1 00
	Bienen-Kultur, by Thos. G. Newman	25

This is a German translation of the principal portion of the book called "Bees and Honey." 100 pages.

	Bienenzucht und Honiggewinnung	25

Or "Bee Culture and the Securing of Honey," a German bee-book by J. F. Eggers, of Grand Island, Neb. Postage free.

15	Cook's Manual, cloth	1 00
5	Doolittle on Queen-rearing	95
	Dzierzon Theory	10
15	Langstroth Revised, by Chas. Dadant & Son	1 10
10	Quinby's New Bee-keeping	90
5	British Bee-keeper's Guide-book, by Thomas William Cowan, England	95
5	The Honey-bee, by Thos. William Cowan	95
3	Merrybanks and His Neighbor, by A. I. Root	15
10	The Honey-makers, by Miss Margaret W. Morley	1 40

This is a story of the life of the bee, told in very interesting style—how it lives, gathers honey, and all about it. While clothing the general subject with an air of poetry, it seems to be entirely within the limits of known facts while attempting to deal with them. We believe it will give all thoughtful bee-keepers a greater liking for their business to read it. Probbaly it has more to do with the curious traditions connected with bees than any other book of the kind.

10	The Life of the Bee	1 30

Thos. Wm. Cowan, editor of the British Bee Journal, in his review of Maeterlinck's work, says: "Not since the appearance, in 1876, of Bucher's 'Mind in Animals' have we had a book about bees more charming, or one that we have read with greater pleasure, than Maeterlinck's 'Life of the Bee.'"

	Beetkeeping in Jamaica. By F. A. Hooper, Kingston, Jamaica. Paper covers	25
5	Forty Years Among the Bees. By Dr. C. C. Miller, Marengo, Ill	95
15	Modern Bee-farm. By S. Simmins. New edition; cloth bound	1 85

MISCELLANEOUS HAND-BOOKS.

5	A B C of Carp Culture, by Geo. Finley	25
5	A B C of Strawberry Culture,** by T. B. Terry. New edition, revised and enlarged; paper, 45c; cloth, 68c; by mail, 75c.	
5	A B C of Potato Culture, Terry** New edition, revised & enlarged; paper, 45c; cloth, 68c, mail 75c. This is T. B. Terry's first and most masterly work.	
8	Barn Plans and Out-buildings*	90
	Canary Birds, paper	50
2	Celery for Profit, by T. Greiner**	25

The first really full and complete book on celery culture, at a moderate price, that we have had. It is full of pictures, and the whole thing is made so plain that a schoolboy ought to be able to grow paying crops at once without any assistance except from the book.

15	Draining for Profit and Health, Warring	85
8	Domestic Economy, by I. H. Mayer, M. D.**	30

This book ought to save at least the money it costs, each year, in every household. It was written by a doctor, and one who has made the matter of domestic economy a life study. The regular price of the book is $1.00, but by taking a large lot of them we are enabled to make the price only 30 cents.

10	Fruit Harvesting, Storing, Marketing, etc	75

It has been well said that it is an easier matter to grow stuff than to sell it at a proper price after it is grown; and many men fail, not because they are inexpert in getting a crop, but because they do not know how to sell their crops to the best advantage. This is the first book of the kind we have had as an aid in selling. It not only tells all about picking, sorting, and packing, but gives all the best methods for storing for one or two days or a longer time. It also tells about evaporating and canning when there is a glut in the market. It discusses fruit packages and commission dealers, and even takes in cold storage. It is a new book of 250 pages, full of illustrations. Publisher's price, $1.00.

	Farming with Green Manures, postpaid**	90

This book was written several years ago; but since competent labor has got to be so expensive, and hard to get, many farmers are beginning to find they can turn under various green crops cheaper than to buy stable manure, and haul and spread it—cheaper, in fact, than they can buy fertilizers. This book mentions almost all plants used for plowing under, and gives the value compared with stable manure. Some of the claims seem extravagant, but we are at present getting good crops, and keeping up the fertility, by a similar treatment, on our ten-acre farm.

7	Farm, Gardening, and Seed-growing**	90
10	Fuller's Grape Culturist **	1 15
5	Garden and Farm Topics, Henderson**	60
12	Gardening for Pleasure, Henderson*	1 10

While "Gardening for Profit" is written with a view of making gardening PAY, it touches a good deal on the pleasure part, and "Gardening for Pleasure" takes up this matter of beautifying your homes and improving your grounds, without the special point in view of making money out of it. I think most of you will need this if you get "Gardening for Profit." This work has 246 pages and 134 illustrations. (Retail price $2.00.)

12	Gardening for Profit**	1 10

This is a late revision of Peter Henderson's celebrated work. Nothing that has ever before been put in print has done so much toward making market-gardening a science and a fascinating industry. Peter Henderson stands at the head, without question, although we have many other books on these rural employments. If you can get but one book, let it be the above. It has 376 pages and 138 cuts (Retail price $2.00.)

8	Gardening for Young and Old, Harris**	90

This is Joseph Harris' best and happiest effort. Although it goes over the same ground occupied by Peter Henderson, it particularly emphasizes thorough cultivation of the soil in preparing your ground; and this matter of adapting it to young people as well as old is brought out in a most happy vein. If your children have any sort of fancy for gardening it will pay you to make them a present of this book. It has 187 pages and 46 engravings.

3	Grasses and Clovers, with Notes on Forage Plants	20

This is by Henry A. Dreer, author of the book "Vegetables Under Glass" that has had such a large sale of late. This little book tells how six tons of grass has been grown to the acre, and gives much other valuable matter.

10 | Greenhouse Construction, by Prof. Taft** ... 1 15

This book is of recent publication, and is as full and complete in regard to the building of all glass structures as is the next book in regard to their management. Any one who builds even a small structure for plant-growing under glass will save the value of the book by reading it carefully.

12 | Greenhouse Management, by Prof. Taft**.....1 15

This book is a companion to Greenhouse Construction. It is clear up to the times, contains 400 pages and a great lot of beautiful half-tone engravings. A large part of it is devoted to growing vegetables under glass, especially Grand Rapids lettuce, as well as fruits and flowers. The publisher's price is $1.50; but as we bought quite a lot of them we can make a special price as above.

5 | Gregory on Cabbages, paper* 20
5 | Gregory on Squashes, paper*..... 20
5 | Gregory on Onions, paper*..... 20

The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

| Handbook for Lumbermen..... 05
5 | Home Pork-making; 125 pages, illustrated..... 40

I think it will pay well for everybody who keeps a pig to have this book. It tells all about the care of the pig, with lots of pictures describing cheap pens, appliances, all about butchering, the latest and most approved short cuts; all about making the pickle, barreling the meat, fixing a smoke-house (from the cheapest barrel up to the most approved arrangement); all about pig-troughs; how to keep them clean with little labor; recipes for cooking pork in every imaginable way, etc. Publisher's price is 50 cents, ours as above.

15 | How to Make the Garden Pay**.....1 35

By T. Greiner. Those who are interested in hotbeds, cold-frames, cold green-houses, hothouses, or glass structures of any kind for the growth of plants, can not afford to be without the book. Publisher's price $2.00.

| How we Made the Old Farm Pay—A Fruit-book, Green 10

interest that characterize its author, T. Greiner.

10 | Irrigation for the Farm, Garden, and Orchard* 85

By Stewart. This book, so far as I am informed, is almost the only work on this matter that is attracting so much interest, especially recently. Using water from springs, brooks, or windmills to take the place of rain, during our great drouths, is the great problem before us at the present day. The book has 274 pages and 142 cuts.

3 | Maple Sugar and the Sugar-bush**..... 25

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8 | Practical Floriculture, Henderson.*.....1 10

10 | Profits in Poultry.* 1 00
10 | Small-Fruit Culturist, Fuller 75
2 | Sorghum, Stock Beets, Strawberries, and Cement Floors. By Waldo F. Brown..... 08

This little book ought to be worth its cost for what is said on each of the four different subjects; and the chapter on cement floors may be worth many dollars to anybody who has to use cement for floors, walks, or any thing else. In fact, if you follow the exceedingly plain directions you may save several dollars on one single job; and not only that, get a better cement floor than the average mason will make.

2 | Sweet Potatoes; Forty Years' Experience with. By Waldo F. Brown **..... 08

This little book, by a veteran teacher at our farmers' institutes, ought to be worth many times the price to everybody who grows even a few sweet potatoes in the garden. It also gives full particulars in regard to handling and keeping this potato, which is difficult to keep unless you know just how.

10 | Talks on Manures* 1 35

By Joseph Harris. Written conversational style, which makes it very interesting reading. It covers the subject very completely; contains numerous analyses of manures and comparative tables. The use of technical language is avoided, which makes the book of greatest value to the practical farmer. A book of 366 pages, nicely bound in cloth.

5 | The New Rhubarb Culture**..... 40

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2 | Treatise on the Horse and his Diseases..... 5
5 | Tile Drainage, by W. I. Chamberlain..... 35

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The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as in doing almost any thing else; and by following the plan directed in the book, one man will often do as much as two men without this knowledge.

5 | Tomato Culture 35

In three parts. Part first.—By J. W. Day, of Crystal Springs, Miss., treats of tomato culture in the South, with some remarks by A. I. Root, adapting it to the North. Part second.—By D. Cummins, of Conneaut, O., treats of tomato culture especially for canning-factories. Part third.—By A. I. Root, treats of plant-growing for market, and high-pressure gardening in general.

3 | Vegetables under Glass, by H. A. Dreer**..... 20
3 | Vegetables in the Open Air*..... 20

This is a sort of companion book to the one above. Both books are most fully illustrated, and are exceedingly valuable, especially at the very low price at which they are sold. The author, H. A. Dreer, has a greenhouse of his own that covers one solid acre, and he is pretty well conversant with all the arrangements and plans for protecting stuff from the weather, and afterward handling to the best advantage when the weather will permit out of doors.

3 | Winter Care of Horses and Cattle..... 25

This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in a book. It has 44 pages and 4 cuts.

3 | Wood's Common Objects for the Microscope**.. 47
8 | What to Do, and How to be Happy while Doing It..... 65

The above book, by A. I. Root, is a compilation of papers published in *Gleanings in Bee Culture*, in 1886, '7, and '8. It is intended to solve the problem of finding occupation for those scattered over our land out of employment. The suggestions are principally about finding employment about your own homes. The book is mainly upon market-gardening, fruit-culture, poultry-raising, etc. Illustrated, 188 pages, cloth.

8 | Same, paper covers..... 40

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A. I. Root, Editor of Home Department

Vol. XXXV. MAY 1, 1907. No. 9.

THE WEATHER is a topic entirely safe to talk upon only in the past tense. The latest forecast of ye editor, p. 537, was that indications were for an early spring. The morning on which that reached Marengo the thermometer stood at 26, a cold spell having been on for some days, and no knowing when it would terminate. I am much afraid of the effect on fruit-bloom, as the buds were just ready to open in March.

PROF. BIGELOW speaks of the soporific effect of the murmur of bees, p. 551. I think I never saw it mentioned in print before. I never tried the soothing effect of ten thousand honey-bees, more or less, about my pillow at night; but I have felt and seen the effects of the murmur of thousands of bees coming and going on a still summer day upon one sitting by the entrance of the hive. Indeed, has that not been the general experience for generations past? Else why do the poets sing of the "drowsy hum" of bees?

MR. JAY, please have some respect for the established usage of terms. You use the term "dual-queen system," p. 547, apparently as applying to any case where there is more than one queen in a hive. It is handy to have that term restricted to mean what it has heretofore meant, a system in which a virgin is caged in a fertilizing-hive, a free queen, virgin or laying, being in the same hive, and in the same compartment. Certainly there was no "dual" in the case when you took away the queen and afterward gave a cell. But you've asked some interesting questions, and I hope you'll not rest till you furnish us the proper answers. [But, are you not referring to the *dual plan for introducing?* In our opinion the Jay did not mean that.—ED.]

PROF. GASTON BONNIER reported that in the morning there are bees that go out as *prospectors* (chercheuses), looking up where nectar may be found, later in the day becoming gatherers. A Straw mentioned last year, p. 1416, and a footnote, said, "This may be true; but I do not see how it can be proved." It seems that Prof. Bonnier made this report before the Academy of Sciences, and *L'Apiculteur* says, p. 39, "Mr. Root, perhaps, does not know that M. Bonnier brings before the Academy of Science only verified facts." Then follows an interesting account of the experiments of that "marvelous and patient observer," Prof. Gaston Bonnier.

"WE MUST convince the American mothers that honey is the best sweet for children. If we succeed, there need be no worry about the sale of honey." That's what ye editor closed with, p. 541, possibly for want of room to say more. If the column had been longer he might well have added: "This for two reasons: First, the child that eats honey is likely afterward to be a man or woman that eats honey; second, if honey is kept on the table for the children, the grown-ups are more likely to eat of it too.

Allow me to add what emphasis I can to what ye editor has wisely said in those last two paragraphs. The women are the ones to talk to about honey, and the special point to press is the matter of honey for children. In some cases the idea is to be combated that all sweets are bad for children. The text to be enlarged upon is something like this: The universal craving of children for sweets is a natural and healthy craving. Good sweets, unadulterated sweets, are good for children. The *best* of all sweets is honey.

EUROPEAN PRICES for honey are much above American. Americans in general are more extravagant than Europeans. If Europeans eat honey at their higher prices, are you sure that Americans wouldn't eat just as much honey if the price were advanced 50 per cent? [It does not seem that low prices help to sell honey, as most people regard it as something special, and I know Europeans willingly pay a good price for

honey which suits them. I have paid 60 cts. for Narbonne honey and 50 cts. for heather, neither of them superior in any respect to much of our honey. With the well-to-do New Yorkers I do not think the price cuts much of a figure. The principal reason why they do not buy honey is chiefly because no one asks them to. As a rule, also, the grocers are wholly ignorant on the subject of honey, and hence are poor honey-sellers. A man who fully understands honey, and who gives a "square deal," can sell at European prices right in New York to-day, and it seems to be true of other cities, though I don't know. What the New Yorkers need is a honey show or fair, to show them.—W. K. M.]

CHILDREN often get hold of part of the truth, and then go wrong with it. Sometimes editors do the same. Ye editor speaks, page 558, of *my* scheme "of two men carrying out one colony with a rope." Bless your heart, Mr. Editor, I have no such scheme *for two men*. It's a good scheme for two women, or for one woman and part of a man. When my assistant looked at those two men carrying bees on p. 557 she said, "Two men have used precisely the same device here for many years, carrying bees both in and out." But I don't always have two men. Last fall Philo carried them in alone; and this spring he carried them out alone; as said on p. 536, it took him five hours to carry out the 166, placing them at an average distance of seven or eight rods from the cellar. (But he could not have done it with merely hand-holes or short cleats.) On the whole, I suspect it cost me less than to have had two men. With the barrow arrangement the time of two men is taken in setting the hives on the barrow and then lifting the hives off the barrow. Philo just picked up each hive, went along with it, then put it down, and that's all there was to it. I doubt if two men with a barrow could have done it in half the time. [But two men can carry more than two hives at once—enough more, surely, to make up for the loss of time in handling hives twice—ED.]

YOUR LOGIC, Mr. Editor, p. 539, is a little off color. "A literary paper could wield a mighty influence because of the magnitude of its field;" but the chosen field of GLEANINGS is comparatively small; so, because it has no great influence it is under no obligation to use upon the right side what influence it has. Even if that sort of logic would pass muster, there's another side to it. Take a literary magazine with five times as many readers as GLEANINGS, and you are likely to say it has five times as much influence. Wrong. The readers of GLEANINGS are a special class, with a special interest in GLEANINGS, and specially affected by any thing it does. If each reader is influenced five times as much by a better spelling in GLEANINGS, as he would be by the same spelling in a literary magazine, will not the influence of GLEANINGS be just as much as that of a literary magazine with five times as many readers? Please convey to W. S. Wingate my thanks for his encouraging figures. [You are *assuming* that GLEANINGS would have five times the influence with its clientage as the other papers with their larger class of readers. To adopt your own language, "Your logic is a little off color." No, we don't think GLEANINGS has any more influence *per capita* reader than a journal like the *Ladies' Home Journal*.—ED.]

"BESIDES," said I, p. 566, "it costs more for two shallow stories than for a single deep one," and you reply, Mr. Editor, "They are listed at the same price in the supply catalogs." Do you mean by that that I was mistaken, and that two shallow stories cost the same as a single deep one? [We mean exactly what we said in our footnote in the former issue; viz., the price of two shallow hive-bodies supplied with shallow extracting-frames and division-board is just one-half, as a rule, the price of a single body with frames and division-board of the same capacity. In catalogs having a scale of prices from one to twenty-five or fifty, we find that there is a little variation, and in not every case does the price figure exactly one-half. It does, however, figure just one-half, as a rule, as, for instance, quoting from one catalog, the price of ten shallow bodies with shallow extracting-frames and division-board is $4 in the eight-frame size, while ten bodies of equal capacity with frames and division-board, eight-frame size, are $8. In a jobbing way the cost of the latter body with frames and division-board is exactly double the cost of the two shallow bodies in the ten-frame size, while in the eight-frame size the cost of the single body is one cent more than the two shallow. It would not, of course, be fair to compare prices on two shallow hives that had more comb surface than a single L. hive.—ED.]

IT will be very important this year to stimulate colonies by feeding moderately and giving them good warm homes. The winter-cases that may have been on should be left on until settled warm weather comes on.

As showing how things are working in the honey market, a bee-keeper who called on us the other day stated he had an order to be delivered next fall for 200 cases of comb honey at 16 cts. per section (4×5), or about 18 cts. per lb.

THE British Bee-keepers' Association has elected the Master of the Wax Chandlers' Company as its president. The "Master" at present is Mr. H. C. Todd; but he is elected for only two years. In future the "Master,"

whoever he may be, will occupy both offices. The wax chandlers are as old as the hills, and are merely honorary in their nature.

THE next National Irrigation Congress will be held at Sacramento, Cal., the first week of September, and promises to be the greatest yet held, and, moreover, the most interesting. We mention this because our western readers are largely dependent upon irrigation for their success in producing honey, and a larger area of irrigated land is one of the certainties of the future.

THE bee-keepers of Minnesota are rejoicing over the fact that they have at last secured a foul-brood law. In brief, it provides for the appointment of an inspector at a salary of $1000 a year. The other provisions are about the same as those in the celebrated Wisconsin law. The Minnesota bee-keepers have tried hard and long for this; but, undaunted, they kept hammering away at their legislature until their efforts were crowned with success.

HOW THE MASSACHUSETTS PURE-FOOD LAW IS WORKING.

THE pure-food law amounts to something in Massachusetts, for during the month of January there were twenty-seven successful prosecutions for violations of the law in Boston. One of the principal grocery concerns of the city, with a great name, it is stated, was convicted of ten violations of the law. The fines imposed for the month amounted to $1565, so that the law must be nearly self-sustaining.

FOUL-BROOD LEGISLATION IN PENNSYLVANIA.

REFERRING to the foul-brood bill that is now pending before the Pennsylvania legislature at Harrisburg, the president of the Pennsylvania Bee-keepers' Association, Mr. H. C. Klinger, requests all bee-keepers of his State to write to their senators and representatives to support the bill; otherwise it may fail for lack of interest, as there are other bills on the calendar that are crowding and may push this aside unless its supporters get busy. The bill has been referred to the Committee on Agriculture, which has been given a hearing before Prof. H. A. Surface and the president of the association, Mr. Klinger. It has been reported favorably, and it is now very important that the Pennsylvania bee-keepers write to their State legislators at once.

PLANTING HONEY-BEARING TREES FOR FENCE-POSTS.

CARL SONDEREGGER, who surely ought to know, advises the farmers of Nebraska, Kansas, Oklahoma, and Texas to plant for fence-posts and other uses the following honey-bearing trees: First, the black or yellow locust; second, catalpa; third, Russian mulberry; fourth, the honey-locust. This looks like good sound advice, for at the present rate of increase in the price of lumber it looks as though each farmer would require to grow his own lumber or do without it. We endorse his selection.

BETTER PRICES ON PURE SYRUP.

THE *Florida Agriculturist* is quite enthusiastic over the prospects of the cane-syrup industry, which, it claims, can command a price of 75 cents to $1.00 a gallon. Probably this is true; but if it were not for the national pure-food law the syrup-owners could not get such prices, for glucose would keep the market down to a ruinously low level, and we know considerable mixing was done until lately. If Florida is anxious to supply the United States with good syrup, a State pure-food law working in conjunction with Uncle Sam is a necessity in this case.

NEW MAILING-WRAPPER FOR GLEANINGS.

THE reader's attention is drawn to the fact that, beginning with last issue, we are mailing GLEANINGS in *flat* wrappers. The increased size of the journal, together with the higher quality of half-tone paper necessary for bringing up the engravings, made it necessary for us to change the form of wrapping. We believe now there will be no further complaints of missing numbers or of missing sheets from any number. While this will cost some extra, the increasing prosperity of GLEANINGS renders increased expense imperative. Verily, GLEANINGS was never in a more prosperous condition than it is now.

ALFALFA WITH YELLOW BLOSSOMS.

IT is stated that Prof. Hansen, an agricultural explorer of the United States Department of Agriculture, has brought to this country a quantity of seed of a new species of alfalfa with yellow blossoms, which is said to be very hardy, withstanding a temperature of 40 degrees below zero. Experiments will be commenced at once with the new plant.

We think the great trouble with novelties is to get the farmers to take hold of them. Sainfoin, which is quite common in England, Belgium, and France, and produces hay of very high quality, is almost unknown to the farmers of this country. Any way, we bee-keepers will be glad of a new alfalfa *if it yields honey* as its sister does.

RECOMBING AND DISINFECTING.

WHILE we have no foul brood in Medina, yet we have taken precautions to give our empty hives a hot steam bath and a painting inside with crude carbolic acid, and, what is more, we are fumigating all empty combs with formaldehyde. Any combs not perfect, or that are old, are melted up into foundation. As we have before remarked, we are recombing and almost constantly disinfecting.

We consider it very important that any queen-breeder or shipper of bees should

not only have a clean bill-of-health, but should be taking preventive measures so that, if the germs of disease do work themselves in, they may be destroyed before they do any damage.

JAMES HEDDON'S NEW INVENTION.

THE question is sometimes asked, "What has become of Heddon?" meaning, of course, James Heddon, of Dowagiac, Michigan, inventor of the hive which bears his name. Well, he is still very much alive but engaged now in the manufacture of artificial lures for anglers. He is the patentee of several wooden minnows which are in use by bait-casters; indeed, he is the head-center of the Dowagiac school of bait-casters as distinguished from the Kalamazoo school of anglers who are celebrated the world over. Bait-casting is done on the same lines as fly-casting, and is quite different from the old style of fishing with a bait, requiring considerably more skill for its successful accomplishment.

LIVE-BEE DEMONSTRATION AT THE JAMESTOWN EXPOSITION.

MR. CHARLES KOEPPEN, of Fredricksburg, Va. expects to give some live-bee-demonstration work at the Jamestown exposition. For this purpose he is erecting a structure 30×50 feet. When it is installed it will cost something like $1400. It will be known as the Live-bee Exhibition, for the bees will be handled in connection with the moving picture apparatus. In the mean time he expects to sell standard bee-books. This live-bee-demonstration work will appear on what is known as the "War-path;" and we are of the opinion that it will be one of the attractive features and certainly a great deal better than some of the fakes that crowded the Pike at St. Lonis snd the Midway at Chicago.

This will be the first attempt ever made to get up a bee exhibit on so large a scale at an exposition, and we are, therefore, waiting with interest the result of the experimett.

MORE ABOUT MALTED HONEY.

DR. HAMILTON T. MASON has written us further with regard to his malted honey. He says he has no idea of putting up honey for appearance, but rather something for weak run-down people who do not stop to look at the color, nor perhaps the flavor, for that matter. He adds the honey sent us was originally amber, hence not the best. He further states that, by putting in less malt, the flavor is unaffected. He aims, however, to produce a food having both the flavor of the honey and the malt. He is of the opinion that this blend can be introduced through the health stores, and by advertising in the health magazines, in which he is probably correct.

The makers of "health" foods have certainly been very successful the last few years in making money; and if honey can be advertised in the same manner there is "millions in it." If it could be patented, a great deal of money could be made out of honey, but—

THE UNUSUAL APRIL WEATHER.

IN our last issue we reported an unusually warm spell of weather during the latter part of March, adding that we felt fearful this would be followed by the other extreme—a cold April. That our fears were not altogether groundless is evidenced by the fact that, since the first of April, we have had cool to cold weather. The bees have had almost no chance to fly; snow and cold rains, with very little sunshine, have continued on throughout the month thus far (April 20).

If this condition is universal in the North it will mean much spring dwindling, and as a result many colonies will be in poor condition when the harvest comes. Even if the nectar supply should be abundant in June and July, the weak stocks will not be strong enough to gather a good crop. But bees have a wonderful recuperative power; and should the weather be ideal from now on, they may make up the lost time.

Comparing this April with that of three or four years ago, the contrast is remarkable. *Then* we were having swarms at this time. Fruit-bloom, which was then out in all its glory, had made the bees simply wild.

THE LATE SPRING, AND PRICES ON HONEY FOR 1907.

THE late spring in many of the Northern States, coupled with an excessive amount of rain in California, and the entire failure of the honey season in Cuba, does not give a prospect of a glut of honey for 1907. The markets, when they open up, should be firm, especially so this year—the first one when the National pure-food law has been in effect. We must not expect, however, that this law is going to work a revolution in prices in *one* year. It may take the dear public ten years to learn of the existence of such a law. Some fool papers even now are telling about manufactured comb honey, when they ought to know, if they know any thing, that if such a product were mechanically possible it would be barred from the markets, especially so as new pure-food laws are being enacted in the various States at a rapid rate.

"THE HIT BIRD THAT FLUTTERS."

RECENTLY some of the dealers affected by the proposed New Jersey pure-food law were given a hearing which brought quite an array of druggists, ice-cream makers, and others. One druggist is said to have stated to the reporters that, if he was compelled to state on his labels the ingredients of some of his preparations he would lose $40,000. The ice-cream dealers vigorously oppose the proposed law because they wish to sell a counterfeit made from gelatine, condensed milk, and starch as ice-cream.

The farmers of New Jersey ought to make themselves heard at once. As a matter of fact, the demand for real cream, real milk,

real jelly, real fruit-juice, and real honey, is growing at a great rate, and this must ultimately redound to the farmers' benefit.

Some of our farm papers are very slow to catch on to this phase of pure-food legislation. The evil of adulteration is far more widespread than has been generally supposed—it is a far greater evil than "watering" stocks or railroad wrecking, as it affects every household in the land.

SPECIALTY VS. MIXED HUSBANDRY.

To be or not to be a specialist in bee-keeping is a hard question to decide. The weight of testimony goes to show that bee-keepers are very far from being mere specialists, for a great proportion of them are expert poultry-men, while not a few are skillful all-round farmers. Evidently, a thorough knowledge of bee-keeping does not prevent the average American from acquiring a thorough knowledge of other rural pursuits. It is an open question whether the farmers who are specialists in some one pursuit, as, for example, cotton, sugar-cane, cattle or sheep farming, are as well off financially or otherwise as those who pursue a mixed husbandry.

We note in the South the constant advice is to diversify the crops of the farm, and not rely on one staple. The agriculturist whose pantry is always well filled is the man who raises his own food supplies. In farming, at least, some think Nature seems to abhor specialism. We like to think that the bee-keeper who excels can raise his own fruits and vegetables, his own chickens, milk, etc., and do it as well as anybody else.

AN EXTRACT FROM SWEET CLOVER FOR FLAVORING; WHY CATTLE DON'T LIKE IT AT FIRST.

THE pure-food laws may affect the status of sweet clover somewhat, for an extract known as cumarin has been made for some time from the plant and quite extensively sold as vanilla. It is not considered quite as good as vanilla, not being worth more than half that of vanillin, the artificial substitute for real vanilla. It is the cumarin which this clover contains that causes animals to dislike it at first. The hay is better liked, simply because the cumarin has been rendered less rank by drying in the sun. There is nothing injurious about cumarin, being extracted from a vegetable, but there is some chance of vanillin being ruled out, as it comes from a coal-tar source.

Something similar to cumarin is also extracted from tonka beans gathered on the Orinoco River. The latter is not a "bean," but the seed of a fruit resembling the mango or peach. The question naturally arises, "Can cumarin take the place of vanilla, or, rather, vanillin, for it is the latter which now rules the market of the United States? Merck quotes cumarin (wholesale) at $4.25 per lb.

There has been a good deal said about sweet clover as a food for farm animals; but no one, apparently, has noted its great value as a fodder plant for sheep and goats.

TREE-PLANTING IN OHIO.

AT present it looks as though tree-planting would become popular even here in Ohio, where nearly all the land is comparatively high-priced. The following, from the pen of a practical farmer, will give a slight idea of the trend of planting opinion:

> Last year I planted 26 acres of my best land to catalpa-trees, and this coming spring I shall plant 125 acres more. I did not commence this large planting of trees as a business until I had satisfied myself by a thorough investigation that I shall make more from the growth of the trees on this land than I could have hoped to make by farming it. This is not poor unprofitable land, but the very best of farming-land; and I am as certain as I can be of any thing that my trees will make me much more than can be produced from the land by ordinary agriculture. Of course, an income like this will have to be waited for—eight, nine, or ten years, possibly; but those who are so situated that they can plant trees and wait for returns will be wonderfully surprised when their harvest comes in.—*H. C. Rogers, Champaign Co., O., in the Ohio Farmer for Feb. 2.*

Remember that the catalpa is ranked among the honey-producers.

The newspapers have announced the fact that the Pennsylvania Railway had decided to secure large tracts of land for the purpose of tree-planting to supply its own wants when lumber will be scarcer than it is now.

HONEY AS A PERFECT FOOD AND AS A PREVENTIVE OF FATIGUE.

HONEY is an excellent food in the prevention of fatigue, owing to the fact that, while it builds up the body (or, rather, makes up for the loss of tissue), it does not tax the system. The latter is not called upon to throw off or get rid of a mass of perfectly useless material, for it is undoubtedly true that not $\frac{1}{200}$ part of honey is actual waste. Not only so, but it is in a state of partial digestion before being eaten, and, in addition, the exquisite flavor of much of our honey induces a very free flow of saliva—a very necessary aid to digestion. It is believed that, after passing to the stomach to become natural glucose by the aid of the usual digestive ferments, it later becomes glycogen through the operation of the liver. In this manner it is converted into heat and work. It is given off by the body in the form of carbonic acid and water.

This is the latest theory of the digestive process as applied to honey.

It differs from sugar in two important particulars—first, it does not require to be "inverted," or converted into glucose—a process which frequently leads to diabetes, or kidney troubles, and it also possesses an aroma and flavor which sugar does not, and which is so necessary to good digestion by inducing the saliva to flow. It contains other valuable ingredients not found in sugar.

DOES OUR HONEY GO TO ENGLAND?

Referring to what we had to say in regard to the prices of English honey in former issues a correspondent of the *British Bee Journal* has this to say (in part):

> Then our folks are ever ready to boast of the high prices they obtain for their produce. Quite recently GLEANINGS, with a world-wide circulation, was writ-

ing up the high prices obtained by English bee-keepers for their honey; and this tends to whet the endeavors of the bee-keepers abroad to scoop in some of the "almighty dollars" by sending their produce to compete with ours. As regards the consumption of honey, I feel sure a much larger quantity is disposed of than a few years ago, as the growth of the industry must be steadily progressing. The hive-makers of ten years or more ago are still offering hives for sale, and have, no doubt, collectively turned out thousands yearly; and our advertising columns record that sections are imported by the million yearly. There is only one class of honey-producers who can complacently view these advances, and they are the heather-honey men who live "ayont the Tweed." May they have a record output at 2*s.* to 2*s.* 6*d.* per pound (48 to 60 cts.) in the coming summer.—W. WOODLEY.
Beedon, Newbury.

Our readers will remember we said nothing relative to exporting honey to England. On the contrary, we stated our opinion that American consumers were quite as well able to pay good prices as Englishmen, to say the least, and we believe there is very little American honey now exported to the English market. A good deal of the honey that the writer of the note complains of comes from British colonies where the "almighty" dollar is the standard of value — notably in the West Indies and Canada. We maintain that the population of this country, which is about 85,000,000, can consume all the honey we produce and considerably more.

Another fact which prevents us for the present from exporting honey in any quantity is the low price offered by English buyers, who bottle the honey and expect to make a large profit on the transaction—and they do, according to Mr. Woodley's own showing. It is the bottler who is after the dollars—or shillings. We do not covet the English market, but its prices.

PRESIDENT ROOSEVELT'S POLICY OF CREATING FOREST RESERVES.

SOME of our Western contemporaries are making severe comments on President Roosevelt's policy of creating great forest reserves, claiming there is very little timber on these lands. The government is probably aware of this, but trees can be planted on them, and that is probably what will be done later on when we get round to it. No other agency could do this better than the federal government, as work of this kind lasts for centuries, and hence can not be delegated to private enterprise.

No greater calamity could befall this country than to cut down all its forests; but this is precisely what is being done; and without planting on a vast scale we are measurably near the time when there will be no timber available except at prices which would be prohibitive of competition with other nations who manufacture wooden goods.

There is another side to the question; for it is probable, if these forest reserves are kept as great game preserves, the money gain would be greater than the present plan of cutting off the trees and using them as pastures.

So far as we can see, the Rocky Mountain States are anxious to pursue the same suicidal policy which characterized the Central States. We are sure some of the reserves, if properly planted, would become grand places for bee-keeping, and this ought not to be overlooked in the reckoning-up. Men will have to be engaged to care for the forest, others to cut the timber, others to use the wood in factories; tourists and hunters will be attracted to the locality, and in the end a large population will be maintained.

The people of the East, who have seen the folly of indiscriminate timber-cutting, are willing to vote public money to support the President's policy, and we judge bee-keepers are with him. Bee-men have a double interest in this problem, because they want to see a bee flora created and a supply of timber maintained for all time. We can join hands with the foresters, saw-millers, hunters, tourists, and anglers to prevent the further despoilation of the national domain. Maine is succesfully pursuing the policy just recommended, and Ontario is practically doing the same, so also New York. The same criticisms have been leveled at the work in these three sections, but we hear little of it now.

DESTRUCTION OF BEES BY SMELTER SMOKE; A SETTLEMENT WITH THE SMELTERS BY WHICH THE SUFFERING BEE-KEEPERS WERE AWARDED $60,000 DAMAGES.

ON both of our trips through the arid regions of the great West some years ago, studying up the bee question, we observed that those bee-yards that were in the immediate vicinity of the big smelters were seriously damaged. The highly poisonous gases that permeated the atmosphere seemed to kill vegetation, especially all plant life that furnished honey, and at the same time making serious inroads on the lives of the bees themselves. In fact, all vegetation for miles around was badly blighted by the noxious gases. The damage was seriously discussed by bee-keepers, and it was evident at that time that either the smelters would have to move or else the bee-keepers.

As we understood the question, the bee-owners had the right of priority occupation of the territory; and in the early days, before these big works moved into the territory, bee-keeping there was a very lucrative business.

The question has been discussed pro and con through all these years; and sometimes it was thought that the aid of the courts would have to be invoked; but it appears that both sides (and wisely, too, as we think) resorted to a friendly arbitration, with the result as recorded in the heading. While apparently, at least, the alleged sum is a large one, it is a comparatively small part of the damage that has been done.

We are personally acquainted with Mr. E. S. Lovesy, one who has suffered in this way, and we remember him as a man of sterling qualities—certainly not one who would be inclined to misrepresent or exaggerate the actual damage.

He has written an article on the general subject for the *Deseret Farmer*, which we are pleased to publish in full, as it is of more

than usual interest to bee-keepers in the vicinity of those big smelting-works.

It is, no doubt, true that there are other bee-keepers not involved in this particular trouble, but who have likewise been suffering a like damage. Whether this will act as a precedent to other cases remains to be seen.

We do not know what the status is for these other parties, but we should be glad to place before our readers any news bearing on the subject.

After a long and severe struggle of two years, we have finally been successful in securing a settlement by arbitration with the smelters in the Salt Lake Valley. Prior to the advent of the smelters, the Salt Lake Valley was the banner bee and honey county of the State. Ten years ago there were over ten thousand colonies of bees in the county. To-day I believe there are not ten colonies left. At first, when the bees began to die off, the bee-keepers, not being cognizant of the source of their trouble, bought more bees, but these died off faster than the first ones. Many of our bee-keepers, having made a success of the business, and depending upon it for a livelihood, did not like to give it up until absolutely forced to. The writer has lost, all told, over one thousand colonies; and while we have suffered enormous losses, we decided it was a source of wisdom to compromise with the smelter people for the sum of $15,000 from each of the four smelter companies. Of course, this does not begin to compensate us for our losses; but we started in for a friendly settlement by arbitration, rather than to go into the courts. We think this settlement is better than it would have been to go into the court and secure a judgment, as that is a very poor thing to live on; but the little ready cash that we have received has helped many of our bee-keepers materially, and we realize too that there are two sides to every question.

In the beginning the smelters were welcomed to the valley, and no one anticipated any trouble from their operation. When we take into consideration the unforeseen complication of this long-drawn-out question our bee-keepers are very well satisfied with the final settlement reached.

I am especially grateful for the many words of appreciation received by the bee-keepers for the work I have done in conducting this matter. There have been volumes of documents pass between myself and the smelters in our persistent effort to bring the matter to a successful issue. The smelter people were always courteous and patient; and, while it was a long and tedious affair, it was most pleasant throughout.

With the smelters already located in Salt Lake Valley, we have had experience which ought to have given a lesson so far as the location of smelters is concerned. However, there was actually built in 1906, near the agricultural centers of Weber and Box Elder Counties, another smelter. A protest was sent by the bee-keepers to the company before the smelter was built, and now we feel that, if the bees are destroyed by fumes, a condition most likely to obtain, the bee-keepers of those sections will claim full damage for their losses. The smelters that are to be built in the future should be made in those sections where they will not do damage to the agricultural industry.

A PLURALITY OF QUEENS IN A HIVE WITHOUT PERFORATED ZINC OR OTHER DIVISION.

OUR readers will remember the article by Mr. E. W. Alexander on the possibility of having a plurality of queens in one brood-nest without using perforated zinc or division-boards, as given on page 473 for April 1. Mr. E. E. Pressler, of Williamsport, Pa., a bee-keeper of considerable note in his State, has for some time been working on the same lines. The writer has been trying to get him to put a few of his ideas in typewriter, and send them on to us for publication, but nothing has come to hand till now.

When the article by Mr. Alexander appeared, it so stirred up our friend that he could no longer keep his light under a bushel, as will be shown by the communication sent. As the matter is something of more than ordinary interest, we are pleased to place it before our readers right here in the editorial columns.

I consider Mr. Alexander one of the ablest contributors to GLEANINGS, and wish we had more such writers. Many bee-keepers may not consider his practices and doctrines altogether orthodox; but for myself I wish we had more bee-keepers of this class, who are willing to blaze the way to what I consider modern apiculture.

Thus far I have persistently refused to have any thing published over my signature; but the last article of Mr. Alexander's has so stirred me up that I can not refrain from emphasizing the importance of having two or more laying queens in one colony to build up strong colonies preparatory to the expected honey-flow. After having tried all the so-called systems of queen rearing and mating, I have found them all lacking some essential point for my practical use. In experimenting along the lines of queen-mating in full colonies (which I do altogether now) by placing division-boards made of queen-excluding zinc, some solid boards, and queen-excluders made for the purpose between the brood-chamber and the surplus department, and being rushed with work one day, failing to replace these division-boards, etc., after examining a colony, I found on returning, six days later, that four virgin queens, which were placed therein for mating purposes, were all mated and laying, with the excluders and division-boards standing on the outside rear of the hive. I had used these division-boards and excluders with four to ten queens in a hive, and many times after the virgins were mated—probably not had ready sale—I kept the queens laying in their several compartments for some time; and the bees going through the excluders above, intermingling with all the queens in the hive and filling a second story in a few days, made me "sit up and take notice."

Judging from the article by Mr. Alexander he has gone up the lane of progress, grazing between the second wires of a barbed-wire fence, tasting a little of the golden sweet in the promised land, and no doubt has been scratched by the barbs on the wire fence on many occasions; but, like myself, nothing like adversity is known to him when experimenting along modern scientific lines. I am satisfied there will be many the coming season who will attempt this method and make a failure of it, and say it is not Littledoo-oxy or Lermiloxy, simply because of the prejudice for the teachings of the past.

Were it not for the editorials in GLEANINGS, and footnotes expounding and upholding Mr. Alexander the past year, the majority of his writings would hardly have been accepted; but with this footnote explanation by the editor, he has become authority and a shining light for our industry, for which I am thankful.

Some time last summer a certain doctor from a Western State discovered two laying queens in one hive—mother and daughter. He wrote and had an article in one of the bee papers about it, saying that he was now an old man and had never before seen any thing like it—facetiously wondering at the same time if any one else had ever witnessed such a thing. He seemed to go into ecstasy over this "new discovery." This did not move me one bit, because I had just 73 laying queens in ten thirteen-frame hives at that very moment—no mothers and daughters either.

On several occasions another bee-keeper who carries his name by the same handle (I suppose to suggest authority) wanted to know how a queen-breeder knew which queen produced the best strain of bees for honey-gathering, when of necessity all his colonies were devoted to "modern queen-rearing." This prompted me to say on the floor of a convention that I could mate all my queens in full colonies, and instead of diminishing or having no surplus crop of honey, I could at least double my crop. So could every queen-breeder if he would burn up his baby-nuclei mating-boxes, then thoroughly learn the habits of the bee, and start *modern queen-rearing*, which is as old as time itself. What are those queens worth that are reared and mated by the baby system? They are small, puny, sickly-looking specimens of the real thing—I mean 75 per cent of them, and that percentage should have their heads pinched off.

On next page J. A. Green writes on the same subject.

Bees have wintered very well so far, and there is every prospect of a good season here.

The Colorado legislature passed a good local-option law during its last session. The territory owned by the distillers and brewers is narrowing down.

Honey that has granulated in the comb can be melted without damage to the comb by a careful management of the heat; but it is hardly practical or profitable to attempt it. In the case of honey in sections, there is the further disadvantage that the appearance is injured by the melted honey settling close against the cappings, making watery-looking combs.

It is a very dangerous thing to attempt to winter over colonies that have foul brood, no matter how strong they may appear to be in the fall. Our inspector permitted this in some cases last fall. In buying bees this spring I came across some of these. Four out of five of them stood no chance whatever of living long enough to be cured, but would inevitably die and be robbed out. In fact, I heard of some cases where this had already happened. The trouble is that there is not the usual percentage of young bees among those going into winter quarters, so that the winter loss is heavier. Then when brood-rearing begins in the spring, so many of the larvæ die of disease that the colony has no chance to build up.

The statement on page 473, that if we slowly melt a quantity of solid honey the dextrose and levulose can be separated very readily, the latter running away from the dextrose, which is in the form of finely granulated sugar, doubtless is correct of *some* honey. In fact, I have seen just such honey myself. But with some honey, and I am inclined to think with a thoroughly well-ripened article of any honey, this would be impossible. In both Illinois and Colorado I have produced tons of honey that was too dense and uniform in texture when granulated to permit of any separation of its constituents. When heat was applied, the honey softened or melted uniformly. I do not believe the writer of the paragraph in question ever saw a sample of granulated heartsease, clover, or alfalfa honey that had been thoroughly ripened.

TWO LAYING QUEENS IN A COLONY.

If it should prove that E. W. Alexander is correct in his claim that it is practical to keep two or more laying queens in a hive, its publication will prove to be one of the most important steps that have been taken in bee-keeping in a long time. In corroboration of his position I will say that I once introduced a queen into a colony that already had a good laying queen. I had a queen I intended to supersede. I killed her, and later in the day put a queen into the same hive, as I supposed, introducing by the candy plan. Several days later, in looking at my records I found that I had put the queen into the wrong hive. Examination showed that both queens, the one belonging in the hive and the one I had introduced, were there, both young queens, both apparently laying and on good terms with each other and the workers. The queen was needed in the other hive, so one was removed, and somehow I never experimented any further in that direction.

Contrary to his experience, I have had laying queens kill each other when shut up together, also when in separate cages lying together so that they could sting each other through the wire cloth. I think it very likely that we shall find there is a difference of temper in different strains of bees that will give a variation in results. It is well known that some strains of bees can be readily united without trouble, while others are almost sure to fight.

SPRAYING FRUIT-TREES WHILE IN BLOOM.

Several of the States have laws prohibiting the spraying of fruit-trees with poison while they are in blossom. Colorado is one of these. Aside from this, we have been congratulating ourselves that up-to-date fruit-growers had come to the belief that spraying when trees are in bloom is contrary to their own interests. But a new development has arisen here in Colorado. The Grand Valley, on the western slope of the Rockies, is largely devoted to fruit-raising, apples being one of the main crops. Probably there is no district where more interest is taken in scientific horticulture or where better preparation is made for it. In the matter of spraying, hundreds of power-spraying outfits are in use, and during the last season the fruit-growers of Mesa Co. paid out over $36,000 for spraying-materials alone, many carloads of poison being applied. It will be seen that the spraying question is an important one to the fruit-grower, and it would be well for us to look at the question from his side, even if it is not altogether agreeable.

In the first place, we must remember that the time for proper spraying is very short. To be effective it must be done while the calyx is open in order to fill the calyx cup with poison. The closing of the calyx varies with different varieties; but in from five to seven days after the petals have fallen it has closed and the time for effective spraying has passed.

If you will examine a bunch of apple-blossoms you will find that there are usually from five to eight blossoms in a bunch, but that this bunch seldom produces over one or

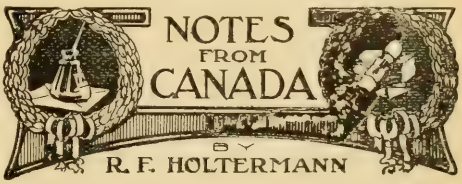
two apples. These are produced from the center blossoms, which open sooner, drop their petals sooner, and close their calyces sooner than the rest of the blossoms. From the standpoint of the fruit-grower, these central blossoms are the only ones to be considered so far as his interests are concerned. To quote from the report of the field entomologist, carrying on a branch of the State Experiment Station here, "The center blossoms are invariably the first to open their petals and first to drop them. They are first to close their calyces, and most likely to set fruit which will remain without dropping from the tree. It is, therefore, evident that this first spraying should be done with these blossoms in mind." You will see that there is a powerful incentive for the man with a large amount of spraying to do to get at it before the outside blossoms have fallen This, undoubtedly, will be bad for the bees. But with the large amount the fruit-grower has at stake, can we altogther blame him?

DEEP VS. SHALLOW BROOD-CHAMBERS.

There are one or two points in Mr. Dadant's article on page 485 that I want to reply to. In the first place he calls attention to the fact that the Heddon hive has not made the progress that might have been expected of it. It is true that the Heddon hive has not become greatly popular. I will admit that it may even have lost some of the popularity it once enjoyed. But there are some good reasons for that aside from the fact that it is a divisible-brood-chamber hive. While I think great credit is due Mr. Heddon for his introduction of the divisible brood-chamber, I was never very well satisfied with his hive after it had been in use for some time. The frames were too hard to handle when manipulation became necessary, and there were some other defects of construction which soon led me to discard the hive. I once had about fifty of them. I have just one now. But some slight changes in construction, mainly the adoption of a closed-end hanging frame, made a shallow hive that suited me much better, and I have several hundred of these in use now. Probably there are others who gave up the Heddon hive because they recognized its faults and did not have the opportunity I had to make a hive that avoided them.

The point that only two per cent of the foundation sold by the Dadant factory is for shallow hives is not as important as it would appear, for it happens that a large proportion of those who use shallow hives—all, in fact, with whose methods I am acquainted—are comb-honey producers, following the modern plan of hiving all swarms in contracted brood-chambers with only narrow starters of foundation in the frames. Naturally this consumes very little brood foundation. These narrow strips, too, can be cut just as easily from the standard width of sheet as from a special size. That is exactly what I shall do in preparing my hives this season. In fact, all the full sheets I want can be cut from the standard size, and the remnants used for starters in the frames on which swarms are hived. In this way there would be no indication to the foundation-maker of the size of frame in which it was to be used.

Please remember that the users of shallow hives are not denied the privilege of handling frames if they want to. They are not obliged to double the size of the hive or add a whole story of brood or honey unless they want to. They can make such additions just about as easily, and even more gradually, by single frames than the users of the large frames. Mr. Dadant does not relish the idea of hunting a queen by shaking the whole swarm out. Of course, that is impractical with his hive; but if he could do it with less time and labor than by overhauling the frames (and I can easily prove that this is the case), is there any good reason why he should not do it?



On page 485 C. P. Dadant, while favoring *deep* brood-chambers, admits that "shallow hives are more desirable for migratory bee-keeping." The one who swings this pen fails to see the advantage to be derived from having to fasten together four pieces where there are only three with a deep chamber, or even fastening together six or eight where formerly there were only four or six.

SIMPLE FRAMES, ETC.

In the same article he quotes Editor Hutchinson as being in favor of simplicity in hive-construction—plain simple frames without projections of staples, stating that these "fixings that are put upon frames and hives are a needless expense and bring no recompense."

Can it be that Mr. Hutchinson has never tried staple-spaced frames—that is, frames separated from each other by staples? If he has, I can not see why he should pronounce such spacing a needless expense. I have tried both ways, and I would no more go back to unspaced frames than an intelligent woman would leave a first-class washing-machine and go back to a plain tub. The reason for my decision is that staples are not costly; they are not in one's way when uncapping, and, when returning them to the hive, I can space them accurately, *collectively*, by shoving them together in a body—*a very important matter*, and many times multiplied in robbing time. For five years we have never seen the day when, extracting in robbing time, we had to quit extracting in time of robbing. The same largely holds good

when manipulating the brood-chamber. Try it, friend Hutchinson, and you will have less trouble in robbing time.

CLIPPING QUEENS.

On Wednesday, Thursday, and Friday, March 27—29, we examined colonies for queens, brood, and honey, clipping queens—something unusual for us in March. If bee-keepers would thoroughly rub propolis over their fingers before touching a queen, no evil results would occur from foreign odors. I catch a queen in the right hand, then take her between the thumb and finger of my left, holding her by the upper and lower side of the thorax; then clip her with any thing from a fine pair of scissors to a sheep-shears, so long as they will cut clean and not pull the wings. Cut the wings on both sides evenly. We have clipped many a queen with sheep-shears.

EXTRACTORS.

Last week I visited a progressive and intelligent bee-keeper, who was for years president of our county bee-keepers' association —Mr. Chris. Edmanson. He has a large reversible honey-extractor, and in a reminiscent way said, "When I think of the time I used a smaller machine, and particularly a non-reversible, it makes me smile and shake my head. Nothing could induce me to go back to that way of extracting." This is my experience, and the experience of many others. Give me a machine of less capacity as a gift, and it would not pay me to use it. The same way with the inside strainer as described in GLEANINGS last year. One who has once used it would not do without it.

BASSWOOD POLLEN.

Self-fertilization in blossoms is "the fertilization of a flower by pollen from the same flower and without outer aid."—WEBSTER. The male and female blossoms must at least be in the blossom, and both mature at the same time. If a basswood blossom could produce fruit without pollen, the *principle* (that is the word I used) of reproduction by seed without males would have to exist in plants. It is needless to say I do not think such is the case, and basswood *must* produce pollen, even if it can not be detected by the naked eye—see page 163.

FLOWERS THAT GIVE LIGHT AND HEAT.

J. C. Beard, in *Sunday Magazine*, writes:

Not only do growing plants emit light, but, strange as it may appear, they send out heat as well. Lamark more than a hundred years ago discovered that the European arum "in opening grows hot, as if about to burn." By the application of an instrument of extreme sensibility used to determine slight differences of temperature, the thermopile, the warmth generated in any cluster of blossoms is made perceptible.

The development of heat in tropical plants is most marked where a multitude of flowers are massed together under a common covering hood or spathe. The temperature in this case appreciably increases in the afternoon like a paroxysm of fever and passes away as evening approaches; the greatest heat always comes during the shedding of the pollen.

It may be added that the best time to witness flower-fire is in July or August, just after sunset, when the air is dry and clear. If there is a dense atmosphere, or it is after a rainy day, nothing can be seen. It is much better to have a whole bed, or cluster of the flowers, than a single specimen, under observation.

How much there is that we do not yet know about plant life!

CONDITION OF BEES.

Reports generally indicate that bees have wintered a little below the average. Those fed sugar syrup in the fall are all right; others show a more than usual amount of dysentery; the outlook at present writing, however, is good in every way.

FLYING APIARIES.

The *American Magazine* for April contains nine pages, with illustrations, of the Wright Bros.' flying-machine. This is the machine described by Mr. A. I. Root in GLEANINGS last year, and Mr. Root's name is mentioned in the article. The Wright Bros. have traveled through the air at a speed of 50 miles an hour. In the no distant future I believe we shall move out-apiaries on these flying-machines—perhaps start out in the south in spring and follow the bloom as it opens up north. Those will surely be *strenuous times.*

THIN OR EXTRA-THIN SECTION FOUNDATION.

J. A. Green, page 468, rather opposes the editor as to the advisability of using thin instead of extra-thin section foundation. I fancy the difficulty in the past has been from using foundation thicker than the *thin* grade. I have known bee keepers over here to put brood foundation in their sections—not very often, of course. With the extra-thin foundation, unless the bees draw it out and build walls on it at once, I have found them more liable to gnaw holes in it and eat the wall down, enabling them to build drone-cells. Another thing, do the bees not take hold of the heavier grade a little more readily? I think so.

POLLEN-CLOGGED COMBS.

In the report of the British Bee-keepers' Association conversazione, *British Bee Journal*, page 431, 1906, Mr. Arthur Teach said, with regard to pollen-clogged combs, he would like to ask if any gentleman present had tried the Canadian system of cutting away the comb to the base or mid-rib, by which means all the pollen clog was removed.

It is news to me that this is a Canadian system. Mr. Paul's method, on page 431, being a report of the same convention, appears to me a much better method. He said, "Soak them in water for a little while, and then turn the garden hose on them." He simply held the comb in front of the hose, when the pollen was readily washed out.

Where there is no system of waterworks the combs may be placed in a damp cellar. In warm weather the pollen soon ferments and swells. The least resistance is toward the open cell-mouth. When these combs are then brought out to dry, the pollen lumps dry

and contract, when the bees will remove them. However, unless the bee-keeper is very scarce of combs, and comb foundation not convenient, the best way to treat such combs is probably to cut them out of the frame and melt them. In closing let me say that if there were no swarming, and the stock always had a laying queen, there would be fewer pollen-clogged combs.

WHAT WE KNOW.

Science, which claims so large a share of the attention of all the intelligent people of to-day, and with good reason, has to do with facts, or, we might say, with truth. The scientist has for his work the determination of truth. We have sought out the truths of electricity, and now we are able, by means of a small wire, to conduct this intangible fluid so that it moves great carloads of people. Scientific truth is gained by experiments. These experiments must be many times repeated or we may draw wrong conclusions, and claim for truth what is not truth at all. Old observers in astronomy saw the sun, as they thought, go repeatedly around the earth and gave this forth as a truth. We now know that they were wrong. They were deceived by appearances. Evolution, which to-day is accepted by all intelligent students of the subject, teaches that God has formed things, as we see them, by the slow process of development, through laws which he established and maintains, and not by a fiat. This involves so much that a complete demonstration is quite impossible, but it is firmly believed, as it explains all things that we see and know so well, that to doubt is not possible. In like manner we have determined many things in the science of bee-keeping. Is it not well to take note of these that we may not be thrashing old straw?

MATING QUEENS IN CONFINEMENT.

This is a thing that is, like Banquo's ghost, ever coming up for attention. It seems so important that people can not give it up. I and several others tried this so thoroughly years ago, and in so many ways, that I feel sure it will never be done, or at least will never be practical. I am sure that we may decide that matter settled. It is probable that, if we could succeed, it would not be desirable. The matter of flight would not have prevailed, except that it is wisest and best. It brings danger, and must have more to recommend it or it would not be as it is. It is probable that the exercise is called for to make the sexual act complete; and so if we could succeed in mating in quiet, we would doubtless find that we had queens that were worthless.

PLANTING FOR HONEY.

Another thing that we have determined once for all is that it will not pay to plant exclusively for honey. Plants like clover and alfalfa, that will pay for other purposes than honey, will pay well. It may and often will pay well to furnish seed to a farmer who lives near our apiary, if he will grow alsike clover, alfalfa, or any other useful plant that has a double use in that it also furnishes honey; it will also pay well to secure the planting of valuable honey-trees along the highway, such as linden, tulip, acacia, catalpa, and eucalyptus, when they are among the best of trees for roadside adornment. It is wise to plant sweet clover, motherwort, and other good honey-plants in all waste places near the apiary. It is better to have such space occupied by plants that have value, and not grow weeds that are a sore disfigurement, and, besides, furnish seeds to scatter to become a nuisance to our neighbor as well. I once heard Mr. Harbison, the distinguished bee-keeper, say that he had planted the wild sage in waste places to great advantage in our State; but to grow any plant on valuable land that has no use other than the nectar it yields is a mistake. This has been demonstrated beyond question.

STIMULATIVE FEEDING.

To feed sparingly in the spring to stimulate to more rapid breeding is wise, as I proved to a certainty many years ago. If one plans wisely this is quite inexpensive, and it will often pay a large per cent on its cost. I am glad to learn that many of our best bee-keepers practice this now with unfailing regularity. I am sure that it will be practiced more and more as people learn the best ways. It takes time to bring even the best plans and methods into general use.

CLIPPING QUEENS' WINGS.

I early learned that this is wise and always pays. I remember that one time an article I wrote in advocacy of this practice was stoutly criticised and condemned by one of our ablest men. He contended that it would destroy the beauty of the queen, and actually injure her. I am sure that to-day it would be hard to convince any of our best bee-keepers that this practice is not safe and valuable.

QUEEN-EXCLUDERS.

I have proved to my own satisfaction that we can not afford to do without these valuable aids to our success. I would not do without them either in working for comb honey or for extracted. It may be that some people will be content to do without them; but I am sure that they have come to stay, and that more and more they will be used by our best bee-keepers. We can surely keep the queen solely to the brood-chamber only by the use of the zinc excluders.

SEPARATORS.

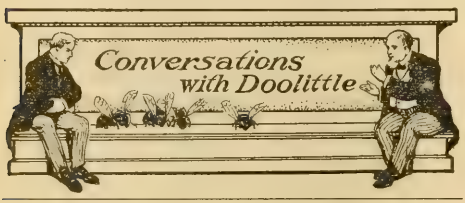
Here again we have a demonstration. I feel sure that, in working for comb honey, the best success will come only in the use of separators. I do not care much whether we use tin or wood, as each has its advantages; but I am quite sure that one must be used if we would reach the best success.

WHEN TO EXTRACT.

Here again I feel sure that we can speak with positiveness. We must never extract unripe or thin honey. I once thought otherwise, but I am sure now that I was wrong, and am sure that one who does otherwise runs a hazardous risk.

GENEROUS RAINS.

In all my sojourn in Claremont, now for more than 13 years, I have never known such bountiful rains as have come to us this present winter. Our average is 15 inches, while we now have had 22.22 inches and we still have the best part of the winter to come. This insures great crops, and is almost as certain to give a surprising honey crop. There is one thing that gives California preeminence as a bee region. We have abundant bloom all winter, and the bees are lively all through February and March on the flowers of acacia and the eucalypts. Thus we have stimulation all winter. Of course, this also works to keep the bees healthy. We never have dysentery in this place so far as I have observed. The bright bloom of the acacias the past month, and the merry hum of the bees, have made it delightful to stroll about in the bright sunshine.



LITTLE SWARMING AFTER POOR WINTERING.

"Mr. Doolittle?"

"Yes, Mr. Brown."

"Do you think that bees swarm less the first summer after they have wintered poorly during the winter?"

"I hardly think that, taking the average of the poor winters, together with the average of the good winters, little difference will be observed as to swarming of bees during the average summers following. But what made Brown ask that question?"

"I was talking with an old bee-keeper a few days ago, and he said it seemed to him that bees never swarmed as much after a heavy loss of bees during the winter as they did the next summer after all had come through the winter in good shape; and he cited me to the summer of 1883, after that exceptional loss of bees which he said occurred during the winter of 1882."

"I well remember the winter of 1882, during which nearly if not quite three-fourths of all the bees in the United States were swept out of existence. But I was not aware that the next summer was one of few swarms."

"He said that he lost four-fifths of his bees during that winter, and that the next summer he did not have swarms enough to stock the combs from which the bees had died."

"Ah! I see why he thought the bees swarmed very little. He wished to save those combs, and so it seemed a small yield of swarms because he could not save the combs But if he had swarms enough to use half of his combs he would have had a greater amount of swarming than usual, for an increase of two colonies from each old one in the spring is considered a large increase for an average."

"That is so. I did not stop to analyze the matter after that fashion."

"My loss that year was 75 colonies out of 90, and the 15 remaining did not have bees enough in them to make three fairly good colonies on the first day of May. These 90 were left out during the winter, but I had 55 in the cellar, 53 of which came out in good condition, and my increase was more than enough to stock all the combs from which the bees died. But his locality might have given different results from what mine did."

"What do you mean by that? If you had a good year for swarming, would not the same be true of your whole State?"

"No, by no means."

"Why not?"

"For the reason that the yield of honey may not be the same throughout the whole State."

"Would that make any great difference?"

"All the difference in the world. With a yield so poor that the bees nearly starve during June and July, no swarms issue; and when the honey harvest begins early, and continues right along without interruption, very few swarms issue, as a rule; but with a season where just enough honey is obtained to carry forward profuse brood-rearing the swarming mania is liable to break out, when swarming is liable to be kept up till the bee-keeper gets tired and sick of the matter."

"This is something I had not thought of before."

"To show you: In 1877 we had a continuous good yield throughout the whole season —so much so that my colonies averaged 166 pounds of section honey per colony, and I had very little swarming, with colonies all strong in the spring, while another year, with a light flow of honey, 49 colonies of only moderate strength in the spring gave me 348 swarms, with less than an average crop of comb honey. At such times as this last, many colonies not strong enough to work in the sections will swarm and keep at it till the apiarist's patience is nearly exhausted."

"But is there no way of stopping such excessive swarming?"

"Yes, there is now; but in those early years

we were not so far advanced as now. If you wish to allow natural swarming, and desire only one swarm from each good colony, just wait eight days after the swarm issues about cutting queen-cells, at which time the first young queen will have emerged from her cell, as a rule, in the parent colony, when you will cut or destroy *every* queen-cell from the combs and have a sure thing on them, as all after-swarms come from a plurality of queens."

"How shall I know that a queen has emerged?"

"By finding one of the cells open at the end, or by hearing the young queen that is at liberty piping, as she generally is doing by the forenoon of the eighth day after the prime swarm issued."

"I see. But what about the weaker colonies which will be about in swarming condition right in the midst of the honey-flow?"

"These can be kept from swarming by the shook-swarming plan."

"But suppose I do not wish to use that plan."

"All swarming can be stopped by caging the queens in these colonies five or six days before your expected honey-flow, and, ten days later, cutting every queen-cell off the combs, when, instead of the solid stopper you have so far had in the cage containing the queen, you are to put one which has a $\frac{5}{8}$ hole in it, this hole having about one inch of queen-candy in it. It will take the bees about two days to eat this candy out, thereby liberating the queen, at which time all desire to swarm will have passed away; and with the liberation of the queen comes a desire for both brood and stores, which will cause a tremendous rush of honey to the sections, if there is any to be had in the fields."

"Will the bees work always the same with the same environments?"

"Yes."

"But this old bee-keeper with whom I was talking told me that bees do not work any two years alike."

"Undoubtedly he was right in this matter."

"Well, how do you reconcile this with your statement that they will always work the same with the same environments?"

"I have been trying for nearly forty years to find the *same environments* carried out a second time, with an entire failure to do so, when we come to all of the *minutiæ* in the matter. I have said hundreds of times that bees act differently in different seasons, for the reason that no two seasons are exactly alike."

"How is that? I had supposed that I had seen several seasons almost identical."

"Two seasons may be *approximately* alike, but never *exactly* alike. I used to wish that each season might be like the preceding, then I could secure a crop in just such a way every time, machinery like; but of late years I have not wished that way."

"How is that?"

"Had it been thus, Doolittle's bee fever would have run its course long ago. But as it is, each season adds new thoughts, new complications, new zest, new energies, new determinations, etc., till the one great *whole* gives an indescribable pleasure to bee-keeping not found in any in other pursuit. And this pleasure can be grasped only by the one who is not turned aside by trifles. Over the door of apiculture stands written in letters of fire, *lazy and shiftless persons need not apply;* and if they do apply they are always like the seed of the scripture, which was sown in stony places. See Matthew 13:5, 6, 20, 21."

"I'll go home and read up the matter. I am afraid you are a little hard on me."

"I guess you will agree after reading."

Gleanings from Foreign Fields.

BY W. K. MORRISON.

According to a report in the Alsace-Lorraine *Bienen Zuechter* the local bee-keepers' societies in Lorraine have formed a federation for the better protection of their interests. One of the most important duties of the federation is the fixing of the prices at which bee-keepers may sell their honey. It is not generally realized that in Europe the price of honey is fixed by the local bee-keepers' society. Another duty is the popularization of honey as an article of food, also the collection of accurate statistics of the honey crop, the formation of a bee-keepers' library, and the improvement of the local bee flora in various ways. Some societies publish their own bee-paper. The federation of Lorraine will analyze a member's honey for $1.25. The local bee-keepers' society in Alsace has a library of 900 volumes which are loaned to members. This is the right kind of coöperation, especially that which has to do with fixing prices.

Mr. Albert Gale, in the *Agricultural Gazette*, of New South Wales, contributes a very interesting article on the bee industry in that state for the past ten years. He states that, in 1897, the number of hives was 41,900, of which 9343 were unproductive. The 32,557 productive hives gave 1,378,039 lbs. of honey, with an average of 42.3 per hive. In 1899 the number of hives was 51,681, with a yield of honey nearly 3,000,000 lbs. From that time the number of bee-hives in use has decreased considerably, though the yield has increased by 8 pounds per hive per annum. In 1897 the yield of beeswax was 31,842 lbs., and ten years later the yield was 39,620—an increase of 7778 lbs.

He states the average wholesale price of honey in the local market to be 5 cents per lb., while beeswax fluctuates between 24½ and 27 cents.

He gives it as his opinion it will take some time for New South Wales to become a honey country, as the tendency is to cut down

the honey-bearing trees in a reckless manner, and the crops grown are not equal to the original flora. He states that the habit of poisoning rabbits interferes seriously with bee-keeping in some localities, as the bees eat the poison set out for the bunnies. It may be that some of the bee-keepers may be able to turn themselves into rabbit-catchers, at which they can earn 15 to 20 dollars a week. The canned and frozen rabbits are exported to the value of $10,000,000, and Australia could spare three or four times that amount.

At this distance it seems to us as though the chief want of all the Australian colonies were a greater population—at least 10,000,000 or 20,000,000 more people—to consume the superabundance and overtake Dame Nature in her prodigality. Pity that some of the overcrowded, poorly fed, and starving out-of-work people of London could not be deported to that land of milk and honey.

BEE-KEEPERS' TABLE OF FACTS.

The following is translated from the French of *L'Abeille* (Belgium), but appeared first in the *Bienen-Zeitung* of Luxembourg:

1. Duration of incubation—workers, 20 to 21 days (3 days in the form of an egg, 6 days as a larva, 11½ days in the chrysalis state). Drone, period of 24 days in the cell (3 days in the egg, larva 6 days, and 16 days as a chrysalis). Queen 15 to 16 days (egg state, 3 days; larva, 5 days, and as a chrysalis 7 to 8 days).

2. The analysis of nectar (by von Planta, Ph. D.). Water, 75 per cent; invert sugar, 12 per cent; cane sugar, 12 per cent; ash, etc., 3 per cent.

3. Analysis of honey (by Koenig). Water, 20 to 6 per cent; invert sugar, 72 per cent; cane sugar, 1 to 7 per cent; ash, ¼ per cent, and a small amount of gum, phosphorus, and various acids.

4. Analysis of sugar—water, 15 per cent; cane sugar, 99 per cent; ash, 1 per cent.

5. Pollen of the wild rose—water, 5 per cent; albumen, 30 per cent; carbo-hydrates, 60 per cent; starch, 5 per cent; cane sugar, 15 per cent; also various matters, acids, and coloring matter.

6. The pap supplied to the young contains, for the queen, 69 per cent water, and 30 per cent nourishing material; for the drone and worker, 72 per cent water and 28 per cent nourishing material.

Composition of the pap fed to queens, drones, and workers:

	1. For queens (for whole period).	2. For drones. First 4 days.	2. For drones. After 4th day.	3. For workers. First 4 days.	3. For workers. After 4th day.
Albumen,	45%	56%	32%	53%	28%
Fat,	14 "	12 "	5 "	8 "	4 "
Sugar,	20 "	10 "	38 "	18 "	45 "

7. The cells of the queens receive 14 times as much pap as a drone-cell, and 90 times as much as a worker.

8. The amount of honey consumed in wintering is as follows: November, 1 to 2 lbs.; December, 1 to 2 lbs.; January, 2 lbs.; February, 3 lbs.; March, 5 lbs.; April, 6 or 7 lbs.

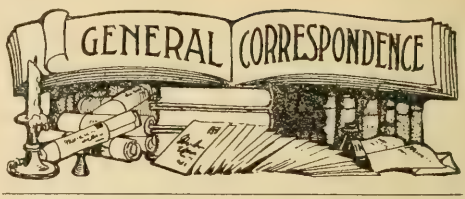
9. The total amount required by a normal colony for wintering, 12 to 16 lbs. of honey; of sugar, 6 to 10 lbs. will be required. (This, evidently, refers to bees in house or cellar —W. K. M.)

10. Artificial feed in the fall is composed of one quart of water to 3 and 3¼ lbs. of sugar.

11. Stimulative feed, ⅔ lbs. of honey, 1¾ lbs. of sugar, and 4½ quarts of water. (This is to imitate nectar.—W. K. M.)

12. Medium for lubricating foundation-machines, one part honey, 2 parts water, 3 parts alcohol. Something cheaper for the same purpose, 5 grams of green soap in one quart of boiling water.

13. Weight of swarms. One pound contains in the neighborhood of 4500 bees; but in a swarm, 4000 bees make a pound, so that a swarm weighing 3 lbs. has 12,000 bees. A colony of bees at its maximum development contains 30,000 to 60,000 bees of all kinds, and may contain 40,000 to 70,000 cells occupied with eggs and brood.



ORGANIZING FOR BETTER PRICES ON HONEY.

The Present Unsatisfactory Method of Producers Working Against Each Other in the Disposal of Their Crops.

BY E. W. ALEXANDER.

The weakest link in the whole complicated chain of modern bee-keeping at the present time is a lack of practical organization. I will admit that we have national, State, and county organizations, and we hold many conventions; but when it comes to the most vital part of our business, that of disposing of our honey, then each producer is not only a competitor against all others, but, according to his circumstances, will sell at almost any price he may be offered, thereby injuring the sale of other producers far more than ten times the amount he produces would if we were organized and sold at one price. This spoils the market, and the speculators take advantage of it and tell us and show us how cheap they can buy our honey, using the price and name of every party that has sold cheap, as a lever to bear down the price and enable them to buy our honey as they have many other lots.

It makes but little difference whether we count our colonies by the dozen or by the hundred, if, at the close of the summer, we sell our honey at cost. Then we are making no money from our bees, and there is something wrong. I know that, to organize for the purpose of securing better prices, would be a rather hard thing to accomplish. Still, I think something might be done to improve this part of our business. I have never known a season during the past 50 years of my bee-keeping life, when honey was sold at such a variety of prices, from ocean to ocean, as it has been during the summer and fall of 1906. Speculators have been scouring the country trying to engage honey at low prices. Many parties that had debts to pay sold at prices they would not care to have made public, while some, fearing that they would have their crop left on their hands, have also sold cheap. We see manufacturers, mechanics, and merchants all over the country organizing for self-protection, and it does seem to me that we as honey-producers might do a little in this line that would be a help to all. I am well aware that, when a man has debts crowding him he is in rather poor condition to argue with a speculator as to the price of his honey, which each party knows must soon be sold; but, fortunately, these are exceptional cases.

There is no doubt in my mind but that, if we could hold together as a company, we might secure one or two cents per lb. more than many do, and still sell at a reasonable price. This would mean thousands of dollars to those who sell cheap, and in doing so they spoil the market price for others. We, as producers, are too indifferent to this part of our business, and it is certainly high time that we awoke to the importance of this subject. If some of the valuable time that is usually spent over minor matters at our conventions could be spent on this subject it would be much better for us all. Now that the wintering problem is quite well solved, I know of nothing connected with bee-keeping of so much importance as that of organizing for the purpose of securing a more uniform price for our honey. So long as we continue to sell as we have done in the past for at almost any price that is offered, we are doing an injustice, not only to ourselves, but to all other producers. Like the drifting derelicts at sea, which cause loss and trouble wherever they go, so we, in disposing of our honey, sell for this and that price until we have spoiled the market and caused trouble to come to those who otherwise would be able to sell at a fair price.

For a long time I have been in hopes that this subject would receive special attention; but we don't seem to have any man who has the natural ability to organize us on this particular line. I have never taken any interest in organizing for the purpose of paying each other's lawsuits, for I never had a lawsuit in my life; neither do I take any interest in organizing for the purpose of getting supplies cheap, for I think the supply-dealer should have a fair profit on his business, especially the men who are spending both time and money in testing new methods, and are working with us to advance modern bee-keeping.

Some may think me inconsistent in advising organization in selling our honey, and discouraging organization in buying supplies. In regard to this I discourage it only so far as it has an injurious effect on the business of those that are continually helping us; and then when we take into consideration how much valuable information we are monthly receiving from our bee journals, some of them publishing information that I know from experience costs them hundreds of dollars annually, which they give us for the small sum of $1.00 a year, I for one can not feel that it is right to join in a movement to cut them down on their prices, even though I may gain a small amount a year on the supplies I use.

I hope that, before another summer's surplus is ready for market, some man with a natural ability to organize will take hold of this subject and bring order out of chaos, so that we may be a mutual benefit to each other; then when this is done we can let the subject rest.

Delanson, N. Y.

[We regret that bee-keepers all over the country have not recognized that there would be a decided advantage in coöperative selling of honey. But no successful attempts have thus far been made except in Colorado and California, and in one or two small sections of a couple of States. The Colorado organization has been quite unique in the nature of the work it has accomplished; but this result is due very largely to the fact that it has an honest, efficient business man to manage the enterprise. If there could be a national organization along the same lines, and if bee-keepers would have confidence enough in it to stand by it, very much better prices might be secured. But when one or two jump the fence, and sell direct, it greatly handicaps all organized effort.—Ed.]

BEE-KEEPING IN COLORADO.

A Report from M. A. Gill.

BY. DR. O. EWERS.

The development of bee culture along certain evolutionary lines has existed until the culture and the production of honey have become extensive here in Colorado. Bee culturists have advanced along this line, studying the bee scientifically, and applying the benefits derived therefrom, until the business has been crowned with success. The business has a fascination for those who invest and labor along that line, from the fact that they are producing one of the most healthful foods, and from the fact that the business is remunerative. Much sunshine and the mildness of the climate, no doubt, contribute largely to the success in this line of business here in Colorado:

The following is a report of Millard A. Gill, of Longmont, for 1906.

"I had under my supervision 1000 colonies of bees, situated in several different localities in the surrounding country, or divided into several yards. Myself and wife did most of the work in attending to these bees. The work was laborious but healthful, being in the open air and sunshine, which made it pleasant.

"I drove about 100 miles per week attending to them. The roads were comparatively level, mostly dry, and but little mud. Honey in this locality is made from alfalfa and sweet clover, except what the bees obtain from fruit-bloom and various desert plants in the spring of the year.

"I sold this year, 2400 twenty-four pound shipping-cases at, for No. 1, $2.70 per case; for No. 2, $2.35 per case. Sum total, $6100. The probable expense of supplies and shipping was $1000. The year was not considered the best, but was fair."

Bees are in good condition for the beginning of winter. Longmont alone produced eight carloads of honey this year. Some of my best colonies produced $20 worth of honey each this year. Colorado produced 42 carloads of honey in 1906. Bees winter outdoors here, and do not have to be housed.

Longmont, Col.

SUMAC.

The Plant and Its Honey.

BY ALLEN LATHAM.

In New England the honey-season shuts down July 1st till the buckwheat or the fall flowers start it up, unless the bee-keeper lives in a locality where sumac abounds. Where this plant fills every waste corner, and is scattered over the hillside pastures, as is the case throughout much of Connecticut, there the bee-keeper, if he knows his business, is planning about July 1st for his chief honey-flow, looking for it to open the second week of July. Where the sumac is not abundant, however, no dependence can be put on it, and surprise is sure to come upon the novice to go some July day to his apiary and find the bees in a state of highest activity, and his hives rapidly filling with honey. He is apt to gaze somewhat awestruck to see the bees hurrying in with the yellow-dusted abdomens distended with nectar—nectar at a season when he had given up hope of more honey for weeks to come. Though the flow is likely to last but three or four days, for this bee-keeper, who lives where there is little sumac, the supers are sometimes crowded full in that short time.

It was not till three years ago that I became acquainted with this plant, though I had for years been acquainted with the sudden July flow that blessed Massachussetts occasionally. Upon more than one occasion during a hot wave in July I had tried to trace the nectar to its source, and for some years suspected it to come from chestnut-bloom. The smell about the hives greatly resembled the smell about a chestnut-tree in bloom, and I called the honey chestnut honey till I was down on Cape Cod one July and there saw the flow going on in a region where the nearest chestnut-tree was twenty miles away. I had also ascribed the honey to a certain composite flower common in certain pastures during June and July, though I could never see a bee on that plant. Finally my suspicions fell on the sumac, and I now know beyond the shadow of a doubt that this plant is the source of our splendid July honey-flow.

It is not strange that this plant should have escaped my notice, nor that its flowers attract little attention. The bloom comes during the heat of July when the people keep out of the hot fields; and as the flowers have no bright color and no fragrance, though the clusters have a beautiful grace, they seldom find a place in bouquets.

We have at least four sumacs in New England, besides other members of the *Cashew* family, but only one of them, *Rhus glabra*, is of much value as a honey-plant. *Rhus copallina* sometimes yields, but is unreliable; yet when it does yield, following as it does right after *glabra*, it serves to help finish off the supers of sections.

Rhus glabra, the plant pictured in the photographs which accompany this article, is a shrub varying in height from one to ten or more feet according to age and fertility of soil. Its shoots, straight and rod-like while young, by their irregular branching make the older plants angular and straggling. The wood is brittle, abounding in central pith, furnishing the small boy with material of which to make his pop-guns. The leaves are compound, odd-pinnate, with leaflets numbering from 11 to 31, the most common number being nineteen. The leaflets are a soft green while the stalk is often reddish, and with this coloring, also because the new growth is red, the growing plant is more attractive than the flowering plant.

The flowers are in terminal panicles, which in full bloom are often large enough to fill a peck measure. The buds appear in early June, and develop rather slowly till the heat of July causes them to mature rapidly. The individual buds do not open all at one time, but only scatteringly over the panicle. This fact, together with the fact that the bushes do not reach the blooming period all on the same day, serves to prolong the season to about three weeks. This long season is of service only in localities where the sumac abounds. In Massachusetts, for instance, the flow from sumac, if it comes at all, usually lasts but three or four days.

The plant flourishes on rocky hillsides, yielding poorly on sandy and gravelly soils. Much of the surface of Connecticut is covered with glacial moraines, land with a rocky subsoil, and farms bounded with stone walls. In a word, where farmers can build their boundary fences with stones, there will you find the sumac in profusion, and there will one find a good honey-region.

A peculiarity of this plant is that sunshine is necessary to develop the nectaries. During cloudy, foggy, or cool weather the flowers, even though abundant, will not keep the bees busy. But let the bloom have three hours of hot morning sunshine, and the nectaries will yield throughout the rest of the day. Thus it is that the most profuse flows come during the "hot waves" of July. While the people are sweltering in New York and other cities, the bee-keepers of Connecticut are smiling broadly with satisfaction as they see the incoming honey crowding the capacity of their hives. The cool spell, welcomed by the suffering city dwellers, takes the smile right off the face of the bee-keeper, as he knows full well that another year must roll around before he again enjoys such pleasure as has been his of late.

The sumac-bloom is made up of a numerously branched panicle with countless tiny flowers, almost green in color. The little shallow blossoms are broadly open, and, consequently, the sumac at its best rivals the buckwheat and the linden in the rapidity with which it enables the bees to gather the honey. Strong colonies have no trouble in gaining twenty pounds or more in a typically good day.

The usual routine of the honey-flow is as follows: From July 8th to the 15th the bees are getting acquainted with the slowly opening bloom, and get their brood-nests filled

FIG. 1.—CLUMP OF SUMAC BUSHES IN FULL BLOOM.—FIG. 2.

Fig. 2 the same as Fig. 1, but taken three weeks later. Bloom all fallen; only the leaves and bare flower-stalks remain above the brush.

and begin work in the sections. From July 16 to the 22d the maximum bloom is on, and the sections are filled then if ever. From July 22d the bloom drops off rapidly, and the bees simply complete the sections already started. To put on more supers after the 22d of July almost invariably means a lot of unfinished sections.

While the bees are busy on the bloom, there is usually a bitter odor about the apiary, resembling the smell of crushed lettuce leaves. The new honey is more or less bitter to the taste. Probably some essential oil of the plant, an oil which is also in the milky juice of the plant, is present in some amount in the honey. As the smell also resembles the fragrance of milkweed, and as the bees work on milkweed while the sumac is in bloom, it is possible that this bitter odor and taste come from that source. If it is not the milkweed which lends the bitterness, then sumac honey varies greatly. I used, in Worcester Co., Mass., to get sumac honey so bitter that almost no one could eat it. There the milkweed was in greater evidence than the sumac. Fortunately, the bitterness is transient, and, even in the case of honey, so bitter at first that it is as though one dissolved a grain of quinine in each spoonful, age will remove the disagreeable taste, and by winter the honey becomes edible. In the case of the sumac honey in the vicinity of Norwich the bitterness is mostly gone soon after the honey is sealed.

One has to eat sumac honey to appreciate it. I have yet to find any one who does not like it, provided he can eat *any* honey. In fact, many persons who dislike honey as a rule have expressed a liking for sumac honey. There is a richness but at the same time a mildness about it that will suit the most sensitive taste. Once a customer always a customer, if one buys sumac honey.

When pure the honey is a golden color,

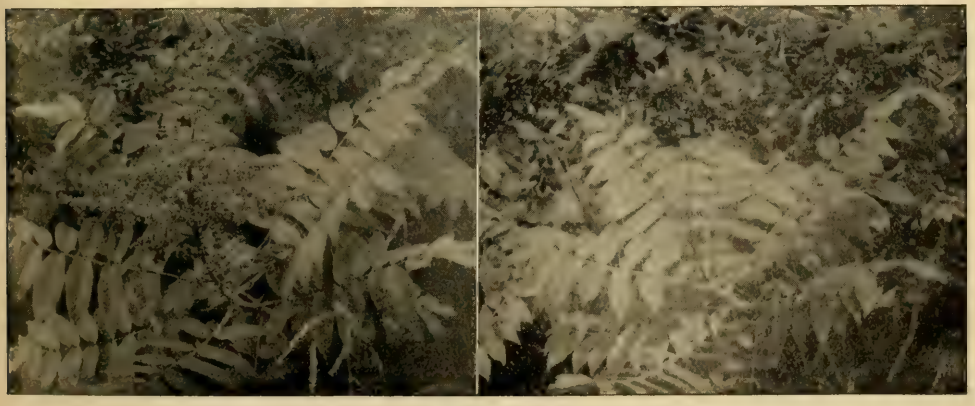


FIG. 3.—A SINGLE SPRAY OF SUMAC BLOOM.—FIG. 4.

Fig. 4 is the same as Fig. 3, but is taken three weeks later; only the main stem of the flower-cluster remains and even the curling tip of that is broken off.

Gold is yellow; but place a thin sheet of the metal to the light and the transmitted light is green. So with this honey—gold in color or green in color, according to the light. Liquid sumac honey half filling a tin pail will look like paraffine oil or yellow vaseline, having a peculiar sheen. The honey has no noticeable odor except the bitter one spoken of; and after that is gone, little odor is left. When properly ripened the honey is very heavy, and, like apple-blossom honey, waxes instead of candies. Neither of these honeys in absolute purity would probably grain, but would become thickly gummy; therefore sumac honey has excellent keeping qualities, comb honey being apparently as good the second season as the first, if properly kept. I have never seen a single cell of this honey candied, though I practice keeping unfinished sections over from one season to be completed the next. Except for more stain on wood and comb these sections could never be detected from the others.

FIG. 5.—CLUMP OF SUMAC THREE WEEKS AFTER BLOSSOMING.

The seed clusters are numerous. Near the upper central part is a year-old seed-cluster, with a white sheet of paper placed back of it.

It is safe to say that much of Connecticut would be worthless for bee-keepers but for this plant. Here it can be relied on to yield every year, not, of course, with perfect uniformity, for, like other honey-plants, the sumac is dependent on the weather. If July is abounding in good hay weather, our colonies will store from 40 to 100 pounds each; but if there is but little good hay weather during July we may not average 20 pounds to the colony. Fortunately, July is not often free from good hay weather.

The photographs can scarcely convey very vivid ideas of the plant, since the bloom is so minute. I should have stated before that the flowers are diœcious. Both kinds of bloom yield honey, and the bees seem to work impartially. The staminate bloom is more widely branched, and is looser than the pistillate. Soon after blooming, not only all blossoms of the staminate, but the side branches of the panicle as well, fall and the flower-stalk is left naked and black with a curled tip which soon breaks off. The pistillate bloom acts far differently. It is compact to begin with, and as soon as fertilized becomes still more compact, the branches hugging closely to the main stalk. The seed-vessels, each containing a seed not unlike the stone of a "choke-cherry," form a compact rigid bunch which stays on after the fall of the leaves, and even survives into the second season. These clusters of seeds, because of their crimson color, are striking objects after the fall of the leaves. The color is due to little hairs on the seed-vessels, which hairs are very sour to the taste, and the plant is sometimes called the "vinegar-bush."

The bloom is rich in pollen, and during a slow flow the bees bring in huge loads of yellow pollen. Even during the best yields the bees gather pollen during the morning hours before the sun has warmed the nectaries. Later in the day, however, the pollen loads become less frequent.

I have already spoken of the rapidity of the flow, and those who are familiar with heavy flows from other sources need no further description; but it may interest others if I add a few words here. About ten o'clock on July 18th, let the day be a hot one, the pollen loads cease to go in, and the distended abdomens of the ingoing workers tell one that the flow is on. By noon the entrance is one rushing stream of anxious bees, every home-coming bee so heavy that it more often than not falls short of the entrance, while the out-going bees are so hurried that they have not rid their bodies of the pollen dust accumulated during the previous trips. This activity continues, and the honey by two or three o'clock so crowds the capacity of the hive that the honey-curing bees hang on the outer walls with bodies painfully distended with the new honey. Inside, comb-building proceeds with the greatest activity. and the field bees keep right on bringing in the nectar. Open the hive and it will be seen that not only every open cell but every depression of any sort glistens with honey.

It is at this stage that the strength of the combs is severely tried. With the thermometer 96 in the shade, the bees and combs loaded with honey, the softened wax will give way, even sliding down over the wires of the frame.

APIARY OF GREGORY BRUNDAGE, SALISBURY MILLS, N. Y.

The rush keeps up through the afternoon, and, if any thing, the nectar flow increases as the afternoon wanes. Darkness alone puts a stop to the work, and affords the bees a chance to prepare for another day of labor.

We sometimes pay dearly for those excessive flows, caused as they are by hot waves of great intensity, for the flowers are either blasted or else matured so rapidly as to cut the season off short. It is much better that the weather be moderately hot, not to exceed 85 in the shade, and thereby have the season extend over a longer period of time.

Norwich, Conn.

MR. BRUNDAGE AND HIS TWO HELPERS.

NEW YORK STATE BEE-KEEPERS.

Gregory Brundage, of Salisbury Mills, N. Y.; the Man, the Location, the Method; the Value of Large Powerful Colonies.

BY D. EVERETT LYON.
Field Correspondent for Gleanings.

Lying ten miles back of Newburg, past which the silvery Hudson wends its sinuous way, and nestling beneath the shade of Storm King Mountain, is the little village of Salisbury Mills, N. Y. The interest in the village to bee-keepers lies not so much in that it has large paper-mills, as that it is the home of as progressive a bee-keeper as can be found in the Empire State. Mr. Brundage is a born bee-keeper, and takes real delight in working among his "pets" as he calls them.

The Brundage home is a typical farmhouse with great shading trees in the front yard, and in it is dispensed a hospitality of a royal order. The location is not an unusual one, there being practically no buckwheat as in the upper portions of the State; nevertheless there is a good early and late flow,

MR. BRUNDAGE'S APIARY, SHOWING THE 14-FRAME HIVES.

each of which is extracted at its end. The spring flow is principally white clover and sumac, while that of the fall is goldenrod, buckwheat, and wild aster, and frequently the wild-aster flow in the fall exceeds the earliest flow of clover.

Personally I do not believe the asters produce more nectar than the earlier flows, for, doubtless, the extra strength of the colonies in the fall (a condition not always present in the spring) accounts for the larger fall crop.

It was in 1886 that Mr. Brundage's mother purchased five colonies of Italian bees for $50, and these formed the basis of the present apiaries. Mr. Brundage runs about 350 colonies in three yards, and in good years has averaged over 100 lbs. of extracted honey per colony.

A CORNER OF THE APIARY AND ORCHARD.

In addition to honey-production he rears several hundred queens each year, under conditions that produce the very best.

He is an extensive fruit-grower, dairyman, and poultry-raiser, in addition to keeping bees, and it is this fact that has led him to make some experiments that have proved to be very successful.

Not being able to extract often, because of other duties, he felt that a hive holding 14 frames was best suited for his purposes, as there would be very little swarming, when an extracting-super of the same size was placed upon it, and his

swarming has not averaged one per cent from these colonies, and booming colonies they are. These fourteen-frame hives are wintered out of doors in a packing-case, and this packing is left on the entire year, as far as the brood-chamber is concerned, and the results have been, first, booming colonies; second, non-swarming; third, no queen-excluders needed, as the queen doesn't go above in one hive out of fifty; fourth, no clustering of bees at the entrance; fifth, big crops of honey due to the fact that there is little fussing done to hunt for queen-cells, etc., and thus disturbing the bees.

Mr. Brundage says that, for an out-apiary especially, these larger hives are for him the *sine que non* of perfection, and he expects to have every one of his colonies eventually housed in them.

Stephen and George are two noble little fellows, and work like Trojans in the apiary, helping their father.

Rye, N. Y.

A SOUVENIR POSTAL SHOWING A WINTER SCENE IN CANADA.

Bees Store Honey in the Portico of a Hive.

BY R. F. HOLTERMANN.

I am sending you two photographs. The first shows bees in winter quarters at the home apiary of Mr. J. F. Miller, Vice-president of the Ontario Bee-keepers' Association, London, Ont. Mr. Miller used this view on a postal card which he got up as a souvenir.

The other is a snap-shot of a 12-frame colony owned by S. E. Pickett, of Victoria. When the extracting-super was full, the bees began building comb and storing honey in the portico. After a second super was put on, the bees took the honey out of these combs and stored it inside the hive.

A COLONY SHORT OF ROOM THAT STORED HONEY IN THE PORTICO OF THE HIVE.

Brantford, Ont.

[The editor had the pleasure of seeing the apiary of F. J. Miller in its winter quarters just as it appears in the illustration. Two hives are placed in each winter case. The bees are then warmly packed, and left alone the entire winter.

It may be interesting to our readers to know that Mr. Miller has a beautiful residence on a very picturesque sylvan height of ground just outside of the city of London. He is a retired business man, and has gone

VIEW ON SOUVENIR POSTAL CARD SENT OUT BY F. J. MILLER, OF LONDON, ONTARIO, CAN.

out into this beautiful retreat, where he is now devoting his entire time to the production of honey in Heddon's divisible brood-chamber hive. This hive, by the way, he considers far superior to any thing else in the labor it saves in the handling of bees. The big crops of honey he secures without hiring any help show that his opinion is not founded on mere theory.

ALLEN LATHAM'S OBSERVATION HIVE WITH COMB BUILT IN THE USUAL WAY.

Mr. Miller derives a great deal of pleasure from a good camera, and he has promised us some views of his place. He is a genius in many ways, and we hope our readers will know him better.

In an extra good honey-flow a colony of bees will sometimes build comb out on the portico, as shown in the other illustration; but cases of this kind are very rare, however, and the photo shown is, therefore, all the more interesting.—ED.]

A DOUBLE-WALLED GLASS HIVE.

Converting a Single-comb Observatory Hive into One with the Combs Built Crosswise Against the Glass; How to See the Young Bees Grow in the Cells.

BY ALLEN LATHAM.

[The reader's attention is called to the description of the scheme for making bees build comb at right angles to and against the glass rather than parallel with it. Maraldi, before the days of movable combs, in his early experiments built a glass hive the two surfaces of which were so far apart that the bees would necessarily build crosswise as well as parallel with it. Huber and Réaumur also conducted experiments along the same line.

Very recently Mr. A. C. Miller and Mr. Allen Latham have revived the principle, and it is time that we bee-keepers of to-day should begin to avail ourselves of the direct knowledge concerning the actual growth of the bee from babyhood up. The suggestions offered by our correspondent are interesting as well as helpful.

The other scheme, using a double glass for the purpose of additional protection, is also a good one. But such glass ought to be the French plate in order that one's vision be not obscured.

We ought to state that any single-comb observatory hive can be adapted to use the crosswise principle. With this long preface we will now let Mr. Latham speak for himself. —ED.]

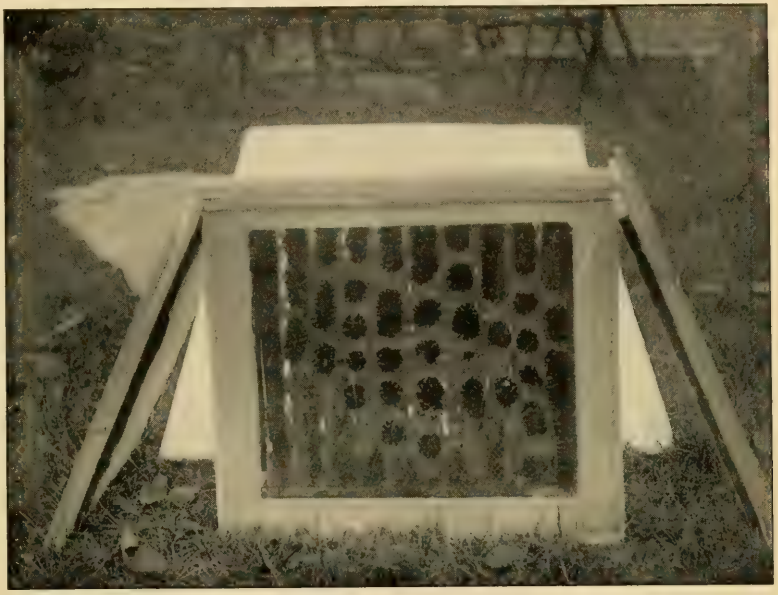
The publishers of GLEANINGS have asked me to give some of my experiences with observatory hives, and to offer what criticisms I may have regarding what has been said heretofore along this line. My chief criticism of most of the advice about observatory hives is that it has been either inadequate or else has been too complex. What the majority of bee-keepers need in the way of an observatory hive is one simple in construction yet sufficiently pliant in manipulation to admit of experimentation. The usual home-made glass hive is built in an unsatisfactory manner, and does not satisfy a person eager to go further; while, on the other hand, few of us care to burden ourselves with the bee-metropolis devised by Dr. Bigelow. Let those who care to do so adopt an expensive and gilded hive, and we all respect Dr. Bigelow in his love for the beautiful; yet no one sooner than he would deny that external beauty in a hive or in a girl is a criterion by which to judge what is going on inside the shell of beauty. Are the pretty girls pictured on pages 1580, 1581, better "schoolmarms" than their less fortunate sisters? One who has leisure, and whose pocketbook will stand it, may find pleasure in contriving observation hives of great expense and complexity.

To my mind the simplest is the best, and such can be made as follows: Procure a straight-edged board of good material, of sufficient width to allow for inside width of hive (for single comb this inside width should be 1⅜ inches); for four thicknesses of glass and for two air-spaces, ¼ inch each. If one chooses he can make a still warmer hive by allowing six panes of glass and four air-spaces. Another strip 1⅜, or the inside width,

of ⅞ material; some strips ¼ by ⅞, and finishing-strips, complete the lumber required. The bottom and ends of the hive are cut from the wide piece; and fastened to the inside faces of these are pieces cut from the 1¾ strips. Thus a rabbeted frame is made ready for the glass, then the narrow strips, then more glass, and finally the finishing-strips. These last are put on with screws so that glass can be removed (from one side at least). The photographs and the natural ingenuity of man will make up for any deficiencies in these directions.

By using hard wood, and finishing the same carefully, this simple hive will look as well as the best.

Several good ideas are bro't out on pages 1358, 1359, by Mr. Savage, but much of the fussy detail shown there is uncalled for. There is no need to complicate the care of the observatory hive as this writer seems to do, and his hive with its single glass and numerous cracks would be fit only for warm weather. It is profitable to study the bees in a glass hive the year through.



AN OBSERVATORY HIVE WITH THE COMBS BUILT CROSSWISE OF THE CROSS-BAR.

The space between the glass walls, or inside width of hive, should not be more than 1⅜ for a single comb, yet a greater width than this might lead to some very interesting results.

That the glass may be the more easily removed, it is well to have the 1¾ strips less than 1⅜ on the side nailed to the outer wall. This permits the glass to fit snugly to the wood so that little propolis gets into the crack. Glass walls are easily cleansed with pearline or other good soap dissolved in warm (not hot) water. Water too warm will spread the wax and propolis.

One of the most serious errors made by beginners in the study of bees in such hives is that of placing an old comb, fully built in the hive. Beyond the social life of the bee, the unloading of honey and pollen, the laying of the queen, and a few other phenomena, one can not go with such a comb. Far better is it to use a frame with only a starter, or at most only half-built comb. Then one can see the process of comb-building, the packing-away of pollen, the filling of the cell with ripened nectar, and a great variety of bee-phenomena—phenomena to be seen by both reflected and transmitted light.

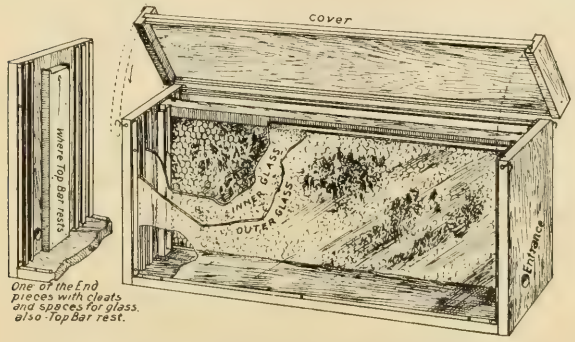
Like all others I began with ready-made combs, and I made little advance in this entrancing study till I passed to the stage of making the bees make their own comb right in the glass hive. Even this grew dull after a while, because I was still out of reach of much that I wished to see. Sometimes the bees would build some comb against the glass wall of the hive, and this put into my mind the next great advance. So I robbed my bees of their comb and placed in their hive a simple top-bar without ends or bottom. To this bar were fastened a number of short transverse starters of foundation about 1⅜ inches from one another. The bees did not take well to this exchange, and after an hour or so removed to the top branches of a tall maple. I brought them back and shut in their queen. They went to work shortly and built the combs shown in one of the pictures accompanying this writing. A white background is furnished the photograph so that the spaces between the combs will be the more apparent. That colony, by the way, has lived unbrokenly (save the time spent in the afore-mentioned maple) in that hive since May, 1902. I playfully named their queen Wosa, and the Wosa dynasty is inscribed on one end of the hive thus:

Wosa I.	Wosa IV.
May, 1902—May, 1903.	May, 1904—June, 1905.
Wosa II.	Wosa V.
May, 1903—July, 1903.	June, 1905—June, 1906.
Wosa III.	Wosa VI.
July, 1903—May, 1904.	June, 1906—

In another place are recorded the dates of issuance of the several swarms. An interesting fact in connection with Wosa VI. is that

her bees are fully as yellow as were those of her great-great-great grandmother. I usually have much difficulty in getting Italian queens purely mated; but here I have had a remarkable exception, for only one of the six queens was impurely mated, and the effects of that mismating are practically lost.

The length of this article will not permit me to enter into detail in depicting all that these crosswise combs in this hive have taught me of bee-life. I flatter myself that possibly, aside from Mr. Arthur C. Miller, no other living man may have seen what I have seen. I would say here that Mr. Miller and I have worked along similar lines entirely independently, for we have known each other only one brief year, and that Mr. Miller has at



DETAIL OF THE DOUBLE-GLASS LATHAM HIVE, SHOWING A FRAME OF LANGSTROTH DIMENSIONS.

present a hive vastly superior to what I am able to show here. Doubtless he will soon show his hive and describe his methods in his own paper, the *American Bee-keeper*. Not to go into details, I will mention that one can determine by this crosswise arrangemen of combs, in observatory hives, how the queen lays, how the nurse-bee feeds the larva, how the larva spins its cocoon, etc.; how the pollen-packer packs away the pollen, how the honey-storer (not gatherer) puts away the honey, etc.

As I have hinted before, one should make use of these hives the year round; for to study bee-life in only the height of the season, or even through the summer and early autumn, is not enough. It is not difficult to winter bees in these hives if proper precautions are observed. If it seems desirable I will, in a later article, go into detail regarding the wintering of bees in observatory hives.

The simplest way to place these hives in the window is to raise the sash and firmly fasten a board a few inches in width across the bottom of the open window so that, when the sash is lowered, it will rest on the upper edge of the board. This board is then screwed to the front of the hive, a hole in the board being in juxtaposition with the hole in the end of the hive. The entrance, a round hole one inch in diameter, should be at the end of the hive close to the bottom.

One of the best ways to stock such a hive is to shake out on the ground the queen and several thousands of workers from a regular colony. Most of the old bees will return to the hive, and then the young bees left and the queen can be hived in the glass hive. Keep the hive dark a few hours till bees begin to build comb and are contentedly working.

It is most desirable that some handy arrangement be made for feeding such a colony, for almost constant feeding is necessary to keep the small colony in prosperous condition. In a good honey-flow it will more than take care of itself; but a few weeks of scarcity of nectar will bring it to the verge of starvation.

I keep the two hives shown in the pictures going all the time. The older one is kept unchanged so that I can study aging combs, while the other is subjected to frequent rebuilding of its comb. I expect the coming summer to try two more hives which shall mark a still further advance in opportunity for further bee-study.

The hive pictured with the single comb shows what can be done out of season. A new lot of bees were put into this hive in September, and they were compelled to build their comb thus late in the fall. Most of the comb was built in October, yet the colony is in fair prospect of going through the winter.

Even though one does not winter such an observatory colony he ought to start one early enough in the season to see it go through the swarming fever. Though the swarms from such colonies are not perfectly normal, one will still see much that is instructive and highly interesting. After the swarm has left, the rival queen-cells become centers of interest for both bees and bee-keeper. One may find, as I did one June, that the oldest virgin is not always the first one to emerge, for at that time the oldest was kept imprisoned in her cell, and a younger sister allowed to come out and go with a swarm. The action of the virgin which is to become the ruling queen of the hive will be watched with avidity.

An ingenious person will contrive innumerable experiments to put to the test with these hives. No live bee-keeper should be without one or more of these easily made and simple hives. His education demands it. Many of us must be satisfied to go without the Bigelow Educational hive, the University, but all of us can take the Common-school hive here depicted, and possibly matriculate for a later course in the University.

Norwich, Conn.

MR. GEORGE ROSE, 50 Great Charlotte St., Liverpool, England, advertises to furnish 1000 plants of heather for $7.50. Here is a chance for some one in an elevated peaty district in the mountains to naturalize this great honey-producing plant. New Yorkers will please notice.

WAX-RENDERING.

A Mammoth Solar Extractor in which Artificial Heat is Used.

BY R. C. AIKIN.

[This is the first of a series of three articles by Mr. Aikin, and is, as will be seen, a description of the solar extractor which he now uses. The second article, which will appear in the next issue, is a complete description of a large solar-extractor building, and will be illustrated by drawings that will enable any one to build an up-to-date outfit, including that very necessary contrivance, a honey and wax separator. The third article treats of different methods of working over the refuse from the solar in steam and hot-water presses. It has cost Mr. Aikin a great amount of time and money to acquire the knowledge which enables him to give this information; and since he has learned how to make money himself out of wax we think he is well qualified to tell others how the work should be done.—ED.]

The rendering of wax is an important subject. If the price of wax continues anywhere near its present figure—and it has not varied far from it for thirty years—its production will be more considered in the future than it is to-day. Even should honey advance in price until it becomes much more remunerative than at present, yet I feel confident the returns to be obtained from wax will in the future be much more considered than at present, and not only considered, but will be by no means so small a factor as at present.

For years I have been very much interested in the problem of rendering wax. I suppose I have invented about as many devices as any other man in our ranks in my endeavors to get speedy and effective apparatus for doing the work, and yet I do not think we have by any means reached the climax in such appliances. I have tried many ways with water and steam processes, but all without pressure, having had machinery for the purpose over 25 years ago. In those days I made an arrangment to place over a pot of boiling water, and cooked by steam, afterward pouring in boiling water over the slumgum, when the steam had brought out all it would; then I would take out the slumgum and put it between boards and get on to it with my weight, and thus work out more wax. Though never satisfied with these riggings, yet I never realized until recent years how much wax I lost.

ABOUT SOLARS.

I have built solars, big and little; remodeled, improved, and changed those I have constructed, until I could hardly guess how many I have built. When the solar was first written up in the journals I at once became very enthusiastic, and soon had one in operation, and from that time till the present I have never ceased to study and improve on and experiment with such appliances. Over 15 years ago I began to work over the solar refuse by water and steam, and thought I had about reached the limit of wax-getting; but I know now that there was a large per cent of wax wasted then.

The solar is a fine appliance, and no apiary should be without one. In the accumulations of burr-combs there is sure to be quite a little honey, and, as well, in combs and all odds and ends of which we get wax; every thing that has any honey in it should be put through the solar to secure the honey for vinegar or feeding purposes. In all localities where honey tends to granulate, this is very important. One not having tested the matter would scarcely believe how much honey can be saved by the solar in a year. Then, too, the prettiest yellow wax obtainable by any process is that from the solar. Burr-combs are almost pure wax, and leave very little residue except the propolis that is scraped off with them, and these give the very finest of wax by the solar process. If melted with water the propolis will taint the wax. By all means have a solar, and use it for rendering every thing containing honey, all burr-combs, and also all dry new combs that do not have many cocoons in them; but when it comes to old black dry combs it is of no use to put these through the solar, for the slumgum will so nearly absorb all the wax that it will not pay at all. Reserve such for water and the press to go in with the solar slumgum.

SOME THINGS I HAVE LEARNED ABOUT SOLAR CONSTRUCTION.

Never use wood about a solar. Take wood that is seasoned to its best, and, when subjected to the great heat of the solar, then get the effect of rain, of internal moisture in the form of steam or vapor that will sometimes be in the machine, then dried out again, and so on from day to day, and it will not stay in shape very long. I used to use wooden sash-bars, but it would not be long before the putty was peeling off and the thing was in bad and leaky condition. As the years went by I used less and less wood in any part of my solars until about the only place I would permit any was for plates on top of the side walls. At this point I thought I must have at least a strip of wood to fasten the rafters or sash-bars to (the walls being of brick), imbedding them in mortar; but even then moisture would get to the wood and swell it and break the mortar loose. I now leave out all wood, using for the sash metal bars, and for the walls brick; then imbed the ends of the rafters and the edge of the glass in the same mortar used in laying the brick.

For sash-bars, if one can readily get such as are used in greenhouse work they are all right; but I did not have access to any thing of the kind, nor to any machinery that would make what I wanted, so I went to the store and bought common bar iron, for a 5-foot reach, using $\frac{3}{16}$ by 1½-inch. In these I drilled holes about every 12 to 16 inches, a little nearer one edge than the other. Next I took common galvanized iron strips, about one inch wide (a little less will do), and bent these, forming what would be just about equivalent to the half of a common T tin. Two of these put together would form a T. These strips were punched with holes to match the holes in the bar-iron and so adjusted that when one was set on each side of the bar they formed a rest for the glass, leaving

the edge of the bar to project upward about ¼ to ⅜ inch above the glass, this projection forming the rib to putty to over the glass. When the putty sets to that iron it stays there almost for ever.

To get these bars made into a sash I had holes drilled just about in the center of the width of each bar, one at each end and one in the middle of its length. The bars are about 5 feet long—these to take a ⅜ rod. I forgot to say that the right-angle galvanized strips were bolted to the bar with stove-bolts. These ⅜ holes are made through the sheet metal too. Next I took old gas-pipe and had it cut at the plumber's into lengths corresponding to the width of glass to be used; then I began to thread the bars on to the rods, slipping on a bar, then a piece of the pipe, then a bar and another piece of pipe, and so on until I reached the end of the rods which are as long as the sash is to be, then by a tap on each end of the rods all was screwed up tight. This sash or rack I placed on the solar walls, and afterward placed the glass and puttied it in. A small sash could be made complete before putting in place, but a large one is altogether too heavy, and not rigid enough to handle. Build it right on the walls.

POSITION OF GLASS IN REFERENCE TO SUN'S RAYS.

Some think the glass must be, as nearly as possible, so that the sun will shine directly through—that is, it should directly face the sun; but while the power of the sun may be a little greater shining through a glass at right angles, yet with the changing condition it becomes impossible to have it so. I do not believe there would be a tenth enough gain to justify building even a small machine calculated to shift toward the sun as it goes over. In the evolution of solar building I gradually changed from the long north and south form to making the length east and west. After finally deciding on the east and west form I built with a three-slope hip style; but this form entails cutting glass into diagonal pieces, and, all together, is very much more difficult of construction. I now build with a gable, or, rather, half gable, as the main roof has but one slope lean-to style. My present machine is 5×16 feet, and is built against the south side of a 10×16 building, with the opening into it from the main building. So far as the solar is concerned it does not have any outside opening whatever. An alleyway runs along the north side, from which the work of filling in the comb, of stirring as it melts, and of removing the slumgum, is done. In this alley I can walk perfectly upright with a can of honey or whatever I wish to carry on my shoulder.

I have three melting-pans made of galvanized iron—a 3×6 in the east, sloping west, with a slight dip to the northwest, with a discharge at the northwest corner, and a similar one in the west sloping east, with discharge at northeast corner; and the third one, a 2½×4 between these, slopes to the north, with a discharge at both northwest and northeast corners. The incline of these pans is about an inch to the foot.

The alleyway runs along the entire north side, except that in the east end I have a furnace made of brick, with an old cook-stove top for a cover. Grates are built into the furnace, and an old cook-stove oven-door with its frame is used for a furnace-door, and this door opens on the *outside of the solar*. Never, under any circumstances, have the furnace or ash-pit open inside of the solar-room. The ashes and dust from them are a perfect nuisance inside. This gives me the entire top of that cook-stove on which to cook any thing I wish on the inside, and to radiate heat for heating the solar; but the fuel and ashes are all handled from the outside.

Along the south side of the alleyway is a brick wall. This wall and the outer south wall were built up about four feet high, and then sheet metal laid on top of them, and then the outer wall continued up about another foot to receive the south end of the rafters or sash, and the inner wall built about two bricks on the sheet metal. This sheet-metal floor at the east end is covered with mortar to break the force of the heat at that point, else the wax and honey over it would burn with a hot fire in the furnace; and it is also about three or four inches higher than the stove top of the furnace. All the smoke and fire from the furnace pass under this metal floor the whole 16 feet to the west end, and pass into the flue or smokestack at the northwest corner, and a few inches above this floor are the melting-pans resting on old boiler-tubes for supports.

But we will let this suffice for a description of my present machine. It is good, but I could improve on it in several particulars, and in my next article I will describe the ideal form for such an apparatus, and also give some sketches to show how to construct.

Loveland, Col.

THE HATCH WAX-PRESS.

Some Comments and Suggestions on this Method of Rendering Wax.

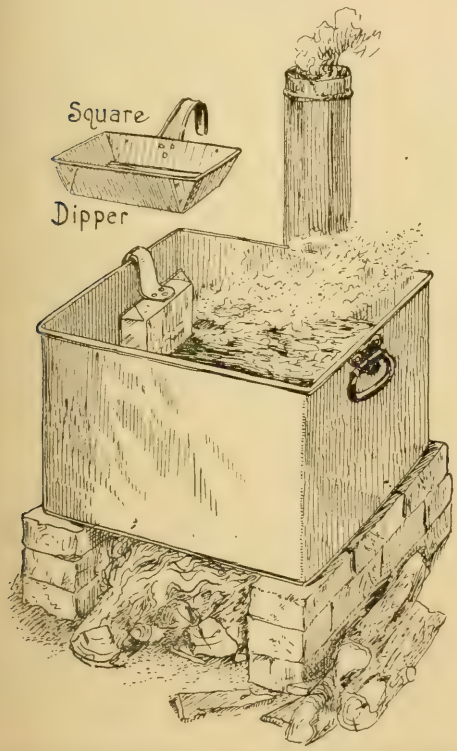
BY C. A. HATCH.

The Jan. 15th GLEANINGS came yesterday, with the last chapter by H. H. Root on wax-rendering. I am looking forward to the time next spring when I can test the press as it has been modified. Until then I do not feel competent to offer any criticisms or suggestions, but would suggest some things as to your method of working.

Why you advise a wash-boiler to melt wax in is beyond me unless you want to raise trouble between a man and his housekeeper; for a woman who attempts to wash, using a boiler that has previously been used for wax-melting, is sure to lose her temper if not her religion, for it is no easy job to clean one after being once coated with wax and slumgum; and why use a boiler at all when a square box of galvanized iron is just as cheap,

much better, and can be used on a brick furnace outdoors to good advantage, while a boiler could not? About 30 bricks and two joints of stovepipe will make the furnace; and when not in use all can be packed away in some shed out of sight. Not over half an hour is time enough to make it complete; and any one with a town lot has room enough, and there is no mussing of floors to vex the good woman; and the square tank has advantages over the round one of being easier to skim—that is, if you use a square dipper as you ought to. If you ever used a square one you could readily see the advantages of it. A five-cent cake-tin is better than a round dipper.

I have two square tanks—one 15×15 in., and 15 in. deep; the other 18 in in each dimension. A 15-inch one made of heavy galvanized iron would last a lifetime if cared for. A dipper should be about 6×6×4 in.



HATCH'S OUTDOOR FURNACE FOR MELTING COMBS.

deep, and have a flat handle, rather short, and bent to a hook, so as to hang on the edge of the tank inside when not in use.

Another mistake you make is in putting too much comb in the boiler at once. Just enough for one pressing at a time is enough; and when you are pressing it out your helper puts in another batch, fires up, and attends to the melted wax; or, if you are working alone, it will do no harm to let the press stand while you fill up for the next pressing.

Dipping the follower and rim into the boiler is just as well as to pour that pailful of water into the press, and much less bother.

I usually put in about 4 gallons of water and slumgum at each pressing; but this means an indefinite quantity, for I may get more water than you do. Plenty of hot water is my motto, for beeswax seems to like to run out with water when it will hardly move with pressure. I use an old square five gallon can to catch the wax in. When the wax is deep enough to warrant it, I skim it off (with a square dipper mind you) into small tins to cool. These are kept covered as much as possible. With this method the water can be returned to the boiler before it gets much cooled, and the wax is ready for market with a little scraping at the bottom; and even this can be largely avoided by extra care in skimming when putting into the cooling-tins. The wax may need to be washed, as the water in the boiler gets rather "rich" in coloring before many hours run.

There is one point that should be impressed on all bee-keepers—i. e., that all heating and boiling of wax after being once melted is to its detriment; also that iron rust turns wax black.

Kingsville, Texas.

[For some reason or other, as we render wax, we have never found that we could save much time by skimming off the free wax that would rise to the top. We think that we can put the melted comb through the press, wax and all, about as quickly as we could that which was left after skimming; and, if we are correct in this, we save the tedious work of skimming and thus get along just so much faster.

Since we do no skimming, then, the shape of the melting-tank or can does not make so much difference. But we agree with our correspondent when he says that it is difficult to clean a wash-boiler successfully after it has been used for melting wax; and for this reason, then, it would not be best, ordinarily, to use the same boiler for washing clothes or for other work about the house. Keep that boiler for melting old combs, cappings, wax, liquefying honey, etc. Perhaps the only point in favor of a wash-boiler is the fact that it can be obtained at any hardware store, ready made, and would, therefore, cost less than one which had to be made to order. But if we were going to have one made, we would most certainly have it made with square corners, for many reasons. If of such a size that four 60-lb. cans could stand in it, it would be found very convenient for liquefying honey, etc.

The plan of an outdoor furnace is excellent. Many might find the ordinary feed cookers very valuable for this work. They can be purchased complete—that is, the tank, furnace, smoke-pipe, etc., for from three to five dollars. They are useful to the bee-keeper, farmer, or poultry-raiser.

We think we can do faster and cleaner work by pressing only about a gallon of melted comb at a time; and as it would not pay to melt up such a small quantity at once we

usually melt enough for ten or twelve pressings at a time, and thus do away with lots of fussy work. If two are doing the work it might pay to melt smaller quantities at a time; but as we render wax, only one man is needed to do the work. From our extended correspondence with bee-keepers who use this method of rendering we have found that the majority seem to melt a relatively large amount of comb at a time. However, almost every man has his own ideas concerning the easiest way of working, and this only proves that there is more than one good way of doing most things.—H. H. R.]

THE OLD VS. THE NEW.

The Fence Separator and the Plain-section System; why some Good Things are Condemned Wrongly; when Rightly Used, the Fence System a Success.

BY G. A. DEADMAN.

Those of us who were in attendance at the annual meeting of the Ontario Bee-keepers' Association, recently held in Toronto, could not but be impressed by the good feeling that existed, and the readiness of many present to take part in the discussions. One of the many things that came up was the fence separator in the production of comb honey.

How puzzling it must be for a beginner to know what plan to adopt, or whose advice to follow! What some of us find to be "the best thing out," others "have no use for," and, may be (too often, I am afraid), condemn it untried. Many good things are as good as lost to some because, either from not being willing to adapt themselves to the new order of things, or too indifferent about them, or from being (shall I say?) prejudiced, go on in the old way with their own or old devices, in blissful ignorance of what they are missing.

The fence separator is an illustration of this. Some are ready to condemn it untried, or, if tried at all, not as it should be. We see this illustrated in about every issue of a bee journal Sometimes *locality* is made to account for the difference; and in some instances, with some things, it may be attributable to that, but not always. We become wedded to some things from long familiarity with them, and are loath to try or have anything different. One might as well try to make a left-handed man believe that, with practice, he can do more with his right hand, as to convince some people that some things are better than others. In some cases—yes, in very many—such a course may be excusable; for from long practice and familiarity we can work more rapidly than we could with many things that may be really better, and we feel that any change would be at the sacrifice of time if not of money.

This, however, can not apply to such a thing as a separator, excepting as one may have to throw away the old in the adoption of the new. I am convinced, however, that too often objection is made, or some things are condemned, because not made or used as the originator intended them. It would make this article unduly long to give so many examples of this that most of us must have noticed; and I will, therefore, confine my remarks to the fence separators in the production of comb honey.

At the Toronto convention one man objected to them because their use (he did not say abuse) would produce what he termed "washboard" comb honey, or that with uneven cappings. It was explained to him that this was due to the slats of the separator being too far apart, which is true, and it was stated that there should be slack ¼ inch.

I would say that this is still unnecessarily wide. I make mine practically queen-excluding except above the top and below the bottom slat. I make the spaces a trifle more than that of the queen-excluding metal. This extra is because the slats of the separator, being thicker than the metal, would require to be a little wider apart.

I take it that the Root Co., who originated this separator, never intended that the slats should be spaced other than what is necessary to allow a bee to pass freely through them, and so we find a good thing abused, which is unjust to ourselves, the originator, and an injury to the cause.

Briefly I will tell you why I like the fence separator. In itself, when made of the right material (basswood), and properly made, it is as strong as if not stronger than anything else on the market.

It will keep its shape; and with the slats 15 to the inch it is light and nice to handle. It is much more acceptable to the bees than either the all-metal or the old kind. The bees having free access from section to section will do more and better work than with some.

The bee-space is on the separator, where it should be. A customer has no use for this. The section being the same width all around, it is certainly easier to clean, and less likely to get damaged in handling. Not having so much wood as the beeway section it looks better, therefore sells better, and will bring more money.

Then they cost less to make and less to case, as four will go in the place of five.

It is my belief that the plain section with the fence separator will eventually supersede all others.

Brussels, Ont.

[You are entirely correct in stating that slats to a fence must be properly spaced, and that such spacing must be approximately of the right width to let the bees pass through. When fences were first put out, the spacing was considerably wider than at present, with the result that there was a little washboardy honey reported; but later years have shown the very great importance of so spacing those slats that the space between them will be a small fraction wider than the slots of the perforated zinc, or, in round numbers, ⅛ of an inch. When so spaced there will be

very little gnawing of the wood, as a rule, and no ribbing on the face of the honey, or at least it is inappreciable. We omitted to state that, if the slats are placed too close together, the bees will begin to gnaw them; and when they once start the job they will make the space between the slats as much as $\frac{5}{8}$ inch wide. Of course they are ruined, as the honey will be badly ribbed.

It is true that a good many things are condemned prematurely; and it is also true that some good devices give poor or indifferent results because they have not been used according to directions. Manufacturers find this out to their sorrow and annoyance.—ED.]

QUEEN-EXCLUDING ZINC.

How the Size of the Slots was First Determined.

BY DR. G. L. TINKER.

[To our newer readers it is proper to say that Dr. G. L. Tinker, some twenty years ago, was one of the pioneers, if not the principal one, to develop the use of and perfect perforated zinc. As a bee-keeper he was unsurpassed, and as a fine mechanic he was the finest in all beedom. The zinc put on the market prior to the introduction of his product was very crude; but the pattern of the metal and the size of perforation he put out is still the standard the world over.

As he states, he spent not a little time in investigating the size of the width of the perforations. The fact that he was so nearly right as to size attests his skill and apicultural experience.

But, owing to his lucrative and increasing practice as a physician, he was compelled to dispose of his bee-supply interest, and during the last 16 years he has all but dropped out of the bee-keeping world.

It is a special pleasure to us to know that he still retains an interest in bees, and therefore what he has to say on the widths of the perforations in zinc will be of more than usual interest.—ED.]

The method of obtaining the proper size of queen-excluding zinc perforations for worker bees has, I think, never been given to the public. Noticing in GLEANINGS of March 1 that there are some who think the perforations of our standard zinc should be a little larger for best results, I herewith give the method, as it will, no doubt, satisfy all that perforations $\frac{163}{1000}$ wide is as nearly correct as we can hope to get them. My remembrance is that it was my old friend Doolittle who wrote about nailing strips of tin on a slatted honey-board to make a queen-excluder, and, of course, I had to make one. I soon found that it was a difficult task to nail on the strips so as to make the openings of a uniform width. In some places the bees could not get through, and in others the opening would be too large. I then noticed a little eminence on the top of the thorax, and that where the opening was a little too narrow it was this eminence that stopped them, although some could get through by twisting the thorax sidewise.

I had obtained a piece of what was called Chicago zinc, and placed it before the entrance of a hive. The perforations of this zinc were quite uniform in size, but plainly too narrow, as every bee would be stopped by that little eminence on its back; and if it got through it had to twist its body to do so. I then carefully examined the wood-tin board that I had placed over the brood-chamber of a hive, and found a place between the tins where the bees could get through without being stopped by the eminence, and also saw that the hairs on top of the thorax were brushed down flat in the passage, but that the brushing-down of the hairs did not hinder them in their passage. The conclusion was at once formed that these places in the wood-tin board were the smallest practicable passage that could be used. I then took a common cut nail, filed it down smooth, and inserted it in one of these places that would just let the bees through easily, and made a mark on the nail where it came through, and I had found the width of the proper size of perforation to be used. Dies were then made and strips of zinc punched on a small wooden machine, and then fastened to a slatted honey-board, and it was found that the bees could get through the perforations without any hindrance, although the hairs on their backs would be brushed down in passage. Strips of perforated zinc were then placed before the entrances of hives, and the loaded bees watched in passage. If the edge of the zinc rested on the bottom-board so that it was not more than the length of their legs up to the perforations, the bees walked right through without any hindrance. If the lower edge of the metal was too wide, then the bees were somewhat hindered in their passage. This led to inserting the strips of perforated metal in saw-cuts in the edge of the slats, and such boards offered no hindrance to the bees. All that was necessary was to have a point on each side of the zinc that the bees could catch hold of with their feet, and they could pass the zinc, when heavily loaded, so quickly that the element of hindrance could not be computed.

Where there is nothing to catch hold of on each side of a perforated zinc sheet, the making of the perforations a little larger than necessary will not facilitate the passage of the bees. Their action in the passage of a sheet of perforated metal, even if the perforations were somewhat wider than necessary, might be compared to a drowning man catching at straws—there is plenty of room below, but nothing secure to catch hold of above.

New Philadelphia, O.

[The writer took pains to verify Dr. Tinker's experiments when his zinc was first introduced by testing the width of his perforations on the bees in our apiary by trying both the loaded and the empty workers. We found that Chicago zinc, to which the doctor refers in his article above, had a width of slot $\frac{160}{1000}$ wide. The Jones zinc had a hole from $\frac{168}{1000}$ to $\frac{170}{1000}$ wide. But at that time there were many complaints of queens passing through the holes in such metal, and also complaints that loaded bees would not go through the Chicago pattern. It was at that time that Dr. Tinker, all enthusiasm, set about to find the proper width. He sent

us sample metals to test, which we did. The width of perforation that he adopted was very close to $\frac{163}{1000}$ wide. Fearing that $\frac{163}{1000}$ might be too narrow, we made some zinc $\frac{166}{1000}$ and $\frac{165}{1000}$; but occasionally we got reports of queens going through it. When we bought the Tinker machine we adopted his size, but we have since made zinc $\frac{164}{1000}$ to $\frac{165}{1000}$, thinking that, perhaps, the average producer would prefer to have an occasional small queen pass through than to have some workers hindered when heavily laden with honey.

Dr. Tinker brings out one point in his article above, which, if he ever mentioned it before in his public writings, has never been really grasped by the bee-keeping public. If he is right (and we feel very certain he is) then $\frac{163}{1000}$ width of perforation in the wood-zinc Tinker board would give the same facilities for the passage of the bees that a solid zinc board would without any slats, with perforations $\frac{165}{1000}$ wide. It seems reasonable to suppose that, when the bees have a wooden slat on each side of the perforation, or a foot-hold, they can pull themselves through easier than when there is but little for them to get hold of as in the plain metal.

In this connection it is proper to state that Dr. Tinker was the inventor of the wood-zinc slat honey-board. Mr. Heddon first brought out the slat board, and Dr. Tinker conceived the idea of inserting the perforated zinc strips between the slats.—ED.]

BEES AND ORCHARDS.

What is to Blame for Poorer Fruit? Bees as Pollinators; How to Prevent Spraying Trees in Bloom.

BY BURTON GATES.

New England has long held honors in the production of fruits. Many of the now famous varieties were originated in these States, especially Massachusetts; but it was only recently that I heard a prominent horticulturist here say that this State must "get a move on" if she retains her long-honored reputation. A new problem now confronts the fruit-producer. The San José scale has gained such a hold that the farmer is making every effort to save and protect his trees. At first thought, this may appear to have little bearing upon bees; but indirectly, as I will try to show, the scale problem may have its resulting effect on bee-keeping.

It is common knowledge that, in our grandfathers' days, bees were kept in nearly every farmyard. This reminds me that I have often heard my father say, "We don't seem to have such fruit now as we used to have on my father's old place." Record shows that my grandfather, as did many another in those days, raised fine apples and pears. Now when I see the miserable apology for native fruits displayed on the counters and on the street peddlers' wagon, I feel sure my father's remark is not far from right. But what is the matter? Probably not one thing nor two—lots of things; and the lack of bees in the orchards comes well toward the head of the list.

In this connection there is one fundamental and often totally unconsidered factor, which is as vital for a successful fruit crop as is water in the soil or trees free from injurious insect and fungus pests. It is the agency of the bee in the fertilization of the bloom. There is an abundance of proof on all sides of the great value of bees as pollen-carriers; but, unfortunately, the orchardist seldom thinks of stocking his orchards with bees. He usually trusts to luck. If it is a fine day when his trees are in bloom, bees may come from several miles away and "set" a good crop of fruit. Let it, on the other hand, be a day of sunshine and shadow, with occasional showers, as is often the case in April and May, and the trees will not be "half set." But suppose a farmer has bees at hand in his yard, and there comes a lowery day when they can not fly far from home, but can fly between showers. The result is evident—trees near by will be "set." You may reason for yourself. Would it pay to keep bees in the orchard?

The amount of honey produced in Massachusetts falls short by tons of the amount of honey consumed in the State. If it is as the horticulturists say, that there is a need of improving the fruit product of the State, as is the case for certain, and of increasing the product, then why not combine natural forces—let the bees and the trees act upon each other reciprocally?

The equations might well be, the more trees, the more bees; the more bees, the more honey; the more honey, the more money. This equals prosperity.

A very pertinent observation on the value of bees as pollen gatherers I just now note in the Twenty-sixth Annual Report of the Ontario Bee-keepers' Association. Gentlemen speaking on a petition to the Board of Agriculture to investigate the value of bees as agents of fertilization of blossoms of fruits, clovers, and buckwheat, said, "There is a man in our neighborhood who is supposed to have as much brains as any one around there, and who says the bees just suck the life out of alsike clover." The next speaker offered proof to the contrary, and said, "I grow some alsike clover. I spoke to a man who owned a thrashing-machine, and told him that I thought I would thrash my clover. "Oh!" he said, "there isn't any seed in alsike this year." I told him there would be in my case, as I had bees. When they came to thrash it they were surprised at the amount of seed I got out of it. Plenty of bees in orchards and in fields will, I believe, prove a surprise to many.

Returning to the San José scale problem, which has now emphasized the necessity for spraying orchards, let us consider the possible results on bee-keeping, for which we must look out. Spraying as generally recommended for the scale, when the trees are dormant, of course will never injure bees. But there are always a few who will not follow the di-

rections, and who will spray when the trees are in leaf. They will try to combine remedies for the scale and for the various other insect and fungus pests, and will introduce arsenic and copper compounds into the sprays. These, if used when trees are in bloom, mean death to the bees of that region. Although no one is ever told to spray in fruit-bloom, but, on the contrary, is cautioned *not* to use his pump at that time, there is always one who is anxious to try the experiment. Perhaps he is dependent on his neighbor for a pump. His neighbor is not using it in fruit-bloom, therefore it is a good time to borrow.

Bee-keepers can not be urged too strongly not to spray trees in bloom, and to see to it that their neighbors do not borrow spray-pumps at this time. So strongly did the Ontario bee-keepers feel in this matter that a year ago at their convention they offered a "reward of twenty-five dollars for the next conviction of any one illegally spraying while the fruit-trees are in blossom." I am not aware that the example has been made of any one as yet. But see to it that you do not suffer loss of bees through your neighbors' carelessness. Here is a case which has just come to notice.

"When the fruit-bloom set in I had some very strong colonies. After fruit-bloom was done I had a little bunch of bees which you could hold in your hand, in the corner of the hive....I know now that spraying did it, although I could not find the guilty party."

The enlightened bee-keeper can see, as herein outlined, a happy combination of forces which can be harnessed and made to yield good returns. Are not the apiary and the orchard as good a team as the often recommended combination of bees and poultry, or is it better? It will pay to try. Get informed in the terminology of the day; "get wise;" meet a situation as did the man below quoted met an illegal spraying case.

The bee-keeper says, "I went out into my yard with the lawn-mower and found my bees hopping around like grasshoppers. My home apiary was much affected, and I came to the conclusion that it was the result of spraying. I found that a lawyer who lived near me, and who had a very nice place, had been spraying, and was going to spray the next day. I went to him and told him that he must not do it. He was very much surprised when I told him that it was against the law; but he did not spray his trees." Get wise, and don't be afraid to teach law to a lawyer.

Clark Univ., Worcester, Mass., Dec. 18.

[Every thing that Mr. Gates suggests in the foregoing, as we know from accumulating evidence, is literally true; yet in spite of it the average farmer either does not know it or else indulges in the silly notion that his neighbor's bees are sucking the sweetness out of his fruit to be. The up-to-date fruit-growers, fortunately, do recognize the valuable services performed by the bees. Some of them are putting a few colonies in and about their orchards, but the great majority of them are making no such provision. In most parts of York State, and Michigan, for example, it would not be necessary, for the reason there are so many bee-keepers all through the fruit sections of those States, and pollination is, therefore, taken care of. Bee-keepers would do well in some localities to get their neighbor fruit-men to put a colony or two in their orchards, thus securing an advantage to the orchardist and to the bee-keeper as well. But how does the bee-keeper profit by it? In this way: If Mr. Fruitman thoroughly appreciates the value of the bees as pollinators he will be less inclined to make trouble when his neighbors' bees hover over his broken fruit while it is being packed, or lying on the ground.—Ed.]

SWARMING CONTROLLED

By Shutting the Queen on one Comb in a Perforated Zinc Cage.

BY J. H. BURNS.

Many and various were the methods which I had tried for the regulation or suppression of swarming before I finally hit on the plan which I shall attempt to describe in order that brother bee-keepers may try it for themselves and prove that it will work as successfully in their locality as it has in mine.

All the methods described in the bee-books and journals were unsatisfactory to me because of the element of uncertainty. Clipping the queen's wings is a fairly safe and sure plan; but to make it work properly it is necessary for the bee-keeper to be in the apiary every swarming day; and if many swarms issue at once it keeps a fellow on the jump changing hives, and one can do scarcely any other work without risk of missing a swarm.

Shaking is not a sure method for holding the swarm, in all localities; and, besides, to me it was always a disagreeable operation, fraught with danger to the queen, and liable to make the bees cross.

The modified Alexander method I thought might tend to a better holding of the swarm; but a trial on a small scale seemed to result in less honey, on account, I believed, of dividing the colony before it was strong enough to swarm naturally. For this reason I have always thought that a practicable automatic self-hiver would be just the ideal thing. It would also save the hunting for queens and queen-cells.

The Alley queen-trap is the nearest approach to this desideratum; but they get so insufferably filled with drones that the finding of the queen is a job of great difficulty, and one is never sure whether she is in the trap or not.

Caging the queen in the hive, or giving to a nucleus, seemed the only reliable method; but the hunt for queen-cells was too much for my Irish patience. Besides, I did not like the idea of reducing brood-rearing entirely. Clearly, I wanted a cage which would confine the queen without the bees, realizing that she *was* confined; and if it allowed her to lay eggs, and the bees free access to rear

the brood to some extent, it would serve to keep up the strength of the colony. After days and nights of wrestling with the problem, strangely enough the simple idea of nailing an excluder-zinc on each side of an empty brood-comb suddenly occurred to me. A hole was made in the top-bar, through which the queen was run at the beginning of the swarming season, and kept there till all danger of swarming was past, which, according to late authorities, would be when all open brood was capped. However, I left mine till swarming began to wane with other colonies, in order to be on the safe side, also frequently watching for queen-cells on the frame of brood which the queen kept filled; but I never found any. As fast as the brood hatched in the other combs the bees polished them out and kept a small brood-nest of them waiting for the queen, which, according to some, would be a good preventive of foul and black brood.

When the queen is released she is in good condition for laying, and will rear a lot of young bees for winter. During two years' trial with two colonies I have had no swarms, and good crops of honey. Whether it will work as satisfactorily on all colonies or in other localities I leave for time to demonstrate.

St. Marys, Ont.

SWEET CLOVER.

Why is Not the Yellow Variety More Widely Known?

BY A. L. AMOS.

The little I have written in GLEANINGS started a small avalanche of letters of inquiry to which I have been trying to do justice. Some of these letters were quite interesting. For instance, I got one from California, in which the writer said:

> Some 25 years ago I was engaged in the hardware and seed business at Paola, Kan., and for some customer I wrote to an eastern seed-house for a little each of the white and yellow Bokhara clover. They were identical in habit, but I thought the yellow contained more nectar, as the bees were almost crazy for it, and it bloomed from early till late. I now conclude that this is the same as sweet clover referred to. Do you know?

I wonder what became of that yellow sweet clover started so long ago near Paolo, Kan. I wonder how it comes that the white sweet clover is known all over and the yellow is not.

Its great merit was recognized in some quarters years ago.

A very interesting letter from the late Mrs. L. Harrison was read by Mr. York at the Illinois State Bee-keepers' convention, held in Chicago in 1896. She said of *Melilotus officinalis*, "This is well known, and gaining in reputation as a forage-plant and for bee-pasture."

When D. A. Jones, of Canada, attended the sessions of the North American Bee-keepers' Association he advocated the merits of what he called Bokhara clover, first, last, and all the time. Prof. Cook took a plant in his hand that Mr. Jones brought with him, and, standing up smilingly, said, "Look at its root. It's only sweet clover." So it was: but it was *Melilotus officinalis*—the yellow variety. See *American Bee Journal*, 1897, page 34. Ten years ago! Why has it not made greater headway to recognition? That's what puzzles me.

I have looked in many "bee-books," manuals of bee-keeping, to find among the honey-plants *Melilotus alba* alone, instead of being accompanied by its twin-sister, *Melilotus officinalis*. It is mentioned in the A B C, but hardly gets justice. I confidently believe the next edition will have more to say.

I want to see merit find recognition. My experience with the yellow sweet clover is that it is far ahead of the white as a forage-plant. The white does not hold its own when stock feed on it, but the yellow does. Dr. Gandy, of Richardson Co., this State, has had yellow sweet clover for many years, and attributes to it much of his success as a honey-producer. Mrs. Lambrigger, of Knox Co., Neb., wrote of it with enthusiasm some ten years ago.

Comstock, Neb.

[There is really little to say by way of criticism of what Mr. Amos has stated, except that I indorse all that he says. It is possible the yellow sweet clover would grow in Florida, as it flourishes very well in Bermuda, a warmer country, and it is evident it will grow in cold Nebraska without special care, but A. I. Root thinks not. Mr. Amos puts a puzzling question when he asks why such a valuable plant as yellow sweet clover is almost unknown in this country. But this much may be said: There are many valuable plants, animals, birds, and insects awaiting an introduction into this country. As a rule, introducing a new thing is a thankless task, *and no money in it for any one.* Sainfoin, for example, the finest of all the clovers, has never been successfully introduced into this country. No one can tell why. Read the history of alfalfa in this country, and, in spite of its success in the West, the farmers of the East will not accept it on any account. See also the case of white sweet clover where legislatures pass laws condemning it as a weed, whereas it is a valuable agricultural crop in several countries. It is our business as bee-keepers to stand up and fight the battle of the honey-producing plants or go out of the bee business. This world is, first of all, a fight with ignorance and prejudice.—W. K. M.]

THE DANZENBAKER HIVE.

Can Straight Worker Combs be Secured Without Full Sheets of Foundation?

BY MRS. W. S. WINGATE.

I was much interested in the article on the Danzenbaker hive by Mr. Grant Stanley, in GLEANINGS for Jan. 15. I have been very enthusiastic in regard to that hive for the

production of comb honey, and have used it successfully for the past four or five years. I fully agree with him in regard to the bees building up more rapidly in the spring in this hive than in any other, but I beg to differ with him in his statement that they will build all *worker* comb from starters only. To me this has been a serious objection to the hive. The frames not being pierced for wiring I have not been able to use full sheets of foundation; and every season, but more especially the last one, I would find two or three frames of worker comb, and the rest all drone comb. If there is any way to remedy this, other than using full sheets of foundation, I should be glad to know it. A hive and super that has hand-holes on the *sides* as well as back and front would be much easier for a woman to handle.

When Mr E. R Root attended our Minnesota convention some two years ago he promised to bear this in mind, but we have not seen it remedied yet.

"I believe the Danzenbaker super to be the ideal one for the production of perfect sections of comb honey, and I shall certainly try for one of the prizes offered in a late issue of GLEANINGS."

If Mr. Stanley has tried to extract from the Danzenbaker frames without their being wired I hope he has had better success than I have had; for, nine times out of ten, I find the frame minus the comb when taken from the extractor.

A woman who cares for 35 or 40 colonies has not the time to pierce every frame for wiring when making up her hives. So, please tell us *how* to have all worker comb from starters, or pierce the frames so we can use full sheets.

Minneapolis, Minn.

[It is not true, according to general reports, that the Danzenbaker frame would be any more immune to the building of drone comb from starters than any other style of frame. This question of drone-comb building depends almost wholly on three factors, namely: The age of the queen, the condition of the colony at the time the comb is built, and the season of the year. If the queen be a virgin, and there is a flow of honey on, drone comb is almost sure to be built. If the queen be a young layer, and there is a scarcity of egg-laying room, the bees will build worker comb as a rule. If honey is coming in, and there is an intention to swarm, then the building of the new comb will be largely drone.

The reason why the Danzenbaker frames are not wired is because they are reversible; and it is intended that all combs built in such frames be reversed just long enough so the bees will build clear up against the bottom-bar, which, for temporary purposes, is on top. When a comb of this kind is built solid all around, there is not much danger of the comb being broken in extracting. But there is nothing to prevent one from wiring even Danzenbaker frames; but the wires should not pierce the end-bars, because they are a close-fitting frame, and such wires would interfere with the hanger-cleats.

To wire Danzenbaker frames, use small staples, driving them in about half their depth along a center line on the inside of the end-bars; then draw the wires through the staples, and fasten. Two strands will probably be sufficient for a Danzenbaker frame. Staples should be short enough so as not to pierce the end-bars, of course.

The writer remembers distinctly the request to have the hand-holes in the side of the hive-bodies; but he could not get the Company to agree to the change. He believes, however, that you are right, and will endeavor to see that it is brought about.—ED.]

THE ALEXANDER PLAN OF BUILDING UP WEAK COLONIES IN THE SPRING.

Why Sectional Hives are Better Adapted for this Method than the Deep Bodies.

BY J. E. HAND.

Some time ago I received the following letter with a request that it be answered in the columns of this journal:

Dear Sir:—Will you please reconcile what you say relative to the Alexander plan of putting weak colonies on top of strong ones, on page 565 for last year, with what you say on page 180 for this year? In the first you say, "I heartily endorse" the Alexander plan; while in the second you say the plan "is of very doubtful expediency." ALBERT G. HANN.

Pittstown, N. J., Feb. 20.

I fail to see any discrepancy in my statements on page 565, 1906, and page 180, 1907. In both places I distinctly state that this manipulation is one for which the sectional hive is especially adapted, while in my article on page 180 I go a little further and say that the full-depth hive is not so *well* suited for this manipulation, because it is too much room to give at one time in early spring. If Mr. H. were familiar with the workings of the sectional hive he would readily see why this is so. In the properly constructed sectional hive the brood in early spring will all be in the top section of the brood-chamber; hence in uniting two colonies it is necessary to give only one brood-section of the hive, which is placed at the top of the strong colony, thus placing the brood-nests of the two united colonies as close together as though they were both on one L. frame, while the lower (or bottom) brood-section of the now three-section hive being empty may be removed. However, this empty brood-section is no hindrance to the rapid building-up of the colony, as the bees will pay no attention to these empty combs until the two top brood-sections are solid full of brood, when the lower brood-section should be placed at the top, where it will be quickly filled with brood. With the sectional hives, although we have united two colonies of bees and brood, yet we have really not given any more hive room than either of the colonies had before, for empty combs below the

brood-chamber in the section hive do not count. This is fully explained in my article on page 180; and the brood is in a compact form in the top part of the hive where the heat of the cluster is best conserved. It is not the placing of weak colonies of bees above strong ones that is of doubtful expediency, for the plan is a most excellent one; but the uniting of weak colonies with strong ones, by adding another full-depth hive with only a very small cluster of bees as soon as they are removed from the cellar is quite another thing, and should not be practiced until settled warm weather. For further proofs of this statement, please read Mr. A. J. Snowden's report in GLEANINGS, Sept. 15, page 1189; also a report from Henry Stewart on the same page. I think, with this explanation, and a careful reading of my article on page 180, Mr. Hann will then see that my statements on page 565, 1906, and page 180, 1907, are not in the least conflicting.

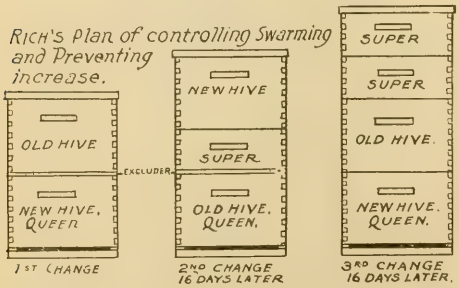
Birmingham, Ohio.

SWARMING.

How to Prevent and at the Same Time Keep Down all Increase; a Modification of the Alexander Plan on Page 423, Vol. 34.

BY GEORGE W. RICH.

I believe the best method ever advanced through GLEANINGS is the Alexander plan in April 1st GLEANINGS, 1906. I have tried this plan, and it works to perfection, but it increases to one more colony; but, thanks to Mr. Alexander for this plan, for by trying this I have succeeded in controlling swarming, and also preventing all increase.



Here is the plan: You are to proceed at first exactly as Mr. Alexander said, by removing the old hive-body, and place on its bottom a new body filled with frames of foundation or empty combs. Remove the middle frame, and from the old hive take out a frame with brood. Be sure you have the queen on this, and place it in the new body (put the frame removed from the new hive into the old); put a queen-excluding board over, and set the old hive on. In six days examine the old hive above the excluder, and remove all queen-cells. On the 16th day almost all the brood will be hatched; so place this hive at the bottom again, but take the queen from the new body and place her in the old body. Put on the queen-excluder, and then a super with full sheets of foundation (as the bees are used to storing honey above they will go to work in the super); place the new hive on top of the super. In six days examine this new hive on top and remove all queen-cells, and on the 16th day again remove the top hive to the bottom and place the queen in it; and now the old body, which has been on the bottom, place on top of the one you put the queen in; but leave off the queen-excluder. Put on the super and add as many more as needed.

Watch your bees in early spring; and when they begin to prepare to swarm, then make the first change, and by the time the last change is made they will have no desire to swarm. By this plan the queen has been kept laying all the time. You have increased to more bees than if they had swarmed, and all in one colony. No increase.

Atwood, Tenn.

[The diagram furnished by our correspondent makes the whole method of procedure plain at a glance. We suggest that our writers, in referring to methods like this, sketch off diagrams to show how they proceed. This will save a good deal of time on the part of the reader, and make the method perfectly understood.—ED.]

MOVING BEES.

Much Smoke Not Necessary; Propolis and "Locality."

BY H. E. CROWTHER.

I had always considered it necessary, in moving bees even a short distance, to be very thorough; to use smoke liberally; to jar them up well, and to put an obstruction in front of the new location; but I find that this is, to a great extent, unnecessary.

The method of wintering preferred by Mr. Atwater and others for this part of the country requires the moving together of the bees in the fall, and placing under low sheds facing south, or in position to be covered with tar paper.

I have been surprised at the orderly return of the bees; and if there is any mixing it is peaceable and makes no trouble.

I have just moved a load of bees 35 miles, Nov. 28 and 29, on a dead-axle wagon, with a quantity of straw underneath to break the jar. About half of the bees were shut in with wire screen over the entrances, and the rest of the hives were closed by a stick held up $\frac{1}{16}$ inch from the bottom to allow a little ventilation.

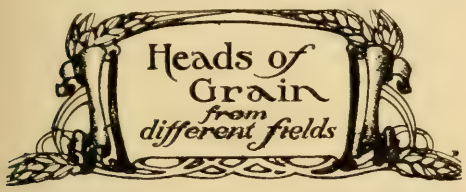
I can see no difference in the condition of the bees. Both ways were entirely successful; but there was considerable jar and jolt, and I should rather use a spring wagon and be able to travel faster. The bees were on Hoffman frames, so there was no trouble with swing combs.

THE HOFFMAN FRAME PREFERRED.

The Hoffman with a V edge is still my choice of a frame. They stick together somewhat here on cold days, and snap some on parting; but for all-around utility I have found none better.

Most apiarists have an idea that propolis is just a shade worse in this (his own) locality than anywhere else. Mr. Atwater thought he had propolis; but the bees here can't daub it on as ours back in Ohio did, by any means, especially toward fall and through the buckwheat and goldenrod flows.

Parma, Ida.



PURE RACES VS. MIXED; NECESSITY OF BREEDING ONLY FROM QUEENS OF KNOWN PURITY.

Every now and then the statement is made in the bee journals that hybrid bees are the best. This may be literally true, yet be misleading, and I think you are right when you say that only queens of known purity should be used as breeders. It is a recognized fact by breeders of live stock that the first cross between two different breeds is often superior to either parent; but here the improvement ceases, and no one would think of crossing the breeds, as experience has proved that the offspring of these grades will be nondescript, without type or uniformity, while the breeder who uses pure-bred stock, and breeds with a certain purpose in view, is almost sure of results.

It is, of course, impossible to control the mating of queens; but this makes it all the more important to use only the pure. It is not necessary to discard all the mismated queens, as hybrids may be as good as or even better than the pure, so far as the honey-gathering quality is concerned; but the mismated queens should never be used for queen-rearing, for the reason that those of mixed blood can not transmit their characteristics to the descendants with any degree of certainty; besides, just because a good queen is mismated, that does not by any means prove that she owes her good quality to the mismating. But while hybrids should not be used as breeders, neither should any go to the other extreme and say, "Any thing, so it is pure." It is only by continued selection of the best of the pure-bred that a fixed type of certain quality can be established—at least that is the experience of live-stock breeders; and when this is so in live stock, why should not the same principle hold true in the breeding of bees? Even if Dr. Miller does get more honey (and stings) from his hybrids, after forty years of improvement, than he can obtain from a few pure queens selected at random, that is no proof to the contrary.

Harlan, Iowa. A. N. HANSEN.

WHEN DOCTORS DISAGREE, WHO SHALL DECIDE?

I should like to ask a few questions if convenient. If such men as Mr. Doolittle and Alexander can't agree on things pertaining to bees, how is a beginner going to know whose plan to follow? For instance: Mr. Doolittle, in his conversations in GLEANINGS of July 15, 1903, says that feeding back extracted honey to produce comb honey does not pay, and also says that comb honey produced that way does not keep well, and after it has stood three or four months it is almost solid, and thus rendered unsalable, while Mr. Alexander, in GLEANINGS for May 15, 1906, pages 649 and 650, says it pays, and pays well, and not only gets more of it, but gets a better quality of comb honey, and that he received 2 cents a pound for such honey more than the market price. Now, who is right? All the difference I can see in the plans of feeding back is that Mr. Doolittle fed *after* the honey-flow, while Mr. Alexander fed *during* the honey-flow. Would that make the difference?

While I have great respect for Mr. Doolittle and Mr. Alexander, who have made a great success in the bee business, I can't see how they differ so in handling bees and both be so successful, unless there is more than one way to skin a cat. I have tried other plans that they have advocated, with good success, and I am thinking of adopting Mr. Alexander's plan of feeding honey back to bees. EDW. A. REDDOUT.

Baldwinsville, N. Y., Jan. 17.

[This is a question that we will throw open to our readers to discuss. Possibly Mr. Doolittle or Mr. Alexander can explain the apparent conflict of opinion. We are safe in saying there will be no conflict when all the factors in each case are thoroughly understood. One of these factors, we venture to say, will be locality. While Doolittle and Alexander are separated by only 108 miles in a bee-line, the conditions around one territory are very different from those of the other.—ED.]

COMB ATTACHED TO THE SEPARATORS; HOW TO PREVENT THIS TROUBLE.

Referring to page 829, "comb attached to separator," I think if care is taken to keep the sections always perpendicular after the foundation is in till the super is on the hive, there will be very much less of this trouble, particularly if large pieces of foundation are used. This has been my experience, at least. After filling supers I used to carry one in each hand; and especially in hot weather the weight of the foundation would cause the free end to bend down, and some of them would not recover their proper positions. In regard to the wire not being always found in the septum, my practice is, after imbed-

ding the wire and before taking up the frame, drop, with a Van Deusen wax-tube, about three drops of wax on each sheet of foundation, one near each end and one in the middle, on the wire. Since doing this I have never found a wire out of place. E. M.

Auburn, N. Y., Sept. 27.

[What you say is very true; but it is, nevertheless, a fact that some bees are very much more inclined to attach comb to separators than others. This has been found to be so pronounced that producers in a few cases have been obliged to pinch the queen's head of the offending bees and put in other blood.

Comb attachments will be a little more frequent with *any* bees when an effort is made to crowd the sealing of the honey clear out to the wood. In other words, in order to secure extra fancy comb honey, the bee-keeper may have to put up now and then with a comb attachment to the separator or fence.

The difficulty of wire being off the septum of the foundation is most satisfactorily and easily remedied by running a current of electricity through the wire, heating it just enough so it will melt its way down into the foundation. Just the moment this takes place the current is cut off, the wire cooled, when it is nicely imbedded in the very center of the base. In many cases where this work is done nicely it is impossible to determine from which side of the sheet the wire went in, as it can be seen on either side equally plain.

Six dry cells (such as can be obtained at any telephone station) will furnish a current strong enough to heat one wire at a time through a forked metal prong; and if the cells be allowed to "rest" after 100 sheets have been put in, for an hour, the imbedding can be resumed as before. The *modus operandi* is fully explained in A B C of Bee Culture.—ED.]

WIRING THICK-TOP-BAR HOFFMAN FRAMES VERTICALLY; WHY FOUNDATION BUCKLES.

Will you please tell me through GLEANINGS why it is not practical to wire the thick-top Hoffman frames perpendicularly? You mentioned its not being practical two or three times last year, but did not give a reason. I am wiring some frames, and should like to try some perpendicularly, but am afraid there is some little principle that I do not understand that will cause a failure.

No. Bedeque, Can. A. K. WHIDDEN.

[It is entirely practical to wire the thick-top-bar Hoffman frames perpendicularly, although there are quite a number of objections to the plan. One is that it is harder to pierce the thick top-bar for the wires, and another that, if this top-bar is pierced, the wires must then be on the top of the frame right in the way if the frames are ever scraped. Tacks and staples spaced equally distant have been used, the same being driven into the under side of the top-bar and the top side of the bottom-bar. Wires threaded through these and drawn taut have been used with considerable success. While it involves a considerable amount of labor, yet this extra labor is more than compensated by the lower cost of the lighter-weight foundation which may be used. You might be interested in Dr. Miller's wooden splints. He has such splints cut about $\frac{1}{16}$ inch square, and as long as the width or depth of the frame, inside measurement. He soaks these splints in wax until they are thoroughly saturated, and then with a pair of tweezers takes them out one by one and lays them on the foundation vertically. The adhering wax causes them to adhere firmly.—ED.]

SALT FOR BEES.

Bees evidently like salt I set out a pail which had held salted white fish, filled with water to freshen it so that I could use it in the barn; but the bees do all their drinking out of it, so I let them have it. This must be beneficial to them, for they do not touch the fresh water, which is just as accessible.

I am delighted with GLEANINGS. It is certainly a fine magazine. C. GALLIMORE.

Mt. Vernon, O.

[There has been a great amount of testimony showing that bees are partial to salty water. They very often may be found hovering around the seepage of a water-closet.

If borax is not handy, a little sapolio is very good for the removal of propolis; and if that is not available a little gasoline will soften up the gum so it can be removed with a little soap and water.—ED.]

HOW TO KEEP ANTS AWAY FROM BEE-HIVES; SUSPENDING A PLATFORM BY WIRES.

Herewith I send you my remedy for ants, which is sure if my instructions are followed:

Set two posts securely, any distance desired; place a pole on top of these posts, then suspend by wire from this pole any distance desired from the ground a plank (for hives to rest on), secured by these wires. Do not let this plank touch any thing. If grass or weeds touch the plank the ants will reach the hives. In case they do, tie wool around these wires and saturate it with coal oil. I have used this remedy for more than three years. It never fails. In storing honey in the house, suspend the box from the ceiling by wire. W. P. HERMAN.

Molalla, Ore.

HOW TO CARRY HONEY TO THE EXTRACTING-HOUSE.

I have just read E. W. Alexander's article on page 1573, Vol. 34, also your footnote. There is one thing I have always thought Mr. Alexander does on a small scale, and that is, carrying honey in combs to the honey-house. We have one man taking off honey and one running the wheelbarrow and taking four or five ten-frame bodies at a load; and if bees are working, put the bodies right back; if not, we put them on about sundown.

Hondo, Tex. A. H. KNOLLE.

THE DOOLITTLE PLAN OF NON-SWARMING.

How did F. A. Salisbury get along with the two colonies he shook on the Doolittle plan of non-swarming, as mentioned on page 869, Vol. 34? HERBERT FREAS.

St. Anns, Ont.

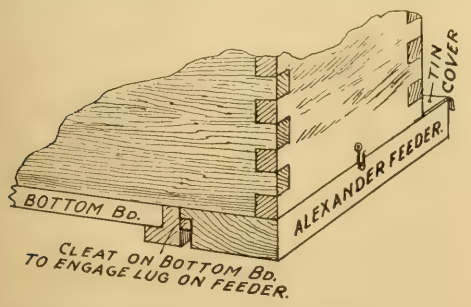
[This question was sent to Mr. Salisbury, who replies as follows:]

We had very good success. Neither of the colonies swarmed, and we took from them about 170 sections of comb honey. One of them finished only about 50 sections, and the other about 120. We thought, when we shook the bees on the combs of honey, that the one that did not do so very well would probably not. They were very light-colored Italians of a light orange color, and seemed to be of a quiet, contented disposition. They were nice to handle, but were not good for business. The bees of the other colony were hybrids, and had some "go" about them. The brood taken away from both was put on top of a weak colony, which did not swarm. These two brood-chambers are now full of honey, and will weigh about 150 lbs., hives and all. We could have extracted this, but wanted it for next season to try the plan again. I feel it will work in this "locality." F. A. SALISBURY.

Syracuse, N. Y., Jan. 30, 1907.

THE ALEXANDER FEEDER; TWO WAYS OF ATTACHING IT TO THE HIVE.

Our hives all stand on the factory-made stands with sloping alighting-boards. These stands are too short to allow a feeder to stand at the rear of the bottom-board when left in a natural position; but if the stand is turned upside down it is then long enough to allow the feeder space on which to stand. We reversed the ends of the stand, rear end in front, which gives a straight end for the bees to climb, providing any should drop on the



ground before reaching the alighting-board, which will be sufficient, usually, when the hive is set back on the bottom-board, to cover the feeder.

If I did not use this kind of stand, and were obliged to hang feeders under the hive, I believe I would adopt a plan I saw neighbor Burnshine, of Ft. Dodge, use. His feeders had a rabbet sawed out on one side, leaving a projecting strip of ¼ inch or more flush with the top side of the feeder; another such strip was tacked on the rear end of the bottom-board, low enough to let the feeder-strip rest on, so the feeder would be flush with the strips on the bottom which tie said rails together; a hook on the center of the rear end of the hive hooked into an eye on the feeder, which held the outside of the feeder snug up to the hive when the rabbet strip was placed in position on the strip on the hive-bottom. This can not get away, as the hook on the opposite side holds all taut. Where feeders have been made as most are, with no rabbet on the side, a strip can be tacked on to the side of the feeder, which will answer as well. J. P. BLUNK.

Moorland, Iowa.

WHY PEOPLE DON'T BUY HONEY.

As to why we do not buy honey to use, my supply gave out a few years ago. I ordered a 60-lb. can from Chicago. It was made by a two-legged bee, and was far inferior to the corn syrup to be found at all groceries, and I doubt if as good for the health. It tasted as if it had been made in an old brass kettle. This kind of experience lasts a long time.

Onarga, Ill. J. S. WILLIAMS.

TO REMOVE PROPOLIS.

The best thing I ever tried to remove propolis from the hands is Twenty-mule-team borax. Wet the hands in warm water; dust some borax on them, then rub the dry powder well over the hands. The grit just loosens the sticky stuff nicely, when it will all wash off. Try it and you will be glad.

Hebron, O. FRANK MCGLADE.

ANOTHER REMEDY FOR RATS.

I believe I can give you a better way to get rid of rats than is given by I. S. Tilt, p. 418. Pulverize some glass; sift out the coarse particles and use the fine; mix flour, corn meal, and pulverized glass in equal parts; then place them in vessels and sprinkle some sugar over it and place it where the rats can have access to it. It not only kills those that eat it, but the others become alarmed and leave. I have run them away from my place several times with the glass mixture.

Earl Park, Ind. R. C. YATES.

STILL ANOTHER REMEDY FOR RATS.

I think you can get rid of the rats by sprinkling *powdered copperas* in their holes and runs along baseboards, corners, etc. I have found this a *perfect success* after ferrets, traps, etc., proved failures. A. T. COOK.

Hyde Park, N. Y.

COMMISSION MEN.

On page 1425, E. D. Townsend is all right in regard to the commission men. They are more damage than good to the honey-producer. C. B. FRITTS.

Niles, Mich.

OUR HOMES

by A. I. ROOT

Lay not up for yourselves treasures upon earth, where moth and rust doth corrupt, and where thieves break through and steal. But lay up for yourselves treasures in heaven, where neither moth nor rust doth corrupt, and where thieves do not break through and steal.—MATT. 6:19, 20.

On page 1594 of last year I told you about being called on to speak in the absence of one of the program speakers at a meeting of the Anti-saloon League convention in St. Louis. As my address appears in the proceedings of the Eleventh Annual Report of the Anti-saloon League of America, I copy from it as follows:

It gives me great pleasure, friends, to stand before you and look into your faces, and I will tell you why it gives me an especial pleasure to-day. Dr. Russell has just been telling you how it was my privilege, under a kind providence, more than a dozen years ago, to give the Anti-saloon League financial help when it was far more needed than it is needed now. I gather from the excellent address of the brother from Maine, who has preceded me, that, like myself, he has at different times in his life been looking out for good investments. I, too, have all my life been in the mercantile business, more or less, in buying and selling, and of all the investments I have ever made, none has given me the satisfaction, through years past, like the money I have put into the Anti-saloon League. The Master said: Lay not up for yourselves treasures on earth, where moth and rust doth corrupt, and where thieves break through and steal; but lay up for yourselves treasures in heaven," etc. Well, the money I have been permitted to give the Anti-saloon League has been more truly "treasures laid up in heaven" than any other investment I have ever made, not even excepting that given missionary work. The interest and dividends on that investment, I see right here before me to-day.

Neither Dr. Russell, Mr. Metcalf, nor myself, had any comprehension, away back in those years, of what this League would amount to, but we had faith. That $1000 we raised then meant a good deal more than it would mean now. It was then the Anti-saloon League of Ohio. May God be praised, it is now the League of the whole United States of America. Right before me in this beautiful church are the great and good men and women of America—men that are so high above me in learning and scholarly attainment that I feel my—I might almost say—my insignificance, as I never felt it before, and yet God has used, and has use for, even me.

Now, friends, you will be called on, in fact we are all constantly called on, to give of our means to this cause. "Thieves," even yet, "break through and steal,' yes, God knows they do in regions where saloons are still plentiful, and "moth and rust doth still corrupt." Shall we not put our money where it will benefit posterity and prove to be "treasures laid up in heaven"?

THE TEMPERANCE CRUSADE IN WASHINGTON, D. C., FEB. 14, 1907.

On page 342 of our issue for March 1 I made a brief mention of this meeting. Well, I hold in my hand a report of the hearing. The pamphlet is labeled "H. R., No. 6016, to Prohibit the Manufacture and Sale of Intoxicating Liquors in the District of Columbia." I quote from the above pamphlet as follows from Mr. Webber's address:

I wrote a letter (which will be before your committee) to Mr. Macfarland, Commissioner of the District, and received an answer; and without stopping to read the answer, which I offer in evidence (because I have not the time), I will give you the substance of his statement. He says there are 522 drink-places in the city and District of Columbia, or were a year ago last December, when I received the letter; that they paid $416,776.60 per annum. Of course, that amount changes somewhat as the years go by, but not much. It increases as the city grows larger. As against this sum of $416,776.60 is the following: The jailor, or warden of the jail, writes me that it costs in round numbers $50,000 a year to maintain the jail; the workhouse superintendent writes me that it costs $95,336 to maintain the workhouse (see his letter), and he says 95 per cent of the inmates there are there through drink, and the jailor says 90 per cent of those who are in the jail are there by reason of drink.

The insane-asylum has something like 1300 inmates, according to the superintendent (see his letter), who are there by reason of drink, and to maintain them it costs something like $275,000 a year. The District official reports show that, to maintain your police court and criminal courts, it costs about $885,175 a year. That makes a grand total of $1,295,511 for these expenses and institutions. Deduct from that the amount that the liquor men pay in ($416,776 60), and you have $878,735 still against the taxpayers. To this should be added the annual drink-bill of the District.

The saloon men of my State (and I find that true everywhere, although I have not consulted any saloon men here, but things are about alike the country over) say that the average gross income per day for each saloon is $15. Now, assuming that they do not sell on Sundays, but keep strictly within the law, the drink-bill of this city and District, put at its lowest estimate, amounts to $2,500,000 for 365 days—subtract from that sum and the added expenses of the institutions named, $416,776.60, and you still have for the taxpayers to meet $3,378,735. I repeat, you will still have for the taxpayers to meet $3,378,735, as the figures in round numbers still against the taxpayers.

Now, suppose you take that colossal sum and cut it right in two, you still have the enormous sum that the drink costs the citizens of this District yearly of $1,689,367. These seventeen speakers represent here the churches and all the temperance organizations in this District, and, in fact, they represent these organizations and churches throughout America, and they come here and ask you gentlemen to do your duty. We have come here to do our duty. When this door closes, the responsibility is upon you. We ask you, in the light of all the evidence that shall be adduced here to-day by this cloud of witnesses (if you do not see fit to recommend the bill favorably), report it to the House without recommendation, and let the responsibility rest upon the Members from all over the country.

Mr. Webber here introduced a letter from one of the commissioners of the District of Columbia, Henry B. F. Macfarland, in which he, Macfarland, stated that there were 522 drinking-places in the District. In commenting on this, Mr. Webber says:

These 522 drink-places mentioned in Commissioner Macfarland's letter pay by way of license fees for the right to exist, the sum of $416,778; against this sum is the following:

To maintain jail per year (see jailer's letter)	$ 50,000
To maintain workhouse (see superintendent's letter of workhouse	95,336
To maintain insane-asylum (see superintendent's letter)	275,000
To maintain police court and criminal courts	885,175
Total	1,295,511
Subtract	416,778
Saloon tax lacks of paying above sum	878,733
To this should be added the annual drink bill of the District. The saloon men admit that the average gross income per place is $15 per day. Assume they do not sell Sundays, at that rate the drink bill of this district amounts per annum to	2,500,000
Total amount paid out for drink and crime, the taxpayers have to meet	3,378,733

The jailer says that 90 per cent of those in jail got there through drink.

The superintendent of the workhouse says that 95 per cent of those under his charge get there through drink.

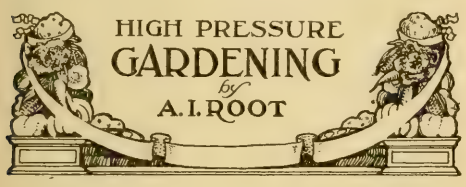
The superintendent of the insane-asylum says that about half of his inmates get there through drink, and in his estimate there should be no reduction from the expense, he states, as he gave only the number that are there through drink.

The cost of the police force and criminal courts, we would say, would be reduced only one-half by the

abolition of the saloons; still, the cost of permitting the liquor-traffic to go on in the District amounts to a sum that staggers one. If the $3,778,733 were divided by two, you still have left against the taxpayers $1,689,347.

Mr. Webber gives us also letters, some of them lengthy, from the superintendent of the jail, of the workhouse, of the insane-asylum, giving it as their conscientious opinion that strong drink is at the bottom of all these troubles. If I had space I should like to give the letters in full. The pamphlet containing this report has 47 pages. Many of them are mostly fine print; and yet with this great flood of evidence against the saloons the Commissioners of the District of Columbia rendered a decision that it would be "impracticable to enforce such a law as the bill proposes." I respectfully ask these commissioners to go down to Kansas City, Kansas, and talk to the gang that declared it impossible to enforce the prohibition laws in that city of 100,000 people.

Now, friends, this is *our* affair. It rests on the shoulders of every one of us. Shall the very heart and center of our free land *continue* to waste money and send our people to perdition in the way in which the above shows up? I hope every man, woman, and child who gets a sight of this page will read these extracts over and over.



HOT-BEDS AND COLD-FRAME SASHES; HOW TO PREVENT THEM FROM BEING BLOWN OFF.

It was recently my pleasure to look over the immense store and greenhouses of the Peter Henderson Co. When Peter Henderson died, several years ago, I had a sort of feeling that the business would run down, at least for a time. I do not know but it is natural for old men to be afraid "the boys" will not succeed in looking after a great business like that "after father is gone." Well, it was one of my happy surprises to notice how this establishment has grown up in almost every way. The greenhouses are not much larger than they were when the great market-gardener and florist, Peter Henderson, was alive. But the seed trade is developed wonderfully.

Just below the greenhouses along the railroad track I saw an immense building with the name of the company on it in gigantic letters. I wondered what such a great building in that locality could be for; but when I got around on another side I saw the single word "Seeds," also in gigantic letters. This immense warehouse, big enough to let a whole train of cars in, was simply to store the seeds they handle. I used to be greatly interested in growing vegetable-plants; and I was greatly taken up some years ago, as some of you may remember, with Henderson's plan of starting seeds in a greenhouse, and transplanting them into flats to be carried to the open air, so they could be covered with sashes when the weather turned cold. Well, this very thing was going on the day I was there. A big gang of men were carrying the flats out of the greenhouses and depositing them in cold-frames. This was along the last of March. Of course, the different kinds of plants (cabbage, cauliflower, tomato, etc.) will need more or less protection from sashes.

Now, I think every one who has handled sashes very much has had trouble and worry on account of heavy winds blowing the sash off the beds I have sometimes lost a good many dollars in just a very few minutes, seeing my sashes sail like shingles in a high wind. Various devices have been planned to hold the sashes in place. Hooks and staples to fasten the sashes, sliding them in grooves, etc., have been used. Hooks and staples are almost out of the question if you wish to handle sashes interchangeably, moving them from one bed to another. Well, the Henderson people had a rig that made me smile to think I had not thought of it before. Make your bed as long as you wish. I think some of their beds would hold forty or fifty sashes. In our work we decided on about twenty sashes to each bed, then we could pile them up at each end of the bed when they were not needed, carrying ten sashes one way and ten the other. The plan I saw to hold the sashes was like this:

Put a stake at the end of each bed. Through the top of each stake, a little higher than the glass, put a stout hook. One of these hooks is securely fastened into the stake permanently. The other has a screw thread cut on it, and goes through the stake, with a little crank on the outside end. Now, if you turn this crank you can draw the hook out or in. Well, now, all that is needed to finish is a good stout wire with a loop on each end, just long enough to run from one hook to the other across the middle of all the sashes. When you *work* with the sashes this long wire is dropped down in the path. When you quit work, put your sashes in place; lay your long wire across the middle of the whole string of sashes; then turn your crank until the wire becomes taut. If your sashes are all of an exact width it is an easy matter to draw the stakes toward each other so they will squeeze against the outside bars of the sashes next to the stake. The sashes should reach over, say an inch or two, at the ends of the beds. Now, this not only holds each sash so no wind can move it, but the pressure pushes them up tight together, so there are no cracks left to let frost or cold air through. While at work your sashes are perfectly loose, with no staples nor attachments in the way. Two men will take them off and put them on with great rapidity. When they are all in place it takes but a moment to hook on the wire and then make every thing tight and snug by a few turns of the crank.

In regard to the Peter Henderson Co., perhaps many of you are aware the things that that firm offers for sale are pretty well up in price. But, at the same time, every thing that goes from that institution is first class in every respect. Perhaps the most of us have blundered more or less in buying cheap seeds or cheap implements. The very best is, no doubt, the very cheapest, especially with seeds; but you want to be sure you always *get* the best when you *pay* for the best. Trading with an old and reliable firm is a pretty good way to be sure.

"HIGH PRESSURE" SEED CORN

On p. 1073, Aug. 15, last year, I gave you a corn talk. Later (Dec. 15, p. 1619) I told you about Prof. Holden's book, the A B C of Corn Culture. Well, now, I hope that every one who reads GLEANINGS has already made some tests of his seed corn in the way I outlined in my talk—that is, test the corn from each and every ear. Do not let an ear be used at planting time unless every one of the 6 kernels taken from that ear shows good strong prompt germination. It makes me think of testing eggs before giving them to the hen or putting them in an incubator. We want to go to work with such pains and care that we can *almost* "count our chickens before they are hatched," and count our bushels of corn *before the corn is planted.* Instead of using the arrangement described in the corn-book, we made a level bed in the greenhouse. Then with a straight-edge we ruled it off into squares. Six grains of corn were put in each square. These squares were numbered to correspond with the ears of corn. At this date, April 15, nearly all the kernels have commenced to germinate, demonstrating that our method of keeping seed corn over winter is a very good one. We picked the ears out of the corn-crib at husking-time, and tied them up and hung them from a wire stretched near the steam-pipes in the basement. In this way we insured that our seed corn was kept dry and warm all winter long—no dampness, no frost. Of course, a better way would have been to collect the ears in the field before the corn was cut. Let me now repeat, that, if you grow only half an acre of corn (and I don't know but I might say half that much) 25 cents invested in the corn-book will be one of the best investments ever made. We have already sent out several hundred of these books to our readers who are corn-growers.

And now let me tell you, friends, if you do not look out the State of Ohio will *once more* be the banner State of the Union in the average number of bushels per acre, just as it was last year. Do not fail to get the corn book, and then do not fail to test out the bad ears before planting your corn. Better have your corn planted a little late than to pick your seed corn haphazard out of the corn-crib in the old-fashioned way.

WINTER PARADISE APPLES.

I am very glad to learn the name of the Paradise apple; for I had not been able before to identify them. But I know from your description that they are identical. I have been the closest friend of the Paradise for ten years, enjoying them morning, noon, and night, and often before going to bed. They have been my best doctor for indigestion and constipation. I am sorry you have had a bad opinion of them so long, both on account of their credit and your benefit. I came in possession of two small orchards with a few trees of them in each. They always bore a crop of a few bushels, and as high as forty bushels, twenty of which always go to my own cellar, and the number of trips and family pleasures from them I will not undertake to tell.

If you can stand a little more pleasure from them, I will give you our plan of handling them.

First, do not gather till late in November, or, if the fall is late, till December. Do not be afraid of a freeze, for, as you have learned, it will not hurt them. Just leave them on the trees till thawed. You will be surprised if Mrs. R. (when you gather them) will halve and bake some of them in a closed pan, with enough water to keep moist. If I am not mistaken, you will not be through with them till you begin to sing praises for another blessing. Store them in a cool cellar, and about the holidays you can begin to try them without cooking.

I have just told my wife what I have written. She says I have forgotten a very important part in the baking—that is, a generous supply of sugar when putting them to bake.

Onarga, Ill. J. S. WILLIAMS.

In regard to the Paradise apple, I am just now, during the middle of April, eating four or five of them every evening about 7 o'clock. At that time I get apple hungry, and I sleep better after having eaten half a dozen apples than by going entirely without them. I have tested it enough so there is no mistake about it; but in order to eat that number of apples without experiencing any uneasiness during the night they must be very mellow and not very tart. An apple on the sweet order rather seems to answer best. I am careful to remove all the peeling, but I greatly enjoy eating the cores, seeds and all. Of course, I take pains to chew them up very thoroughly; in fact, I think apples, to be easy of digestion, should be very thoroughly chewed, and eaten slowly; and taken in this way I find them more refreshing and wholesome than any kind of cooked apple. Just now I believe I should vote the Winter Paradise not only the most delicious of all apples, but the most delicious fruit God has ever in his loving kindness thrown in my way. Since we have found out how nice they are in the spring we have entirely given up offering them to our neighbors in the fall for 30 cents a bushel, as we did before we knew how nice they are in the spring.

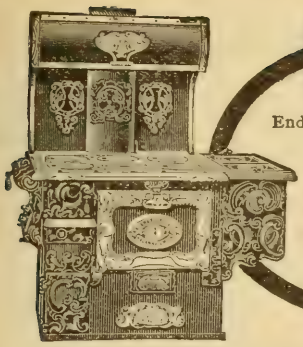
I believe it is true, as suggested above, that this particular apple will stand more frost, and come out all right after it, than any other apple I have had any thing to do with. Will others who have this apple keep it in mind and report? An apple that will stand considerable freezing and come out all right, even when hanging on the tree, is worthy of our consideration.

Just after I finished dictating the above the following was put into my hands:

WINTER PARADISE APPLE IN VIRGINIA.

I know nice ripe fruit is a fine drug-store. Should we study the needs of ourselves we might be able to benefit thereby. Here in our old mountain hills we can grow most kinds to perfection. The bitter you mention in Winter Paradise is not noticeable here. It is Fall Paradise—Sweet Paradise, in fact—a grand and delicious apple. Let's have more fruit and better fruit, and cleaner people to eat it.

J. B. OVERFELT.



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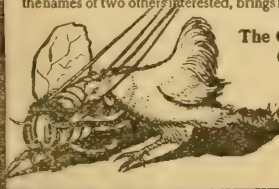

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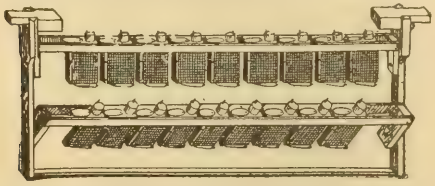

The nursery cage combines the features of nursery and introducing cages. By their use a queen can be released on the candy plan or caged in the hive as desired.

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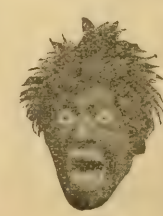

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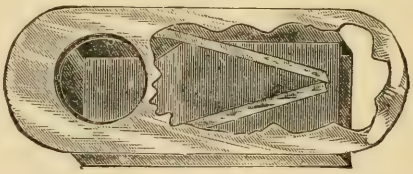

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They are absolutely perfect. I can not tolerate my own make since using them.—John S. Reese, Winchester, Ky.

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SELECT "	1.00	5.50	10.00	.75	4.00	7.50
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WANTED.—25 queens, Italian or hybrids; daughter of pure Italian queen; April or May delivery.
CHAS. E. FRIEND, Clarksville, Va.

WANTED.—To exchange 4x5 camera, as good as new, with full outfit, for bees, honey, or supplies.
CHAS. O. BERGSTRAND, R. 3, Box 87, Amery, Wis.

WANTED.—To exchange Edison phonograph, 36 records, good as new, for good second-hand typewriter.
W. C. PALMER, Box 52, Elk Park, N. C.

WANTED.—To exchange ten new Danz., ten Langstroth hives, Root's make, painted, for three-frame nucleus, or cash. F. W. SAMPSON, Littleville, Mass.

WANTED.—To sell drawn combs (extracting combs) standard size, from healthy bees. Going out of business. Write for prices.
D, S. JENKINS, Las Animas, Colo.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—Names of parties interested in the "Mills" pasteboard honey package. Orders being taken for the coming season. Prices will depend on number of orders received. Send 10 cents for particulars and sample. HOWARD C. MILLS, Camillus, N. Y.

WANTED.—Western bee-keepers, notice! Two carloads of Root's bee-supplies. Write us for prices, stating goods wanted. Would also like to quote distant bee-keepers delivered prices.
SUPERIOR HONEY CO., Ogden, Utah.

WANTED.—Every Western bee-keeper to send for our new illustrated catalog. We can save you money Write to-day.
THE COLORADO HONEY-PRODUCERS' ASS'N,
Denver, Colorado.

Honey and Wax Wanted.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.
R. A. BURNETT, 199 S. Water St., Chicago, Ill.

WANTED.—Beeswax, any quantity; will make remittance the day wax arrives.
THE COLORADO HONEY-PRODUCERS' ASS'N.,
Denver, Colorado.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.
HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

Honey and Wax For Sale.

FOR SALE.—Fancy water-white sage honey, 60-lb. cans, at 8c per lb.
E. R. PAHL & CO., Milwaukee, Wis.

FOR SALE.—800 pounds of pure beeswax for sale. Refuse from wax-extractors wanted. Will pay cash.
W. L. COGGSHALL, Groton, N. Y.

Bee-keepers' Directory.

QUEENS.—Clover stock. Experience and methods count. Write me. H. G. LARUE, LaRue, Ohio.

ITALIAN queens bred for honey, untested, $1.00 each.
GEO. H. PLACE, 816 No. 49th St., Omaha, Neb.

ITALIANS, CARNIOLANS. No disease. Two-comb nucleus with queen, $3.00. A. L. AMOS, Comstock, Neb.

Extra honey queens and choice mountain honey. Francis J. Colahan, Bernardo, San Diego Co., Cal.

QUEENS.—Pure Gold, Red-clover, Caucasian, Banat.
ROSE LAWN APIARIES, College View, Lincoln, Neb.

ITALIAN QUEENS.—Golden and leather, 60c each; worth $1.00. G. W. BARNES, Box 340, Norwalk, O.

Bee-keepers' supplies, Italian queens. Send for a free catalog. ARTHUR RATTRAY, Almont, Mich.

ITALIAN BEES and queens—Red-clover strain imp'd mothers. A. W. YATES, 3 Chapman St., Hartford, Ct.

ITALIAN BEES, queens, and Root's bee supplies.
E. SCOGGIN, Carlsbad, N. M.

I club a high-grade Italian queen with GLEANINGS, new or renewal. W. T. CRAWFORD, Hineston, La.

WANTED.—500 colonies of bees in Texas, Arizona, or California. N. E. MILLER, Box 373, Logan, Utah.

ITALIAN BEES and queens—red-clover and golden strains. E. A. SIMMONS, Greenville, Ala.

ITALIAN bees and queens bred for honey; price list free. B. F. YANCEY & SON, Angleton, Tex.

FINEST Golden and red-clover queens, Caucasian and Carniolan. DANIEL WURTH & GRANT, Pitkin, Ark.

ITALIAN AND CAUCASIAN bees and queens of best quality; price list free. A. E. TITOFF, Ioamosa, Cal.

MAPLEWOOD APIARY.—Choice comb honey, Italian bees and queens. GEO.H. REA, Reynoldsville, Pa. R. 2.

ROOT'S SUPPLIES at factory prices; wholesale and retail. ANTON G. ANDERSON, Holden, Mo.

ITALIAN BEES, queens, and bee supplies.
H. H. JEPSON, 182 Friend St., Boston, Mass.

ITALIAN BEES, queens, nuclei, and bee-keepers' supplies. A. T. DOCKHAM, Rt. 1, Box 95, Eagle Bend, Minn.

ITALIAN BEES, queens, beeswax, honey, and bee-keepers' supplies. M. E. TRIBBLE, Marshall, Mo.

FOR SALE.—Bee-keepers' supplies. Write for catalog. Lengst & Koenig, 127 S. 13th St., Saginaw, Mich.

FOR SALE.—Golden and red-clover Italian queens.
WM. A. SHUFF, 4426 Osage Ave., Philadelphia, Pa.

ITALIAN BEES and queens—red-clover and golden strains. E. E. MOTT, Glenwood, Cass Co., Mich.

SWARTHMORE Golden-all-over, Caucasian, Banat, Carniolan, Cyprian queens. E. L. Pratt, Swarthmore, Pa.

QUEENS. Free list giving safe method of introducing, ready Feb. 15. E. E. LAWRENCE, Doniphan, Mo.

ITALIAN BEES, queens, honey, and ROOT'S bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

FOR SALE.—Root's bee-supplies, wholesale and retail; factory prices; catalog free. Beeswax wanted.
W. E. TRIBBETT, Staunton, Va.

KODAK and Camera users, send us your developing and finishing. Send for price list. A full line of kodaks, films, and all photo supplies.
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IMPROVED ITALIAN QUEENS now ready; nuclei and colonies about May 10, Danzenbaker or L. frames; 20 years a queen-breeder; 500 colonies to draw from. Circular and testimonials free.
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The scope of this work is sufficiently indicated by its title. It is not a large book by any means, but it contains a good deal of meat for all that; and those interested in queen-rearing will be glad to read it. As might be supposed, it is one of the Swarthmore series of little books on the problems of the queen-breeder. It forms one more step on the ladder of successful queen-rearing. Price 25 cents.

BUSINESS OUTLOOK.

The cold weather prevailing for the past three weeks in this and many other localities has been very hard on bees, and has had a depressing effect upon trade in supplies. It has given us an opportunity to catch up a little closer on our orders, because of the slackened demand. Orders are keeping us busy to our utmost, and we trust that, with returning fair weather, the season may still be a good one for bee-keepers.

SECOND-HAND FOUNDATION-MILLS.

We have the following second-hand comb-foundation mills to offer. We give a brief description of each, and shall be pleased to mail a sample of foundation, representing any one or more of these mills, to those interested, on application:

No. 082, 2½x10 medium-brood mill, round cell, late-style frame, in good condition. Price $15.00.

No. 083 2½x10 medium-brood hex. mill, late-style frame, in good condition. Price $16.00.

No. 2275, 2½x6 hex. thin-super mill, in good condition. Price $11.00.

No. 078, 2½x6 hex. thin-super mill, in extra good condition. Price $12.50.

No. 079, 2½x6 hex. thin-super mill, in extra good condition. Price $12.50.

No. 085, 2½x6 hex. thin-super mill, in good condition. Price $12.00.

No. 086, 2½x6 hex. extra-thin-super mill, in good condition. Price $12.00.

No. 087, 2½x10 hex. light-brood mill, in fine condition. Price $15.00.

No. 088, 2¼x12 old-style Dunham round-cell mill, for heavy brood, in fair condition. Price $14.00.

SPECIAL BARGAINS IN OLD-STYLE STOCK.

We are making some special offers on some old-style goods at some of our branches, which we desire to close out. There are some who prefer some of these older patterns to those adopted since, as we frequently find. To such this is an excellent chance to secure some goods of your choice at special prices.

At our Washington branch we offer:

77 eight-frame covers, Danz., flat metal-bound, which were standard three or four years ago. They are put together, all ready for use when painted. Price 25 cts. each; 10 for $2.20, or the lot at 20 cts. each.

197 ten-frame size, same style, at same price.

60 eight-frame and 32 ten-frame bottom-boards, Danz. style of 1903, with metal-bound tilting floor-board—very convenient for cleaning. Price of either size, 20 cts. each; $1.70 for ten, or 15 cts. each for the lot.

50 hive-stands with slanting front, not now listed in our catalog. Price 12 cts. each; $1.00 for 10.

25 hive-stands of an older pattern, without slanting front. Price 10 cts. each; 80 cts. for 10.

At our Philadelphia branch we offer:

89 eight-frame and 500 ten-frame Danz. flat covers, metal bound on ends, same as those at Washington. Price 25 cts. each; $2.20 for 10; $20.00 for 100.

10,000 thick-top staple-spaced frames, with end and bottom bars ⅞ wide by ¼ inch thick; otherwise they are just like our present style. Price $2.25 per 100; $10 per case of 500.

Of our regular pattern, a'l-wood frames, we have an overstock, which we offer, to reduce it, at $1.75 per 100; $7.50 per box of 500.

An overstock of regular B. bottoms, ten-frame size, not reversible, 20 cts. each; $1.80 for 10; $17.00 per 100.

Overstock of 10-inch 4-row shipping-cases, with 3-inch glass, at $8.00 per crate of 50; hold 24 sections, 4¼ x1⅛ plain; also of 10-inch 2-row shipping-cases, with 3-inch glass, at $4.50 per crate of 50.

We have at Chicago several hundred slotted section-holders, nailed, which have been used and taken back in exchange for other style of fixtures. These new cost $2.00 per 100 in the flat. We offer these nailed, ready for use, packed for shipment, at $1.25 per 100, while they last. While they are somewhat stained with propolis from use, they are a bargain at this price to any one needing this style of section-holder.

We have in stock in Ogden, Utah, to dispose of, 300 thick-top staple-spaced frames at $2.50 per 100; 300 all-wood frames at $2.00 per 100; 2 No. 4 Novice extractors at $8.50 each; 1 bee-tent at $1.75; 250 folding cartons for 4¼ x 1⅞ sections, $1.25; 1000 cartons, wrappers, labels, etc., for brick honey, at $10.00. These goods are offered free on board at Ogden at catalog prices as above, less 10 per cent discount for prompt cash order to close out the stock quick.

Special Notices by A. I. Root.

TESTING SEED CORN.

May be some of the friends will think I am having a great deal to say about seed corn; but if I reach you before your corn is planted I have got to talk fast and quick. In regard to the importance of this matter let me quote from an article in the *Pilgrim* for May, 1907, entitled "Developing Iowa's Gold-mine," by Prof. P. G. Holden, who says:

> Last fall I visited a farm of two hundred acres of corn which showed thirty-nine per cent of a stand. During the conversation it developed that the farmer had tested neither the seed nor the planter, and had kept both his boys out of school during the summer to work, as he was "behind" and had "some bad debts to pay." He "intended to test" his "seed," but was so crowded with other work" that he "could not get to it."
>
> If he had spent five or six days in March, when his time was otherwise of little value, in testing the germinating power of every ear of corn, had properly graded it to uniform size of kernels, and had picked out the broken, rotten, and discolored kernels, and had then tested his planter and adjusted the planter-plates to drop the proper number of kernels to the hill, he could have laid off the rest of the year, sent his boys to school, and been more than a thousand dollars ahead. A few days spent at the right time on our seed corn may be worth more to us than a whole year's work.

Now, friends, you want to read that over and over. If the grown-up men will not catch on and go to work, get the young men and boys at it. Yes, let the girls read the above extract. Just think of it! the children kept out of school and a loss of over $1000 just because the old farmer could not understand that "whatsoever a man soweth, *that* shall he also reap." He is not the only hard-working farmer who has only thirty-nine per cent of a stand just because he could not take a little time to fuss with his seed corn before planting-time came.

Well might Prof. Holden term it the "developing of Iowa's gold-mine." Why, dear friends, I have just this morning returned from a visit to Mr. C. F. Hunter, of Seven Mile, Butler Co., Ohio, where I saw a field where the editor of the *Indiana Farmer* in 1905 measured part of a row and husked the corn, showing a yield at the rate of 247 bushels per acre. I mention this right here simply to indicate to the people of our land the possibilities along the line of the new corn culture. It has been Mr. Hunter's hobby, more or less, for 48 years; and he has been working right along the line of Prof. Holden's lectures. I saw great wagon-loads of ears of corn going to market that I think would average one pound per ear. I expect, in our next issue, to tell you more about it, and to give you some pictures. Let me say once more, do not lose a minute in testing a few grains of corn out of every ear, before you plant it.

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No. 681. Piano Body Top Buggy. Price complete $45.00. As good as sells for $25.00 more.

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The only 100 Candle Power Light that burns its own gas and gives absolute satisfaction during a long life of efficient service.

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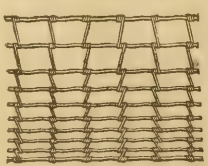
Brighter than electricity or acetylene, cheaper than kerosene. Over 100 styles. Every lamp warranted. The Best Light Co., 306 E. 5th St., Canton, O.



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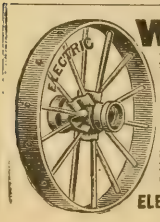

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It will save you time and money. A set of Electric Steel Wheels will make your old wagon new at small cost. Write for catalogue. It is free.

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of the very latest type, and we are now ready to work up wax for western bee-keepers at low prices. . . We want several thousand pounds of beeswax at once, and will pay top market price for same. Let us hear from any one having wax to offer. .· .· .·

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Butler County

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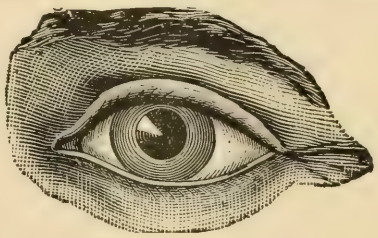

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I should like to talk to you *personally.*

First, I want you to know about my supplies. I handle Root's Goods, of course; for I believe in giving my customers complete satisfaction—for that's better in the long run than low prices. My place of business is on the S. A. & A. P. Ry., just opposite the passenger depot, where I have built a warehouse 40×250 feet, and I have filled it full to the brim, for I handle Root's goods by the carload. This means I can furnish you with supplies with the utmost promptness.

Then, too, I have installed a complete Weed-process Foundation factory. I can turn out 500 lbs. a day. I can work your wax into foundation. In fact, my facilities in this line are not surpassed in Texas.

My can business is increasing by leaps and bounds. That is because of the quality of the goods. It will save you dollars to get my prices. Better write for them to-day.

Nothing pleases me better than for bee-keepers to make their headquarters at my office when in San Antonio. You are always welcome. I have fitted up my office with plenty of desks and chairs, with writing-material, a reading-table, and all the bee journals on hand. Consider yourself invited.

If you haven't my catalog just drop a postal.

I can supply Red-clover and Golden Italian queens promptly.

I am now paying 23c cash and 26c in trade for average clean beeswax delivered here. Save your slumgum. I will buy it. Let me know how much you have, in what condition the slumgum is, and in what kind of an extractor it was rendered, and I will make you price I am paying.

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Send for Our 1907 Catalog.

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They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS.

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Write for estimate with liberal discount for orders sent in now.

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565, 567 West Seventh Street

Gleanings in Bee Culture

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VOL. XXXV.
NO. 10.

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MEDINA — OHIO.

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When we say "Root-Quality," we mean that for selection of material, excellence in workmanship, and for up-to-date methods, Root's goods are unequaled.

M. H. HUNT & SON, Redford, Mich.

Jobbers and Dealers in "ROOT-QUALITY GOODS" in Michigan.

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will soon be here. Are you prepared? Why not order your supplies now, and take advantage of

The Large Discounts

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Low Freight Rates

from TOLEDO places our goods in your door cheaper than you can get them elsewhere. We afford you every advantage in both Poultry and Bee Supplies. We sell The A. I. Root Co.'s bee-supplies, Model Incubators and Brooders, Prairie State Incubators and Brooders, Poultry Supplies of all kinds.

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I will buy your Honey and Beeswax

I pay **cash on delivery;** or, if you are in **need of honey,** write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of **extracted** or **comb honey.** I guarantee its purity.

Queens and Nuclei

Let me book your orders for queens. I breed the finest **Golden Italians, Red-clovers, Carniolans, and Caucasians.** Can furnish **Nuclei** beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White Sweet-scented Clover, Alfalfa, and Alsike.

C. H. W. WEBER

Office and Salesroom, 2146-48 Central Ave.
Warehouse, Freeman and Central Avenues.

CINCINNATI, OHIO, U. S. A.

Honey Markets.

GRADING RULES.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

The prices here quoted are wholesale, or what the honey brings on arrival.

ZANESVILLE.—The honey market is very quiet, due in part to the advent of maple syrup. Fancy white comb brings 17 cents wholeale. There is some little demand for extracted in retail packages for table use. The visible supply of comb and extracted is small at the present time. For beeswax I offer 32 cts. in trade, 30 cts. cash. Wax wholesales at 40 cts.

E. W. PEIRCE,
April 23. 136 West Main St., Zanesville, O.

PHILADELPHIA.—The comb-honey market, on account of the lateness of the season, has grown just a little weaker in the last ten days, although extracted honey is kept very firm. We think, however, there will be comparatively little comb honey carried over except in very small lots. We quote fancy comb honey, 14 to 15c; No. 1, 13 to 14; amber, 12 to 13; fancy extracted honey, 7 to 8c; light amber, 32. We are producers of honey and do not handle on commission.

WM. A. SELSER,
April 25. 10 Vine St., Philadelphia, Pa.

CHICAGO.—Very little honey on the market of any kind. Prices are therefore nominal. A little choice white-clover comb sold at 17 cts., and would bring that at present, but supply seems to be exhausted. Even with this scarcity there is no demand for No. 2 grades. Extracted white, 7 to 8; amber, 6 to 7. Beeswax in good demand at 32. R. A. BURNETT & CO.,
May 9. 199 So. Water St., Chicago, Ill.

KANSAS CITY, Mo.—Receipts of comb and extracted honey are light; in fact, the market is almost bare. Demand for comb is good; for extracted, light. We quote: No. 1 comb, 24 sections, $3.25; No. 2 comb, 24 sections, $2.75; No. 2 amber comb, 24 sections, $2.50, $2.75. Extracted: white, per lb., 8 to 9; amber, per per lb., 7 to 8. Beeswax, per lb., 30.
May 4. C. C. CLEMONS & CO.

INDIANAPOLIS.—Market on comb honey is very quiet, and a strictly fancy article is very scarce. I quote fancy white at 17; No. 1, white, 14; amber, 12; demand for best grades of extracted honey is excellent, and I quote white clover 9 to 9½; amber, 6 to 7. Pure beeswax sells here at 35. WALTER S. POUDER,
May 6. 513—515 Mass. Ave., Indianapolis.

CINCINNATI.—There is no material change in the honey market at this writing. Extracted honey is not moving as rapidly as it might, owing to the cold weather. Quote amber in barrels at 5½ to 6½; fancy table honey, in crates of two 60-lb. cans, 8 to 9. For choice yellow beeswax, free from dirt, we are paying 32c per lb., cash, and 35 in trade, delivered here.
May 9. THE FRED W. MUTH CO., 51 Walnut St.

DENVER.—Our market is now entirely cleaned up of a good quality of comb honey. We have a good stock of fine extracted honey which we are quoting at 7½ to 8½ for No. 1 white, and 6¾ to 7½ for light amber. We are paying 25 to 27 for clean yellow beeswax delivered here. THE COLORADO HONEY PRODUCERS' ASS'N,
April 20. Denver, Col.

BUFFALO.—Demand for white-clover comb honey is extra good at top quotations. Other grades are very much neglected, and buyers will not buy lower grades unless the price is low, and forced to buy it. No. 1 to fancy white comb, 16 to 17; No. 2 white, 11 to 13; buckwheat and amber, 10 to 11. Beeswax, 33 to 35.

W. C. TOWNSEND,
April 22. Buffalo, N. Y.

DETROIT.—The market is quiet with no great demand, and not a very large supply. Prices range as follows: Fancy and A No. 1 white comb honey, 15 to 15½; No. 1, 12½ to 13; fancy and A No. 1 dark, 11 to 12 Beeswax, 28 to 29. M. H. HUNT & SON,
May 10. Redford, Mich.

ST. PAUL.—Honey supply is limited. Fancy white, No. 1, in 1-lb. sections, new, 15 to 16; No. 2 white clover, in 1-lb. sections, 13 to 14; extracted white, in 60-lb. cans, per case, 9 to 10. W. H. PATTON, Sec.,
April 22. St. Paul, Minn.

LIVERPOOL, England.—Ninety packages of Chilian at the following prices: Pile X at 6; pile 1 at 5½; pile 2, 4½ to 4¾. Small sales of Peruvian at 3¾ to 4. The word pile means grade. TAYLOR & CO.,
7 Tithebarn St.

MARSEILLES, France.—Honey is now selling at about 10c per lb., wholesale; beeswax, 31½ to 33 for French; Morocco, 31; Algerian, 31.

ANTWERP, Belgium.—Beeswax from Benguella (W. Africa), 32½; Zanzibar, 32½; Portugal, 32½; British India, 30; Mozambique, 33.

BEE SUPPLIES.

We handle the finest bee supplies, made by the W. T. FALCONER MFG. CO., Jamestown, N. Y. Big Discounts on early orders, let us figure with you on your wants.

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. . Bee-keepers

will find Dallas the best point from which to purchase supplies. We have a carload of ROOT'S GOODS IN STOCK, and sell them at the Factory Prices. Don't forget that we can furnish any thing in the way of Field or Garden Seeds, Plants, and Poultry Supplies. Our large illustrated catalog for 1907 free on application. Mention GLEANINGS when you write. . . . . .

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Dallas, : : : : : Texas

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New 64-page catalog for the New Year now ready

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Twenty-two successful years manufacturing bee-supplies and raising Italian bees and queens. . . . . Root's Goods in Stock.

J. M. Jenkins

Wetumpka, : : Alabama

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The A. I. ROOT COMPANY, Medina, Ohio.

The Danzenbaker 20th Century Smoker

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A GOLD MEDAL

at the World's Fair, St. Louis, 1904.

IS THE BEST, STRONGEST, COOLEST, CLEANEST, CHEAPEST, AND LARGEST SMOKER SOLD FOR A DOLLAR.

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to **CLOG WITH SOOT.**

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NEVER TOO HOT TO HOLD.—Dr. Reginald Munson, Washington, D. C.—"I am well pleased with the 20th Century Smoker. It keeps fire well without getting too hot to hold on continuous use, and makes smoke enough to satisfy the most critical."

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F. DANZENBAKER, NORFOLK, VA.
(Jamestown Exposition Sta. Money-orders on Norfolk.)

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HONEY

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Circulation 32,000

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$1.00 per year

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

Published by
THE A. I. ROOT CO., Medina, Ohio

J. T. CALVERT, Business Manager

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SEND ALL ORDERS TO THE A. I. ROOT COMPANY, MEDINA, OHIO.

THE REPORTING OF THE HONEY MARKETS.

Continued from page 599, last issue.

Mr. Root:—Your letter of Feb. 14, regarding market quotations in your journal, is at hand. The proof you enclosed seems to cover the ground quite well. While visiting honey dealers in the middle States last fall I noticed that some were apparently basing their quotations in the journals on their prices to the retail dealer, while others were quoting the prices they were making to the jobbing trade. It seems that, in order to make the quotations of any value to the producer, there should be uniformity about them. The commission merchant feels that, when he is quoting his jobbing prices, he runs chances of driving consignments away from his door; not only that, but a near-by producer not understanding the situation may come to town and sell to the retailer in one and two case lots at this jobbing price, thereby causing harm to all. On the other hand, if the prices to the retail dealer are adopted without such an explanation as you contemplate, the consignor would probably be dissatisfied by the returns made by the commission merchant, as he would expect all of his honey to bring the price quoted, which would not be the case, as quite a portion might be sold in the jobbing way, and necessarily at a lower figure, as nearly all large honey-dealers sell quite a good deal of honey in the jobbing way. This matter should now be straightened out for the benefit of all concerned. The prices we have been furnishing you are the ones at which we are selling honey to the retailer here. As for beeswax, we are quoting the price we are paying for the same delivered here, as we do not sell much in the general way.

After writing the above your Feb. 15th number arrived, and your article on page 235 was read with interest. We were up against a similar proposition as this Southern producer ourselves, before we were organized, and even after that, and have had some experience in making consignments which were not satisfactory. We have had only one firm to make us account sales that indicated that an attempt had been made to satisfy the consignor in which amount his goods had been disposed of.

When we organized we decided on a plan of keeping consignment accounts with our consignors (members or non-members) that would show them exactly in which amount their products had been sold. Thinking it may be of interest to you to see our system, we are sending you herewith a specimen page, and we should be pleased to have your opinion of it. The same is a copy from a page in our consignment ledger. In starting a consignor's account we give him two sheets, using the second sheet to make a carbon copy of the first; and when these sheets are filled with the sales of any consignor's honey, the amount unsold, together with the debit and credit, is transferred to another two sheets. The carbon copy of sheet one is now ready to be forwarded to the consignor in place of statement, with any remittance he may be entitled to. You will note that the number of every invoice and check is given, so that it is an easy matter for any consignor who comes in, to satisfy himself of the correctness of each entry in the ledger. To save space, consignment sales commence at the bottom of the page and read up. Our invoices are numbered, and run through a register which also makes two carbon copies of it. The original goes with the purchase; one carbon copy is filed numerically and the other alphabetically. We think that [illegible] system [illegible] some system of handling such accounts that would merit the confidence of his consignors.

Tactics similar to those employed by the commission men alluded to in your article were brought in use in some part of this State the past fall, and it is deplorable that a leading bee-keeper, well known to readers of bee-journals, has been a party in the scheme to bear down the price of the products of his neighbors and supposed friends after having sold his crop at a much higher price. The bee-keepers of that locality have lost hundreds of dollars through this manipulation.

Appreciating your attempts to make the market reports of more value to the producers, we remain

Yours very truly,
THE COLORADO HONEY-PRODUCERS' ASSOCIATION,
F. Rauchfuss, Manager.

The above letter from the Colorado Honey-producers' Association refers to our inquiry addressed to various parties who quote for the Honey Column, as was referred to in this department May 1. This letter is given in this connection as this association stands between the bee-keeper and the trade in the position of a commission house, but with the interests of the bee-keeper at heart. It is, of course, supposed that commission men generally have to look out for themselves first of all; and, naturally, their interests are not so closely allied with the producer's as are those of this association.

In this department for May 1st some rather severe criticisms of commission houses were made, and we presume that in many instances, there is reason for such criticism. We feel, however, that, until there is a better cash market for honey than now exists, the commission men do serve the bee-keepers, in a good many instances, to the great advantage of the latter. It is seldom that a merchant will buy a stock of comb honey that is greatly inferior in quality, and producers would often find great difficulty in disposing of it were it not that the commission man, by putting it in stock, and having it before prospective buyers, is able to dispose of it at reasonable prices. The merchant would not be willing to purchase the stock outright, and take his chances on making sales and losing on these inferior lots, when he could just as well be sure of a profit by purchasing the better stocks. It is here that the commission man steps in and serves the bee-keeper well, in our opinion. Besides, there are a number of the commission houses that do handle large quantities of the better grades; but as to whether it is really in the interests of the honey-trade generally we are not prepared to say. We do know that there are serious complaints of commission houses. On the other hand, we know that bee-keepers who have not learned to put up their honey properly often make unjust complaints against commission houses, little realizing that their honey can be in such a fearful condition on arrival as it sometimes is.

Denver, Colo., November 6 1906 No. 181

Mrs. M. E. Richards

Sheet No. 2

Cortez

In Account with **THE COLORADO HONEY-PRODUCER'S ASSOCIATION**

ACCOUNT OF CONSIGNMENTS RECEIVED AND SOLD														GENERAL ACCOUNT				
DATE		Purchas'r	Comb Honey, Cases				Extr'd Honey, Cans			Miscellaneous	Sales		Commission		Date		Dr		Cr.	
			No. 1	No 2	Cull	Total	White	Amber	Total											
1906																				
July	31		8							100 D. T. Shipping Case 2'glass #2769					Aug	7	16	75		
Sept	1		95	5						3-5 gal Cans #3092					Sept	1	90			
"	25			9						Check #434					Oct	26	35	04		
"	25			11						Check #931					Nov	6	5	00		
			—	—						Check #463					Nov	6	254	10		
			103	25																
Nov	6	—		2						on hand, transferred to sheet #3									—	—
Oct	9	3456	103							22,771/2	287	89	28	79					259	10
Oct	9	3468		21						2255	53	55	5	36					48	19
Sept	28	3349		2							5	00		50					4	50
			103	25							346	44	34	65			311	79	311	79

Read Consignment Sales from Bottom up.

Gleanings in Bee Culture

E. R. ROOT, Editor — A. I. ROOT, Editor Home Department — H. H. ROOT, Ass't Editor

Department Editors—DR. C. C. MILLER, J. A. GREEN, PROF. A. J. COOK, J. E. CRANE, LOUIS H. SCHOLL, G. M. DOOLITTLE, R. F. HOLTERMANN, "STENOG."

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SUBURBAN LIFE.

This is one of the best magazines among the many which come to GLEANINGS' desk. It does not profess to be a great authority on practical agriculture but aims to instil a love of gardening in people who live in the suburbs of towns and cities. It does not print wonderful tales of what an amateur farmer can do; in fact, it eschews the financial side of the question, preferring to point out the happiness and pleasures to be derived by folks who live near the city yet manage to have a garden, a few chickens, a horse, a cow, and, above all, a home.

Every issue is handsomely illustrated from actual photographs, evidently to give its readers ideas of what a home ought to be; and in doing so it serves a very useful purpose in inducing persons of moderate means to leave city life with all its depraving allurements and join the noble army of home-builders. It may be seen at a glance that it succeeds in its mission. As there are a good many devotees of apiculture among its readers, *Suburban Life* has a bee department edited by Dr. E. F. Phillips, of Washington, supported by E. W. Alexander and others, which will assure the readers of this journal that it means to publish only what is trustworthy and accurate, at least so far as bee-keeping goes, and we have no doubt the articles on other matters of interest are equally reliable, hence we do not hesitate to recommend it to our readers.

A KALAMAZOO DIRECT TO YOU.

We note that Mr. Thompson, the founder of the Kalamazoo Stove Company, has been triumphantly elected to another term as Mayor of the city of Kalamazoo, chiefly because he has been very successful in giving his city a very efficient and business-like administration, and also a measure of confidence and respect for the man who has made Kalamazoo famous for its fine stoves and kitchen ranges.

One of the features of this concern is its offer to pay the freight on all shipments, and it is one of the few stove firms that prefer to deal direct with the public without the aid of a middleman.

They possess a magnificent stove-plant employing many hundreds of men, so that no one need feel the least hesitation in doing business with them. Doubtless they will do all they agree to do.

If you are in want of a stove or range it would be well to secure their catalog for careful perusal.

The season is now at hand when spraying fruit-trees for fungi and insect pests is the order of the day. There are no better spray-pump makers than the firms who regularly advertise in GLEANINGS, among whom is the well-known Deming Co., of Salem, Ohio. They were among the first to engage in the manufacture of apparatus for the spraying of trees, and have grown with the industry, doing a large business in the United States and foreign countries as well. Success in fighting insects depends on the efficiency of the equipment, as well as on the mixtures employed, and a good deal of money and time is often wasted in using poor spraying-tools often sold by firms who have not made a special study of this one business. Write the Deming Co. for their catalog. This alone will keep you up to date with all the latest improvements and ideas in spraying.

We wish to call attention to the advertisement of Howard C. Mills, Camillus, N. Y.. wherein he calls attention to a pasteboard box for the protection of granulated honey. Those who intend to try the sale of this kind of honey the coming season should investigate the merits of this package. Mr. Mills thinks the dealers will more readily stock solid honey, if it is in an extra good package, and his idea is worthy of careful consideration by those interested. He offers to mail a sample box for ten cents.

If you are thinking of purchasing a spraying-outfit for the coming campaign on the insect pests which so materially injure the fruit crops, you can not do better than write for the catalog of F. E. Myers & Bros., of Ashland, very extensive manufacturers of pumps for this kind of work. They are also makers of hay-tools and door-hangers.

The F. E. Myers & Bros. are so well known in this connection that nothing we can say is likely to add to their well-established reputation for fair dealing and conscientious treatment of their patrons.

We would ask of our readers, as a special favor, that they always mention GLEANINGS IN BEE CULTURE when writing to advertisers. You can not do us a greater favor than this.

The Journal for Less than a 2-cent Stamp.

If you could get several authoritative articles by leading writers on bee culture merely by writing a letter of request for them, you would jump at the proposition, wouldn't you ?

But two cents is MORE than the price of the American Bee Journal when you get it by the year (52 weeks for $1.00).

And the articles mentioned above constitute ONLY ONE of the dozen departments of this great up-to-date Bee Journal, one issue of which is worth more to a bee-man than the cost of a whole year's subscription.

Think of getting a 20-page high-class magazine for less than two cents a copy !

Sample copy FREE, or a "trial trip" of three months (13 copies) for only 20 cents.

Special Offer.—We will send the Weekly American Bee Journal for 52 weeks, and a standard-bred ITALIAN QUEEN (to be mailed in May or June) for $1.50. Subscription can begin with January, or with current number—say which.

Address American Bee Journal, 334 Dearborn Street, Chicago, Ill. Write to-day—this offer may not appear again.

AT THE CLOSE OF THE SEASON FOR 1907

ROOT'S HIVES WILL OUTWEIGH NEARLY ALL OTHER STYLES.

SEND IN YOUR ORDER NOW.

The A. I. ROOT COMPANY

Syracuse New York

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Fourteen lines to inch.

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One-half page 21.00
One page..... 40.00

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Preferred position, inside cover pages, 50 per cent additional.
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"A Square Deal."

We believe that every advertisement in this paper is backed by a responsible person. But to make doubly sure we will make good any loss to paid subscribers sustained by trusting any deliberate swindler advertising in our columns, and any such swindler will be publicly exposed. We protect subscribers against rogues, but we do not guarantee to adjust trifling differences between subscribers and honest responsible advertisers. Neither will we be responsible for the debts of honest bankrupts sanctioned by the courts. Notice of the complaint must be sent to us within one month of the time of the transaction, and you must have mentioned GLEANINGS IN BEE CULTURE when writing the advertiser.

JOSEPH HORNE CO.

We are glad to add a word of personal testimony in appreciation of the old reliable department store of Joseph Horne Co., of Pittsburg, Pa. Only a few weeks ago we had the pleasure of going through this immense store, replete with every thing for the home. The ground covered by this great establishment is probably about an acre, and it extends to five stories in height, with perhaps a couple of stories under ground. It is one of the best-managed stores of the kind in this country, and does a large mail-order business. We therefore feel it is perfectly safe to endorse this store in positive terms; and, though it has advertised with us for some time, no complaint has ever reached us. There is always some little article required for the home which can not be obtained locally, or perhaps the assortment offered is very poor. In this case a mail-order-department store such as this is a very great convenience, especially to that overworked individual, the housekeeper. It is a pleasure to us to have such advertisers with us right along.

MESSRS. A. I. ROOT CO.

Gentlemen:—April 15th GLEANINGS, with my two-line ad. (classified), reached me on April 19th. Within 17 days thereafter I had the money for the twenty 60-lb. cans of honey at $10.00 per case and $5.40 per can, and had *returned* orders for 16 cans. Orders were mostly from other bee-keepers, for their own tables. "Good stuff goes" at fair prices.

Yours truly,
MOREY, Apiarist,
Phone 191. 78 Fifth Ave.,
La Grange, Ill.

May 6.

The Bee-keepers' Review

For March has for a frontispiece one of the most beautiful winter-scenes that it has been my lot to witness. It is the apiary of Mr. F. J. Miller, of London, Ont. Canada, who tells how he makes a success of hauling honey home to extract it, using a gasoline-engine as power to run the extractor. Mr. Miller says that with his system of management he can manage 500 colonies alone.

Mr. E. F. Atwater, of Idaho, tells how he successfully managed an apiary 36 miles from home, warming up the last batch of honey in a 12x16 honey-house before extracting it.

The April issue shows how to protect a hive with tarred felt by tying it on—only the work of one minute, and one man can do the work alone.

Mr. Townsend is continuing his series of articles on "Helpful hints for Extensive Bee-keeping," and he makes the articles very seasonable, and very helpful.

The foregoing are only a few of the good things that may be found in these issues of the Review; but they show the character of the reading that may be found in the Review.

There are still a few sets of the Review for 1906 on hand, and, as long as they last, a set will be sent free to each subscriber for 1907.

The book, Advanced Bee Culture, is $1.20; or with the Review, only $2.00 for both.

W. Z. Hutchinson, Flint, Mich.

BEE-HIVES SECTIONS

Why Buy of Us?

A. G. WOODMAN: Remus, Mich., Feb. 18, 1907.
The *Lewis Hive Bodies* are far superior, both in material and workmanship, to any I ever bought. As ever yours, E. D. TOWNSEND.

A. G. WOODMAN, Grand Rapids, Mich. Remus, Mich., Feb. 25, 1907.
Dear Sir:—I use *Lewis Sections* exclusively, there are none better—the only perfect "V"-cut section that has come to my notice. They fold without moistening. E. D. TOWNSEND.

Several Carloads on hand.
Immediate Shipments.

Beeswax Wanted

ADVANCED BEE-VEIL, 50c.
Cord arrangement, silk face; postpaid,

A. G. WOODMAN CO.

GRAND RAPIDS, MICH.

Our discounts on **BEE-SUPPLIES** are still in effect.

WE furnish EVERY THING needed in practical bee culture, at lowest prices. We make the DOVETAILED, LANGSTROTH, and ALTERNATING HIVES. The most practical, *up-to-date* hives are the MASSIE HIVES. We make them. Have you seen them? Have you received our new 1907 catalog? It is surely the easiest catalog to order from you ever saw. It is so easy that you can not make a mistake in your orders; a child can order from it as well as an adult. It is something new and entirely different from any you have ever seen. Write us a postal card for it to-day. It is free.

Address Kretchmer Mfg. Co., Council Bluffs, Iowa.
Muscatine Produce Co., Muscatine, Iowa. :: Trester Supply Co., 103 S. 11th St., Lincoln, Neb.
Catalogs issued in German and English.

NOW READY

to fill your orders for hives, supers, sections, and foundation of all grades. We now have a large stock of these goods on hand and can supply your wants for regular goods without delay.

We are booking orders for BEES and Queens, and to assure early shipment you should send in your orders now.

Price list free upon application.

W. W. CARY & SON, Lyonsville, Mass.

Well-bred Queens!

For the purpose of securing an ample supply of select-bred queens, I have engaged an experienced breeder in the South to rear queens for *me only*, and confidently expect to fill orders promptly soon as weather permits mailing. . . . . .

Cook's Square Honey-jar

is the best, cheapest, and most sanitary package for retailing honey. Send for circular and price list of hives, bees, and useful implements. . . . . .

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail. . . .

A NEW BEE-SUPPLY HOUSE

AT LITTLE ROCK, ARK.

I am prepared to furnish you the best of bee-supplies, manufactured by The A. I. Root Co. Let me send you my catalog of bee-keepers' supplies. Also have for sale the very best strain Italian queens and nuclei or full colony. Satisfaction guaranteed. **W. J. LITTLEFIELD.**

NORTHERN NEW YORK BEE-KEEPERS.

BUY your supplies where you can buy to the best advantage. Save freight charges and time. Large stock of new goods. "Root's goods." Cash paid for beeswax. Send for catalog and price list.

A. H. REEVES & CO., Watertown, N. Y.
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Twenty-five Years' Practice.

PRINDLE & WILLIAMSON,

Second Nat'l Bank Bldg., Washington, D. C

Patent practice in Patent Office and Courts.
Patent Counsel of The A. I. Root Co.

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Get something reliable when you buy.

Barrel, Bucket, Knapsack, Hand and Power Outfits. No greater variety nor better types than Deming

SPRAYERS

For trees, shrubs and vines. Model appliances for poultrymen for whitewashing, disinfecting, etc.

Write for catalogue with full particulars.

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345 Depot Street, Salem, Ohio.

General Agencies in Principal Cities

SPRAY PUMPS

"TAKE OFF YOUR HAT TO THE MYERS"

MYERS

The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers. Pumps, Hay Tools & Barn Door Hangers. Send for catalog and prices.

F. E. Myers & Bro.,
Ashland, Ohio.

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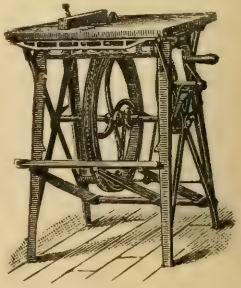
HAND and FOOT POWER MACHINERY



This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, etc.

MACHINES ON TRIAL

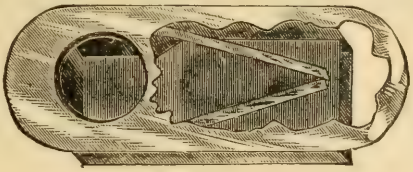
Send for illustrated catalog and prices. Address

W. F. & JNO. BARNES CO.
545 Ruby Street,
ROCKFORD, ILLINOIS.

EXCELL IRON and STEEL ROOFING & SIDING

Direct To You from our own factory at lowest factory prices. We are manufacturers and handle no 2nd hand nor short length stuff. Every part of our roofing and siding is made in our factory from genuine Charcoal Iron, Double Refined Puddled Iron or Steel. Put on the kind of roof that wears. Ours is guaranteed. If it isn't the best you can buy anywhere, don't pay for it. Easy to lay. No experience needed. Tell us about your building and let us quote you factory prices. Write for Metal Goods Catalog No. 38 It is free.

THE UNITED FACTORIES CO.
Cleveland, Ohio.



PORTER BEE-ESCAPES

HIVE ESCAPE

When taking off surplus this is the greatest saving device. It does away with the shaking of the heavy supers, the cruelty of excessive smoking which causes the bees to uncap their honey and start robbing. Just tip the super to the angle of 45 degrees and insert the board. In a few hours it is free of bees; then take off your super. You can as well afford to be without a smoker as without the Porter Bee-escape.

PRICES

Each, 20 cts.; dozen, $2.25; postpaid. With board, 35 cts. each; $3.25 per 10; by express or freight.

TESTIMONIALS

They are perfect in action.—British Bee Journal.

No bee-keeper can afford to be without them.—Prof. Cook in American Bee Journal.

Worthy of highest commendation.—Eugene Secor, judge on awards, World's Fair, Chicago.

I would not do without them even if they cost five five dollars apiece.—W. Muth-Rasmussen, Independence, Cal.

They are absolutely perfect. I can not tolerate my own make since using them.—John S. Reese, Winchester, Ky.

They are one of the best things ever brought into any apiary, and should be used in every bee-yard in the whole world.—Wm. McEvoy, Foul-brood Inspector, Ontario, Canada.

There is no robbing or fighting or disturbance in the apiary when the surplus honey is taken off with them. They are simply perfect.—W. Woodley in British Bee Journal.

HOUSE ESCAPE

To be used over the doors and windows in the extracting-house, or any place you wish to clear of bees. The most persistent robber can not return. Some bee-keepers make a practice of taking off the filled supers and stacking seven or eight in a pile. The Porter Honey-house mounted on a board makes the best kind of escape. Don't wait till to-morrow before you get a supply. You can not afford to be without them longer.

PRICES

Each, 25c; dozen, $2.75; postpaid.

TESTIMONIALS

The Porter bee-escape clears the supers of bees so perfectly and quickly and easily that it makes the taking off of honey a pleasure instead of a dread as in former years.—G. M. Doolittle, Borodino, N. Y.

The removal of full honey-boxes has become an amusement since we began using the Porter bee-escape.—Ed. Bertrand, Editor Revue Internationale d'Apiculture, Nyon, Switzerland.

This number of the Review contains more unqualified praise of the Porter bee-escape than any other issue has ever contained of any other implement; but so long as it is deserved, who cares?—Bee-keepers' Review.

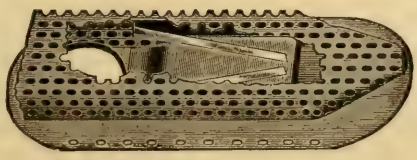
They are the greatest thing on earth for expelling bees from supers.—G. J. Flansburg, South Bethlehem, N. Y.

I would not be without them for four times what they cost.—Dr. W. A. Tufts, Musson, La.

Undoubtedly the best bee-escape is the one invented by R. & E. C. Porter.—W. S. Pouder, Indianapolis, Ind.

Bee-men are certainly behind the times if they can afford to use them and do not.—M. H. Mendleson, Ventura, Cal.

For Sale by Dealers Everywhere!



R. & E. C. Porter, Patentees

Send Orders to Your Dealer

The Honey-bee

.....and.....

Suburban Life

The only country-life periodical of National circulation to conduct a Bee-department is

Suburban Life.

This department is in charge of Dr. E. F. Phillips, Government Apiculturist, Washington, D. C.

It is as interesting as a story, and as full of practical suggestions as the cells of the honey-comb are full of honey.

This is only one of the delightful features of Suburban Life.

Once a Subscriber Always a Subscriber

SPECIAL OFFER.

We will send to any reader of this magazine, the April, May, June, and July issues of **Suburban Life,** which contain the bee-articles of the season, these four months for 50 cents in stamps or postal-note.

Address

Suburban Life, 156 Fifth Av., New York

The.. BPS Paints

Ready for Use. A Pure Lead, Zinc, and Linseed-oil Paint Containing No Adulteration Whatever

B. P. S. Paint contains no adulteration whatever. Where white is the base, it is composed only of pure Old Dutch Process carbonate of lead, oxide of zinc, five to ten per cent inert pigment necessary to neutralize acids and hold paint properly in suspension, and coloring pigments, pure Old Process linseed oil and the very best Japan. Shades in which white is not the base, contain the same inert material, pure linseed oil, Japan, and the best coloring pigments.

A Pure Lead and Oil Paint.

Pure carbonate of lead is the most desirable base for paint. When properly prepared it has greater covering power and will longer sustain exposure to the elements than any other white pigment. However, it is of greatest importance that it be combined with zinc in exact proportions (without zinc it will chalk; an excess of zinc will make it transparent, with a tendency to peel), and, that the lead, zinc, and coloring pigments be thoroughly ground and incorporated with the linseed-oil.

Importance of Preparation.

There is no valid substitute for pure linseed-oil as a thinner for paint. The markets are full of adulterated linseed-oils, many of them difficult to distinguish from the genuine in appearance, taste, or smell.

Avoid Adulterated Oil.

We guarantee the B. P. S. Paint to be absolutely free from adulteration. But purity alone is not enough; a pure paint is not necessarily a good paint, but the knowledge of the proper proportions necessary to produce the most economical and satisfactory results, combined with the assistance of powerful machinery especially constructed for the purpose, are equally important.

Purity Must Be Combined With Knowledge and Modern Machinery.

By using a small proportion of lead and a larger proportion of zinc, or by using sub-limed lead or sulphate of lead a paint at a low price per gallon can be produced, but at a sacrifice of durability and covering-power, and it is not economical to the consumer. Buy your paints by years and square yards, not gallons.

Low-priced Gallon, High-priced Yard.

Honesty will not produce the best paint without facilities for procuring the best materials, the proper machinery for preparing them, and "knowing how to do it." A shade of paint tinted with commercial chrome green, at a shilling a pound from the local dealer, will fade out quicker than one made from a selected green manufactured especially for the purpose, possibly costing five times that amount. The markets of the world are at our command; materials suitable for the special requirements of each condition are obtained, the best of each kind. A complete laboratory enables us to detect any attempt at fraud, and protects us against adulteration. Competent superintendents, whose years of experience have given them a perfect knowledge of the treatment of pigments and vehicles, and the proper combination of color to produce durable shades, are at the head of each department.

Superior Facilities for Procuring and Testing Material.

Our facilities for manufacturing paint are unequaled. Powerful mills, chilled and adjusted so as to crush and grind the paint to its finest degree, combining the pigments with the oil as it can be done in no other way. The nearer ready for the brush you can buy lead-paint, the better it is. Fine grinding enables it to be spread over a greater amount of surface; therefore, although possibly costing more per gallon, it really is cheaper because it costs less per square yard. A pure paint, carefully prepared from selected materials, finely ground by machinery, will resist wear and action of the elements much longer than the same materials stirred together with a stick by hand. For the same reason the paint "works just right" under the brush, and enables the painter to cover over a larger surface in a given time. Being ready for use, no time is consumed in mixing or preparing it on the job; colors are always uniform; no mixing required to match them.

Superior Methods of Manufacture.

Economy in Covering Power.

Economy in Durability.

Economy in Labor.

Much of the inconvenience of painting is largely due to numerous pails and cans required in breaking up and mixing lead-paint on the job, and the annoyance of often being out of a box of chrome or a little dryer. Let us keep the muss, and do the mixing for you in our factory.

Economy in Temper

Owing to the superior quality of stock used, and the thorough methods of preparation, the B. P. S. Paint will produce a finish that can not be equaled by a hand-mixed paint, either in the clear-cut tone of its shades, or the beautiful gloss of its finish.

Beauty in Finish.

The B. P. S. Paints are made up in the latest and most fashionable tints used in modern decoration.

The Patterson-Sargent Company

Manufacturers of the -B-P-S- Paints and Varnishes

"If goods are wanted quick, send to Pouder."
Established 1889

"Exactly Right"

By the Bee Crank.

It is not an easy matter to submit patiently to the annoyance and inconvenience caused by the mistakes and carelessness of others, when the means are at hand to remedy the difficulty quickly.

But that is nothing compared to the intolerable exasperation of having to suffer from the carelessness of a firm with whom one is dealing at long range, when correspondence and tedious delays must intervene before things can be straightened out. When mail-order houses allow such things—not once or twice, but often—that is the limit.

The reason I am more cranky about having things done right in the first place than the crankiest customer on my book is, I put myself in his place. Kicks are a rare thing from my customers. On the contrary, the receipt of such letters as the following is an every-day occurrence:

WALTER S. POUDER, Indianapolis. Tibbs, Miss.

Dear Sir:—The five hives arrived promptly. They are exactly what I have been looking for. Yours truly, J. E. TIBBS.

I sell Root's goods at Root's prices. Can supply you quickly with the new metal-spaced Hoffman Frames, Danzenbaker Hives, Dovetailed Hives, Section Honey-boxes, Weed-process Comb-foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, or any thing else that a bee-keeper might require.

Let me send you my new catalog—it tells you as much as I could on forty full pages like this—and it won't cost you a cent, except for the postal you use in writing for it.

Walter S. Pouder

513-515 Massachusetts Avenue, Indianapolis, Ind.

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Company, Medina, Ohio

E. R. Root, Editor A. L. Boyden, Advertising Mgr.
H. H. Root, Asst. Ed. J. T. Calvert, Business Mgr.
A. I. Root, Editor of Home Department

Vol. XXXV. MAY 15, 1907. No. 10.

STRAY STRAWS
by Dr. C. C. MILLER

THAT MAXIMUM of 30,000 to 60,000 bees in a colony needs reconciling with the "40,000 to 70,000 cells occupied with eggs and brood," p. 624. Besides, 60,000 as the greatest limit is antiquated, very. [Probably it is.—W. K. M.]

E. E. HASTY reports in *American Bee Journal* the first pollen-gathering record for 28 springs. The earliest was March 2, 1882, and the latest April 18, 1897, a difference of 47 days! Who says we have a monotonously uniform climate?

G. M. DOOLITTLE, in *American Bee Journal*, advises putting brood in spring in the center of the hive, so that bees may expand in both directions. I've always put it to one side as a matter of convenience, but his may be the better way.

J. E. CHAMBERS says in *American Bee Journal* that for years his bees have worked on sumacs three miles distant, to the neglect of like plants on like soil only a mile away, and his Carniolans are seen by the thousands five miles from home, no other Carniolans being in the surrounding country.

W. A. PRYAL kills moth-larvæ by shaking them out on a black cover for the hot sun to kill.—*American Bee Journal.* Good way if they are obliging enough to come out and the sun is hot enough. [But Mr. Pryal afterward set combs out in the sun and said, "Larvæ came hustling out . . . . and soon died . . . ." We understood that the heat drove them out.—ED.]

R. F. HOLTERMANN says, "Cut the wings on both sides evenly," p. 620. Why on both sides? Possibly that the queen may be more readily found. A queen can make a better stagger at flying with both wings clipped than with only one (try it with a pigeon and see). I'd rather have the wings whole on one side to pick up the queen by. [It is generally advised to clip the wings on one side for the reasons given by Dr. Miller. We should want one pair of wings by which we might pick her up.—ED.]

SUMAC (*Rhus glabra*) seems a more important honey-plant than it has generally been considered, p. 626. But the sumac of Texas must be something quite different. J. E. Chambers, *American Bee Journal*, page 279, speaks of its "great creamy blooms" and "the creamy white of the flowers." One must look close at *Rhus glabra* to see it has any bloom at all.

THAT CUMARIN, from sweet clover, resembles vanilla, p. 615, interests me. Years ago I reported honey that appeared to be white-clover honey deliciously flavored with vanilla, and I suspected there might be a little sweet-clover honey in it. This cumarin business confirms the suspicion. [The animals seem to think it contains too much vanilla. Of course, the flavor gets into the honey.—W. K. M.]

PROOFS are multiplying that unrelated laying queens may exist in the same colony. There's J. A. Green, p. 618; and Herr Stumvoll reports in a late German bee journal that he found three laying queens in one colony—one in the super with a fine brood-nest, and two in the brood-chamber. But to E. W. Alexander belongs the great credit of being the first to tell us he has put that knowledge to practical use.

E. MEAKER wants me to tell why it is that in pits or clamps with no ventilation bees winter well, although the hives and combs are quite damp and moldy, and yet it is generally insisted that bee-cellars shall be dry and well ventilated. Strictly speaking, there is a little ventilation in the clamp, for a clamp in stiff impervious clay will not work. The pit holds the temperature evenly at a point where bees are nearly dormant, using so little air that the limited ventilation suffices them. They winter, not *because* of the moldy dampness, but *in spite* of it.

"BUT are you not referring to the *dual plan for introducing?* In our opinion the Jay did not mean that," footnote, page 611. Sure, that's just it; heretofore the term "dual-queen system" has been restricted to that introducing plan; but if the Jay goes to using it for other things — well, the Jay ought not to do that sort of thing. [A distinction should be drawn, surely. Can you suggest a set of terms that will do this?—ED.]

"NORMAL RESPIRATION of the bee is three or four times a minute; under abnormal conditions, as high as 124," said Mr. House, at Ontario convention. After-thinker Hasty timidly gives a half-assent to this in *American Bee Journal*, but seems to think that it is not generally known that bees breathe. I wonder, now, whether there are many of the brethren who never noticed a bee panting at the entrance on returning from the field, its abdomen extending and contracting like an accordion. Cheshire makes a bee breathe faster than Mr. House, "the normal respirations of the bee, when at rest, varying from 20 to 50 per minute."

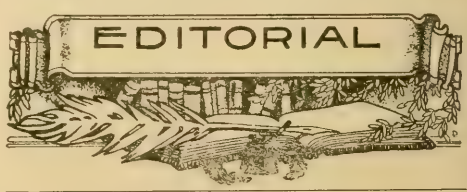
MUNICIPAL JUDGE Cleland, of Chicago, one of the most highly respected jurists of the country, says: "Nearly every defendant brought before me for what may be termed 'domestic offenses' spends every cent he makes, whether $1 or $5 a day, and almost all of it for drink." And to think that good Christian men are all the time casting votes which practically say, "I give my consent that the law shall throw its protecting arms about the man who sells to these poor wretches that which shall pauperize their wives and children, and ruin their own souls!" [Vote for men who will stand against the rum power irrespective of party. In other words, vote in such a way that the effect will be felt in the immediate future, and for all time.—ED.]

THAT DOCTOR who, last summer, in one of the bee-papers, wrote ecstatically about his "new discovery" of two laying queens in one hive, mother and daughter, to whom reference is made by Mr. Pressler on p. 617, must have been taking the bee papers without reading them. So many cases of the kind (mother and daughter in the same hive) have been reported that one may indeed ask whether it is not the rule instead of the exception that a superseded queen disappears only after her daughter begins laying. Neither is it any thing so very new to find two unrelated queens laying side by side. I reported a case some years ago, and also another case in which two unrelated queens peaceably remained in the same cage. [But even you, with your forty years' experience, have seen only two cases of a plurality of unrelated queens in a hive. To make a practical application of the idea is new.—ED.]

PROF. COOK, if you weren't so far away I would like to sit down with you and coax you to put in some exceptions or modifications to about all of the things "what we know" to such a dead certainty, from evolution down, page 621. I'll mention only one —queen-excluders. For years I've produced sections without thinking it worth while to use them, with 150 excluders lying idle. Lots of company too. If you find them necessary, I wish you would tell us whether your sections are *filled* with foundation. For extracted honey we've been in the habit of saying that excluders were absolutely necessary, but when such good bee-keepers as Messrs. Dadant and Townsend say "Better not," it isn't best to be too sure. [I agree with you, doctor, and will add another to the objectionable list. Prof. Cook states that one entrance is sufficient for one hive at all times. Do you subscribe to that doctrine?—W. K. M.]

PROF. BRANDER MATTHEWS says: "English is gradually becoming the world language. There are 130,000,000 persons who speak it to-day, and over Continental Europe it is struggling to supplant French as the "second" language. If the incongruous spelling which Europeans can not understand, and seem unable to acquire, can be simplified there is great likelihood that English will supplant French as the world language." So if you want GLEANINGS to help make English the world's language, get busy reforming its spelling. [Y-e-s, but it would be like casting a pebble against a stone wall, and we refrain for the present, or until a few big fellows begin throwing boulders.—ED.]

[Aulx chat, doctor! Don't you know that French has been the court language of Europe for centuries, and yet its spelling is so much more difficult than English that comparison is useless? About 35 per cent of the printed French consists of silent letters. The Spanish spelling is entirely phonetic, as you want English to be, and yet the language is falling off. Changing a nation's spelling is a difficult thing toudoux. Ne le savez-vous pas?—STENOG.]



HARD crystallized rock candy in lieu of sealed stores has served an excellent purpose during the cold month of April.

ALL hives should be looked over carefully to see if any lack stores. The backward spring, with almost no opportunity to gather any honey, will render feeding necessary in many cases.

QUEEN-BREEDERS in the South as well as in the North have been so delayed by the very backward spring that they will be unable to fill orders for young queens as early as usual. Bee-keepers should be willing to extend them a little leniency in time.

We are pained to record the death of Julius Hoffman, the inventor of the frame bearing his name, at his home near Canajoharie, N. Y. We received notice of this too late for further comment in this issue.

Don't he discouraged, even if the season has been backward and you have lost many colonies. With a lot of hives and good combs, many of them containing stores, you can very soon, by dividing, get back your bees, even if you don't get much of a crop. Give the bees a chance.

LATEST FROM CALIFORNIA.

Just as we go to press with this form, late reports, both from Central and Southern California, are somewhat discouraging. There may be a fair crop from both sections, and there may be an entire failure. The next few days will tell the tale. Some of our Southern States seem to have had a severe setback by the backward season.

DR. BIGELOW PRESIDENT OF THE AGASSIZ ASSOCIATION.

Our esteemed friend Prof. Edward F. Bigelow has just been elected to the presidential chair of the Agassiz Association, a world-wide organization having for its object the popularization of nature study and outdoor science. In connection with the election of Dr. Bigelow it has been decided to erect a building for a permanent headquarters for the society, and in addition a museum, library, and a model school of nature study, all to be located in Stamford, Conn.

It ought to be stated that the Agassiz Association is not a combination of scientists, but, rather, a collection of people who are endeavoring to extend their knowledge of animated nature; and it rather aims to interest ordinary every-day people who wish to educate themselves along such lines. The work is particularly interesting to teachers.

We are certain of one thing, Dr. Bigelow will not neglect the study of bees in connection with the work he has undertaken, and an apiary will surely form a prominent part of any nature-study enterprise with which he has to do. For this reason, and the fact we are well acquainted with the doctor personally, we wish the Association every success.

Those who may be interested in this kind of work, and who desire more information, should apply to Dr. Bigelow, Stamford, Conn., for all particulars.

GRADING RULES.

One of the difficulties met in the honey market is the lack of uniform grading-rules and rules governing the sales of honey throughout the United States. The well-known Colorado rules have been adopted by nearly all dealers and bee-keepers in that State, whether members of the Colorado associations or not, and these rules are pretty well known in many of the Eastern markets. Throughout the East and other sections of the United States, however, various other rules, adopted either by the National or local associations, are employed; and in the absence of a definite agreement between shipper and buyer a great deal of trouble arises at times. Our attention is brought to the work of the Produce Reporter Co., of Chicago, in a let ter received, under date of April 5, from Frank Rauchfuss, Denver, as follows:

> As you will see by the enclosed booklet, this company covers most of the trade that is interested in the handling of honey in a jobbing way; and by getting them to adopt grading-rules which will be just to the producer as well as the dealer, and sufficiently elastic to cover every section of the United States, a great good will be done to the bee-keeping industry, because alongside of better prices, what we need very much a sufficient protection of the shipper against the dishonest commission man and jobber. I take the liberty of calling your attention to this, as I know you have the best interest of the producer at heart.

We quote also from the booklet referred to:

> TRADING RULES AND GRADES.
>
> These are published in our credit-book for the gov ernment of contracts between subscribers. Subscribers are expected, as far as possible, to insist also upon the agreement to these rules by all of their customers. This is accomplished by publishing on their stationery and by incorporating in their quotations or orders "All contracts governed by Produce Reporter Co.'s Rules and Grades."
>
> GRADE-TERMS ARE DEFINED
>
> upon potatoes, apples, cabbage, beans, peaches, oranges, tomatoes, etc.
>
> TRADE-TERMS ARE DEFINED
>
> such as "prompt shipment," "quick shipment," "carload," etc.
>
> RULES GOVERNING
>
> "F. O. B. sales," "weights," what constitutes acceptance, joint accounts, "Advance on consignments," payment of brokers, brokerage rates on different products, etc., are plainly laid down.
>
> ADJUSTING RULES
>
> and ways to handle rejected shipments equitably to both the shipper and receiver are provided. These are published in the "Credit-book."
>
> AMENDMENTS AND ADDITIONS
>
> will be made to meet the experience and growing requirements of subscribers.

The columns of Gleanings are open to any suggestions from parties along this line.

REPORTS OF WINTERING AND SPRINGING CALLED FOR; THEIR BEARING ON THE MARKET.

We shall be pleased to get reports of the condition of the bees over the country generally. It is very important to know the *exact actual* conditions, as they necessarily have a strong bearing on the market. In this connection bee-keepers should realize that it is a serious thing, in that it reacts like a tremendous boomerang, to make out the situation for their localities worse than it really is; for while this has a tendency to stiffen the market *temporarily* the result is almost sure to be disastrous in the end. The effort to bull the market by giving out the information that "there is no honey in sight," "season a failure," etc., after a fair crop has *actually* been obtained, is sure to demoralize prices later on. When that unexpected crop begins to unload on the market, then it is that the market begins to tumble, buyers become panicky, with the result that they will put prices clear down, where they will stay,

even after the available supply has been exhausted. This has actually happened more than once and the mistake should not be repeated.

Better by far give the actual conditions, for this has a tendency to *steady* the market. It should be remembered that a *steady* market with a *slight upward* tendency is far more to be desired than one that jumps up suddenly and then begins to fall, fall, fall, until a low level is reached. No amount of bulling the market after that will restore prices.

In the meantime honey-men, having bought largely at low prices, are well stocked; and then if the market does advance, *they* get the benefit, not the bee-keeper who has sold out.

Send in your reports briefly on a postal card, *never writing more than two or three sentences.* If you send in long ones they will be thrown into the waste-basket, for it is simply impossible to summarize a large number of reports when bee-keepers write long letters or mix their crop data in with other business.

A BACKWARD SPRING AND ITS EFFECT ON PRICES.

NOT since 1881 has there been such a backward spring over the country generally; for, judging by reports, it seems to have been almost universal. The exceptionally warm weather during March was followed by chilly and cold weather, for nature seems to have a fashion of striking a balance when she gives us one extreme by giving us another.

In our more northern States there were cold rains, and snows to the depth of several inches. In vain did bee-keepers watch for better weather; but day after day the cold spell continued, breaking all records except those of the spring of 1881. Speaking of that year reminds us that there was a heavy mortality from spring dwindling—the heaviest ever known, probably, in this country. The lessons learned then showed conclusively the value of protection in the spring as well as during winter; of the importance of having a first quality of honey, or, better, sugar syrup, as a winter and spring food. But for the knowledge then acquired, the experience of the spring of 1881 would have been duplicated this year.

We were fearful that the brood-rearing that started during the warm weather in March would cause a general consumption of stores, and that cold weather following so soon would be a serious setback, because the bees in their efforts to protect the brood would themselves be chilled to death as well as the brood. We were expecting some very bad reports; and while some few of them have been coming in showing heavy losses in the northern portions of some of our northern States, the reports, as a whole, to say the least, are not unfavorable. We were fearful that we should find a large portion of our own bees dead, but we were agreeably surprised to find that spring dwindling was not nearly as serious as we apprehended it might be.

Of course, the bees all over the country have had a serious setback; but the majority of them have nearly held their own. As bees generally wintered well, they are now, May 3, able to make a fair start; for it should be understood that everything else has been set back including our honey flora, by about a month. This will give the bees a chance to make up for lost time, and the probabilities are they will do so with proper care, stimulative feeding, and the right kind of protection.

But in saying this much it must not be denied that there will be a large number of bee-keepers who will suffer heavy losses, and who will hardly be in shape to gather a crop of honey, even if the supply of nectar should be abundant when the season opens up.

As pointed out in our last issue, there is not likely to be a glut of honey in any of the markets of the East. Reports from California are still conflicting, some saying there has been too much rain, and others that conditions have been favorable for good crops. In Central California conditions seem to have been more favorable than in the southern part of the State. The probabilities are that both the northern and southern portions will be able to send some honey to the East unless the season should be very unfavorable during the time of nectar secretion.

SOME LESSONS GLEANED FROM THE BACKWARD SPRING.

THIS peculiar chilly April has laid strong emphasis on some important factors for good wintering and good springing. Many of us have come to learn that it is one thing to *winter* and another thing to *spring* bees. This fact has been forced upon us this season if it ever was. Well, what have we learned?

VALUE OF PROTECTION IN SPRING.

First, those colonies that were well protected in double-walled hives or in winter cases, after being put out on their summer stands fared much better than those without such protection. Of course, we knew it before; but we don't always practice what we believe.

CLOSED-END VS. OPEN-END FRAMES.

Again, other things being equal, colonies on closed-end frames showed up much better than those on open ends. Indeed, in our own experience bees on the former single-walled hives seemed to hold their own as well as those in chaff hives with open-end frames. While this fact has been demonstrated to us before, it was never more clearly shown than this spring.

We have had reports from quite a number who originally opposed closed-end frames—"wouldn't have the intolerable bee-smashers," as they termed them, even if they could "get them as a gift;" but after giving them a trial they found them not only not so disastrous to bee life as they supposed, but exceptionally well adapted for springing the bees.

Claims for the good wintering and wintering qualities of the closed ends have been

made by bee-keepers who have followed in the wake of Quinby, Elwood, and Hetherington in Central New York and elsewhere, time and time again, but they were scouted as being unorthodox. The fact that some of the old advocates of open-end frames are now beginning to acknowledge that they may be better for brood-rearing in the spring is significant.

GOOD FOOD.

Another fact that the backward spring has jammed into us again is the value of good honey or sugar syrup, and lots of it. Fortunate it is for those bee-keepers who had their lives will filled with stores.

PROTECTION FROM THE PREVAILING WINDS.

Another fact was the value of suitable windbreaks. Those of our colonies that were protected by buildings, or a heavy growth of evergreens, or a tight board fence, were in very much better condition than those where the piercing winds could sweep down upon them. It is noticeable, also, that those bees whose entrances face either north or west suffered more than those facing the other two points of the compass.

GOLDEN ITALIANS THE CHIEF SUFFERERS FROM SPRING DWINDLING.

As heretofore, so this year, the golden Italians have suffered from spring dwindling more than all the other bees in our yards, notwithstanding some of them were populous the previous fall, with plenty of good stores and protection.

CAUCASIAN AND BANAT BEES.

In this connection it seems to be quite clear that the black races are good bees for a bad spring. Our Caucasian and Banat bees are in good condition. Considering the fact that their native home is much colder than that of the native Italians, it is not, perhaps, quite so surprising. But we observe that the leather-colored Italians—those from Northern and Central Italy—held their own equally well.

THE JAMESTOWN EXPOSITION; THAT MILLION-DOLLAR BEE OF THE EDITOR'S.

THE editor has just come back from the opening of the Jamestown exposition, which took place April 26. As he is a member of the Ohio Commission, to look after the interests of Ohio at this exposition, he was given exceptional opportunities to learn the facts.

At the time of the opening there were but very few of the buildings completed, and fewer still with any exhibits installed. It will be fully a month before some of the buildings will be completed and the exhibits in place. But when the exposition is once ready it will be one of the best that the world has ever seen.

The naval display at Hampton Roads, just adjoining the exposition grounds, on the day of the opening, was probably the most magnificent and imposing that the world has ever seen. Indeed, experts have stated that it far surpassed the naval display on Queen Victoria's jubilee in 1887. The rumbie of the 300 guns saluting President Roosevelt when he came down to the exposition in the Mayflower was something terrific. The exposition grounds shook as if there were a small earthquake. And why shouldn't they when something like 100 men-of-war and some 40 first-class battleships in the bay were thundering forth, *not* notes of *war*, but *peace*?

The President's speech to his 54,000 people brought down round after round of applause, and the military columns that passed by in review could not fail to stir up every loyal heart.

This exposition will be different from all others in the fact that the great majority of the buildings are permanent—not temporary like those at Chicago, Buffalo, and St. Louis. Instead of seeing a white city one sees actual brick and stone construction. The whole exposition has been laid out as perfect as any city, and, in fact, it seems to be a part of Norfolk, or, perhaps, will be; for be it known that that city may be a rival to the great city of New York, both in business and population. This seems like a wild statement; but some competent observers see no reason why it may not some day be true. At the present time it is regarded as the Seattle of the East.

But this exposition differs again from all others in that it gives a large emphasis to the general subject of history. Hampton Roads —in fact, this whole section of country—has been the scene of three wars, and where, too, many of their decisive conflicts have been fought out. Incidents and scenes dear alike to the North and the South were enacted within plain sight of the exposition grounds. In fact, right in front of them was fought the historic battle between the Merrimac and the Monitor; and so important was that battle that all naval warfare from that time on was entirely changed.

We suggest that the Western visitor go to the exposition by way of Washington, stop there for a day or two in that city of magnificent distances with its historic associations; then take the steamer down the Potomac; and as the magnificent vessel glides down the river, historic scenes greet one at almost every turn—the church that Washington attended, his home at Mount Vernon, the forts that were literally tried out as by fire, indeed, the heart of every loyal American can not help being stirred to its depths as he takes this beautiful ride down the river and bay where United States history, or a great part of it at least, was made.

Perhaps all of this may seem to be of but little importance in a bee journal; but permit us to say right here that the Jamestown exposition will give a large emphasis to bee culture. The Ohio exhibit, for example, in the States Building, will be something that will attract attention as being out of the ordinary line. On the Warpath, as mentioned in our last issue, Mr. Chas. Koeppen, of Fredericksburg, Va., is preparing to make a magnificent display of bee-demonstration work.

Perhaps in this connection it will be interesting to some of our readers to learn a joke on the editor. He was introduced to a num-

ber of the high officials as the man who owned a million-dollar bee. He expostulated, of course, that the story was *slightly* exaggerated. Yes, we plead guilty to having a bee once that we valued at $200. When she died we put her up in alcohol and displayed her to the public. The newspapers got hold of it and told about Root's $200 queen-bee with a pedigree having sons and daughters that were celebrated. But the average newspaper could not be satisfied with such a tame statement, so it kept adding on ciphers every time the story was repeated until the queen had a value of $1,000,000. The next thing we knew it was repeated in Germany that we had a queen worth $2,000,000. Like the proverbial story of the crows, it kept on growing by repetition.

Somehow the people at the Jamestown exposition had heard that we were the owner of that bee, and many were the jibes that we received. The fact that this bee, or "bug," as they called it, even if she were worth only $200, had a "*pedigree*," "*daughters and granddaughters of note*," was very funny; that a lot of "bugs" could be sick, have dysentery and contagious diseases, was stranger than fiction itself.

IRRIGATED LANDS BEING OPENED UP FOR BEE-KEEPERS.

MOST of the regular readers of GLEANINGS are probably aware that the irrigated regions of this country are admirably suited to bee culture; but probably some are not so familiar with the great work being done by the United States government in reclaiming vast areas of arid land by means of dams and canals. Others are anxious to know just where each particular work is being done, and how large it is; hence a short sketch of what is being accomplished will not come amiss.

The work of reclaiming is paid for out of the sale of public lands; but in every case the land irrigated pays for its own irrigation, the settlers under each ditch paying ten per cent of the cost each year for ten years. This makes the burden easy, and at the same time makes it possible to get a home. The work of reclaiming is, therefore, revolving, and may go on for ever. In any case it costs the government not a cent.

In no case is a farmer allowed to own more than 160 acres, and on some of the projects only 40 acres is allowed. This insures a square deal to all; for it prevents the land-agent from buying up all the territory at a low figure and then selling to the settler at exorbitant prices. This system allows good graded schools, churches, and other social advantages not obtained in sparsely settled communities.

It ought to be noted in this connection that the climate in every case is good, and also that an ample supply of water is secured for all time, for the work is practically imperishable. The example of the government has in some instances spurred private enterprise to engage in similar projects.

As to total cost, which seems large, it has been estimated by engineers that one year's crops will pay every cent of the actual cost of the projects now under construction. By the expenditure of about $60,000,000 the national wealth will be increased $230,000,000.

From the bee-keeper's point of view, an irrigated section is a sort of elysium, from the fact that the weather is always dry, and often warm; besides, there is an abundance of flowers, owing to the greater density of floral vegetation due to a regular supply of water and absence of washing rains.

Some of the irrigation work reflects great credit on the engineers engaged. The Engle dam will back the great Rio Grande for 40 miles, and control the largest floods on that river of floods. The Tonto dam will use 240,000 barrels of fine cement, made right on the spot, and bury the town of Roosevelt 200 feet deep with water. The Shoshone dam will be 310 feet high, and the Uncompahgre project involves a tunnel through the mountains, six miles long. Verily "Uncle Sam" does things and does them well.

RECLAMATION PROJECTS NOW IN PROCESS OF CONSTRUCTION.

Name.	Irrigable Acres.	Cost.
Salt River, Arizona	200,000	$5,300,000
Yuma, Arizona-California	100,000	3,500,000
Uncompahgre, Colorado	150,000	5,200,000
Minidoka, Idaho	80,000	1,800,000
Payette-Boise, Idaho	120,000	1,605,000
Garden City, Kansas	8,000	260,000
Milk River, Montana	40,000	1,500,000
Huntley Montana	33,000	900,000
Sun River, Montana	16,000	500,000
North Platte, Nebraska-Wyoming	110,000	4,100,000
Truckee-Carson, Nevada	200,000	4,000,000
Hondo, New Mexico	10,000	336,000
Carlsbad, New Mexico	20,000	600,000
Rio Grande, New Mexico	15,000	200,000
Lower Yellowstone, Mont.-Dakota	60,000	2,700,000
Buford-Trenton, North Dakota	40,000	1,270,000
Klamath, Oregon-California	50,000	2,400,000
Umatilla, Oregon	18,000	1,100,000
Belle Fourche, South Dakota	100,000	3,000,000
Strawberry Valley, Utah	35,000	1,850,000
Okanogan Valley, Washington	9,000	500,000
Tieton, Washington	24,000	1,400,000
Sunnyside, Washington	40,000	2,000,000
Wapato, Washington	20,000	600,000
Shoshone, Wyoming	100,000	3,500,000
Total—	1,598,000	$50,121,000

There is also a project at Engle, New Mexico, which will be undertaken as soon as the necessary legislation can be obtained, as it involves old Mexico. Congress has provided an appropriation of $1,000,000 to provide for Mexico's share of the cost, but the total cost will be $7,200,000, and the area irrigated will be 180,000 acres in New Mexico, old Mexico, and Texas.

PROJECTS AWAITING FUNDS.

Name.	Irrigable Acres.	Cost.
Little Colorado	80,000	$4,000,000
Sacramento Valley, California	500,000	20,000,000
San Joaquin, California	200,000	6,000,000
Colorado River, Utah, Col., Ariz.	750,000	40,000,000
Dubois, Idaho	100,000	4,000,000
Lake Basin, Montana	300,000	12,000,000
Las Vegas, New Mexico	35,000	1,500,000
Urton Lake, New Mexico	35,000	2,000,000
Walker-Humboldt Rivers, Nevada	500,000	15,000,000
Red River, Oklahoma	100,000	4,000,000
John Day River, Oregon	200,000	10,000,000
Weber, Utah	100,000	5,000,000
Priest Rapids, Washington	50,000	2,000,000
Goshen Hole, Wyoming	120,000	4,000,000
Total estimated cost	3,270,000	$129,500,000

The Secretary of the Interior, Washington, D. C., has charge of this work, and particulars of any of these projects may be had by writing to him.

THE IMPORTANCE OF HAVING ALL BROOD-COMBS FILLED WITH BROOD AT THE BEGINNING OF THE HARVEST.

"How are the bees prospering, Mr. Smith?"

"Seem to be doing fairly well, Mr. Doolittle. Some of my hives have frames in them which are already nearly solid with brood."

"You mean that now and then a colony has one or two frames near the center of the brood-nest in which the brood comes out nearly to the bars of the frames where the brood is the furthest extended near these bars."

"Yes, I guess that would express it better. I find that the queen lays her eggs somewhat on a circular plan rather than in the square form of the frame, and the eggs the furthest out on this circle of brood in each frame comes very near, or so that the cells containing them touch the wood of the end-bars and the top and bottom bars of one or two frames in some of my best colonies. Is that good for the fore part of May?"

"Very good indeed."

"I thought it good; and if I can have the whole number of frames in the hives, on all but two or three, filled as some of these are when the honey harvest commences, I think I shall secure a good yield of comb honey."

"Aren't you a little modest in your wishes?"

"I did not think so. This is about as good as I ever have frames filled with brood at the beginning of the honey-flow. Can you do better?"

"I try to. I fear your hives may be too large if you do not get your combs nearer full of brood at the beginning of the honey harvest from white clover about the middle of June."

"Perhaps you may be right, for a successful bee-keeper told me at our last New York convention that he reduced the size of his hives a few years ago, after which it was no uncommon thing to have the combs in his hives with the brood touching the bars on all edges of the combs."

"In this that bee-keeper gave you one of the greatest reasons for his success, although he might not have known that he was doing so."

"Perhaps not; for his main claim for his success was that the hive which he used was a good one."

"Just so. And I claim that the main reason for its being a good hive, and the main reason for his success with that hive, is and was because he could thus secure the brood in the frames. Few seem to realize that, unless the hive is so filled with brood at the commencement of the honey harvest that it comes out to the frame-bars in the most of the combs, there is not so good an assurance of a good crop of section honey, no matter how profusely the flowers may bloom, nor how abundant the secretion of nectar in those flowers."

"I can hardly understand that. Please explain."

"With plenty of unoccupied comb in any hive at the commencement of the honey harvest, goes the assurance of plenty of honey in the sections; for plenty of honey in the sections, and much unoccupied comb in the brood-chamber to the same hive, do not go together."

"Why not?"

"Because, to give the best results the combs remaining in the brood-chamber at the commencement of the honey harvest must be literally *filled with brood*, otherwise the bees will commence storing their first honey in the empty combs in the brood-chamber instead of the sections, then keep crowding down the queen till, at the end of the season, we shall have little honey in the sections, with few bees in the hive for winter. But with the combs full of brood, the first storing is done in the sections, and, having commenced work herein, the bees continue (not thinking of crowding out the queen at all), with little honey being put in the brood-chamber till near the close of the season, when the queen slacks in brooding of her own accord."

"But with me I have only the corners of the frames without brood, and perhaps two-thirds of the two or three outside combs, at the commencement of the harvest, and I had always supposed this was very good indeed."

"This is not so bad as more empty comb would be, but it is proportionately bad, and tends toward a decreased yield of section honey. If you had 100 colonies of bees, and this state of affairs detracted 10 pounds from the yield of each colony on an average, your loss for just one season would be 1000 pounds of honey. And this would not be for one year only, but for every year you continue so to use your hives. And as you would probably do nearly as much work, taking the whole season together, with your bees losing this 1000 pounds, as you would to secure it, it would amount to quite an item to you in the course of 25 years."

"Well, how can I remedy the matter without procuring all new hives?"

"This is the way I do: I get, out of inch lumber, enough boards of the same size of my frames so that I can have an average of two of these to each hive I have colonies of bees in. To these boards are nailed top-bars to my frames, so that each board can be hung in the hive the same as a frame can, and which will take the place of any frame I wish to remove at any time. These boards I usually call dummies, though they are often called division-boards. At the commencement of the honey harvest I look over every hive having bees in them and set apart all colonies which seem strong enough to work in sec-

tions at all, for that purpose. The average of such set-apart colonies which have their combs full of brood clear out to the bars of the frames will be about one-third of the whole, then there will be about one-third of what is left that will have one frame in the hive with no brood in it. This frame is taken away, and one of the boards hung in its place. Another third will have brood in only eight of the ten Langstroth frames I use in a hive, and the two frames having no brood in them are taken away and two of the dummies put in their place. The other third will usually not be as good as these last, owing to poor wintering, poor queens, etc., and these may have brood in only seven combs, or an occasional one may have only six frames containing brood. But, no matter what the number, all frames not having brood in them at the extreme beginning of the harvest are taken away, and dummies put in their places. In this way each colony is prepared to work in the sections in accord with the number of frames occupied with brood, and will give results in about the same proportion as to the brood they have."

"Suppose you find a colony with brood in only five combs. What then?"

"That depends very largely upon what my wants are, and what their condition as to queen, etc. If I can not use them to better advantage, and the queen is young and vigorous, and has been kept back through lack of bees from poor wintering or something of the kind then I run such for section honey, using their five frames of brood and five dummies. I would far rather allow a colony to go into the honey harvest with only five combs *filled* with brood, and five division-boards, than to have the same colony with five frames with brood and five empty combs, or have these five combs of brood scattered all about the hive in the ten combs. Herein is something the apiarists of this country do not put enough thought and study upon, to say nothing of their every-day practice."

The higher price of wax should have a tendency toward less drone combs in the hives. "Cut it out, melt into wax, and cash money for it," seems to me worth thinking about. But since foundation will be correspondingly higher I wonder if it will be used in full sheets to as great an extent.

Abominable makeshifts of bottom-boards are the flimsy things put out nowadays by the majority of hive-makers. A thorough rial given these for several years has set me tgainst any "flimsy" supplies. The old-style ⅞-inch bottom, well painted, is hard to beat, and, if made of cheap but good material, is cheap enough for anybody. The fact is, the lighter ones cost the same. While I have hundreds of heavy bottom-boards still in use, for ten years or more, the one hundred thin ones purchased four years ago are rapidly going to pieces.

We are giving "splints" a trial this year to stay foundation in frames, such as Dr. C. C. Miller speaks of in his book, "Forty Years Among the Bees," p. 88; but we are not having the success with them we had hoped to have. The bees seem very much inclined to gnaw around the "splints," and, later, will fill the space with drone-cells. Why they should do this we can't tell unless we had the wax too hot when we waxed the "splints," and failed to get them well coated with wax, writes L. B. Smith, of Rescue, Texas. There may be several reasons for the trouble, but I withhold mine until Dr. Miller tells us. What was it, doctor?

Swarming was over! How could I tell? The apiary had not been visited for eight months until April, when swarming should have begun. There were drones by the thousands, some at *every* hive. The stores in the hives had run down, almost exhausted, and just enough honey had been coming in to stimulate the bees so that all the colonies were in a rousing condition. More stores or more honey from the fields would have meant swarming; but, instead, it was given up. This is how I told: *Every* colony in the apiary was driving out and killing off its drones. There will be a good deal of honey coming in now; and all that is necessary is to provide room and prevent a crowded condition. So, supers were given—shallow extracting-supers with combs or full sheets of foundation, which will be full (or nearly so) by the main flow when the comb-honey supers are slipped in.

"The year 1906," says one of my correspondents, "will be long remembered as a year of an unusual amount of bloom of all kinds, and yet it was one of the poorest years I ever saw for bees in this locality. The year 1907 has so far had the fewest flowers since many years, caused from the excessive drouth of last season, and the bees seem to be doing even better than at this date last year. We wonder if we shall be surprised with a bountiful honey crop in 1907."

Such are some of the conditions that have to be surmounted in our predictions for the season in this country. There may and there may not be a good crop. The season is yet too long for anybody to be able to tell at this time. In Southwest Texas a good deal of honey has been obtained this spring in a number of localities, and prospects are favorable. Other portions of the State have not had any surplus honey yet, but generally the bees are in good condition for the season. The April mesquite flow came in March here—much too early for the strength of the

colonies. The hives were full of brood, but the bees had to "play nurses" instead of storing honey. When the force of gatherers was on hand, mesquite bloom was over. It was impossible to get the colonies into proper shape so early. A great consolation is that the mesquite blooms again in June or July, and preparations for that flow will be made. Cotton is the only other important source with me at most of my yards, and begins after mesquite and lasts until fall. Some of my yards often get surplus honey from sumac in the fall, and store up well on broomweed, so they are in fine condition for the winter. There are a great many other sources of honey, but of minor importance. Cotton is not counted on as a honey-plant for Southwest Texas, while it is throughout the black land, or cotton-belt districts.

POULTRY, BEES, AND FRUIT.

They say that the above makes a fine combination. I've thought it worth while to try it and—get rich! While I am writing this I am at one of my out-yards, 197 miles away, and have been musing in this wise: "Suppose I had not a good better-half at home—how in the world would I be able to feed several hundred chickens, hunt the eggs daily, and—well, enough! If I stayed at home, on the other hand, how would I be able to keep the bees from swarming at this long range? There are two apiaries here, besides eleven others a *little* nearer home. No, I can't do the stunt by myself; besides, coming to the fruit part of the combination, the schoolboys who pass the large or hard every day are already keeping their eye on the largest of the ripening fruit; and if I am not there during the nights of the next moon I am afraid those fruits will belong to somebody besides me. Now the question is, How can I keep poultry, bees, and fruit successfully? or if I can't do it, which should I give up? A person favorably situated can combine the three quite profitably in two ways, I think. The first is on only a small scale—an orchard of fruit, to be used for the poultry-yards, and the apiary, *in the same place*. The poultry can be attended to in the morning and evening; the bees during the warmer part of the day, while the fruit is looked after between times. A home market should be worked up by such a producer, and there should be no trouble in making a lucrative business out of it. To combine the three in any other way would mean to carry them on on such an extensive scale that extra help could be hived, so each of the three can be looked after properly. I don't know but such a combination might be made profitable.

Since this is the day of *specialism*, it may be better not to make the combination, but take up only one of them by itself and specialize in it. That is what I have concluded to do since I have had the experience of finding that a bee-keeper can not make the *most* out of bee-keeping if he dabbles in any thing not pertaining to bees.

Yes, there's much good advice in Mr. Hutchinson's words, "If you want to combine any thing with your bee-keeping, get more bees." But locality has much to do with this subject. Where out-yards can be established, such advice is good. If locations are limited, then something besides bees must be added. Since there are many localities where only one apiary can be kept, the above combination would still be a good one. For the one wishing to specialize, another location would have to be sought. It is well to adapt ourselves to conditions surrounding us, whether specialization is being preached or not.

TO KNOCK SWARMING ON THE HEAD.

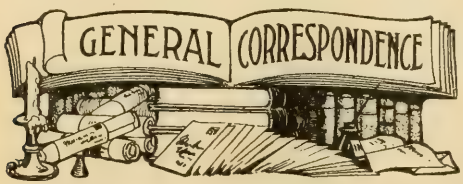
To prevent swarming I have proceeded as follows for many seasons: The main object with me is to break up the solid brood-nest and its crowded condition, affecting the whole colony, and bringing on the swarming fever. Providing laying room for the queen is important toward securing a large lot of young larvæ for the great army of young nurse-bees to get rid of the accumulating chyle. At the same time, clustering room for the bees is provided. If the desire to swarm can be retarded until the honey-flow begins, the object has been won; for, in most localities of the South, swarming is given up, and the whole energies of the colonies are turned toward rolling in the honey—the swarming seems to be forgotten.

It is easiest accomplished with the divisible-brood-chamber hive. As soon as the bees become crowded, a case of shallow combs is slipped in between the lower and upper cases of the brood-chamber. Here is room for the queen and the bees. The upper case now becomes a super for *extracted honey*, the brood being crowded down, and honey (not used up in the brood-nest) stored in its place. This prevents clogging the brood-nest, which, with us and long flows, leaves the colony very weak for any subsequent flow; or, if later in the season, too weak for successful wintering. At the beginning of the main flow the comb-honey supers are slipped in under these shallow extracting-supers, and the bees go to work at once and finish them better than when simply set on top of a brood-chamber in the old way, and a crowded lot of combs of honey below the supers given. Besides, an *extra super* of extracted honey is obtained.

With the regular deep L. hive it is not so easy, without going to a lot of trouble in handling combs. It is done so extra bodies are prepared with full sheets of foundation in the frames. Then half of the brood-combs are removed from the brood-chamber of each colony and placed in these, alternating them with the frames of foundation. The brood-chamber is arranged in the same way, thus making each colony two-story, with combs of brood and frames of foundation alternating in each story. When the main flow comes, should the upper stories be filled with honey the comb-honey supers can be given under these. But a ten-frame full-depth body is too large for this purpose. The

brood can be crowded into the lower story, and combs of honey placed in the upper one and set on weaker colonies run for extracted honey, while comb-honey supers are set on the colonies in their place. I do not like this method very well, and it necessitates a great deal of handling of combs.

If increase is wanted, it can be obtained nicely, especially if the swarming season comes some time before the main flow. About ten days before you want to make the division, place a queen-excluder between the two stories. At the end of that time take one of the stories (which has not the queen) to a new stand, and give a laying queen or a ripe cell. This will leave the main force on the old stand to begin work in the comb-honey supers put on in place of the upper story just removed. If the division is made earlier, long enough before the honey-flow so that both parts of the division can be built up for it, there should be at least two-thirds of the brood in the story moved to the new stand. A laying queen is to be preferred to giving a cell in this case, as the work goes on much faster; hence laying queens should be provided for in advance.



QUEEN-REARING.

Some Questions Answered Concerning the Age of Drones; the Two-queen System and Other Matters.

BY E. W. ALEXANDER

Referring to my article on page 573, last year, on rearing queens for early increase, Mr. G. H. Smith, of Australia, has asked me several questions by letter, and it may be that my answers will be interesting to the readers of GLEANINGS. He wishes to know if it is not necessary for the drone to be much older than the queen in order that she may become fertilized at the proper age. He also thought that, in so large an apiary as ours, natural swarming must be a serious obstacle in securing a large surplus; and as for two or more queens to be loose in one colony, he was of the opinion that it would cause the colony to swarm as soon as the bees realized the presence of more than one queen.

In reference to the age of the drones, I will say that, in natural swarming, we usually find the drone comb of a hive well filled with brood capped, or about ready to cap, when the eggs are laid in the queen-cells. This would show that in nature the greater number of drones would hatch about the same time as the young queens or a few days sooner. For our early queens, then, we use eggs from our breeding-queen as soon as we find drone brood capped.

As to the number of our natural swarms, that depends much on the season, also on the length of time from one extracting to another. In our apiary about six per cent of the colonies cast natural swarms.

In regard to keeping two or more laying queens in a colony at the same time, and its effect on their swarming, according to our experience so far, it has wholly prevented it, as we have never yet had a colony attempt to swarm that contained two or more laying queens where each had free access to all parts of the hive.

We are now wintering a colony with seven two-year-old queens in it, all loose in the cluster of bees. We saw and counted the queens a few days before putting our bees in the cellar; and up to date, Jan. 30, we have not found any dead queens under the cluster of that colony. The hive is well marked, and I will let you all know its condition next spring and summer.

I expect to test this subject thoroughly and on a large scale another year.

In a short time I will give the readers of GLEANINGS our experience in keeping from two to fifteen laying queens all loose, and laying in one colony, without any restriction of queen-excluders whatever, each one having free access to any part of the hive and to each other.

Delanson, N. Y.

[We already have the statement from Mr. E. E. Pressler and Mr. J. A. Green that they have worked successfully with the plurality-queen scheme in one colony, without the use of perforated zinc, so our correspondent is beginning to have some backing, at least. While he merely says he has succeeded, he does not yet give us the plan by which it can be made a success. In the mean time he has left us all curiosity. We hope, therefore, he will not strain that curiosity too long.

Surprising it is, there are so many new things under the sun that old bee-keepers have not known before. Perhaps here is one of them. Possibly it will do no harm to shake up our orthodoxy once in a while; for it is only by getting clear up out of the old ruts that we may perhaps get up on to the better road

In the mean time we shall be glad to hear from any of our correspondents who have been able to make the two-queen system work in one hive without the use of perforated zinc. Among our 30,000 subscribers there ought to be a few, at least, who will be able to give us a little light on this nteresting question.—ED.]

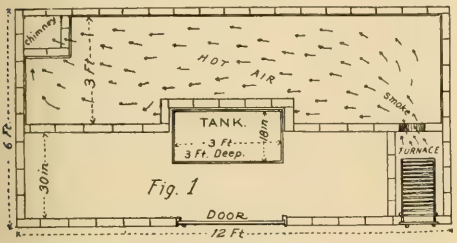
THE final act in creating the great new State of Oklahoma was performed the last week in April, the president of the constitutional convention and all the delegates signing their names to the written constitution with an *alfalfa pen*.

WAX-RENDERING.

Solar Extractors Using Artificial Heat; How I would Build an Extractor if I were to Start Anew.

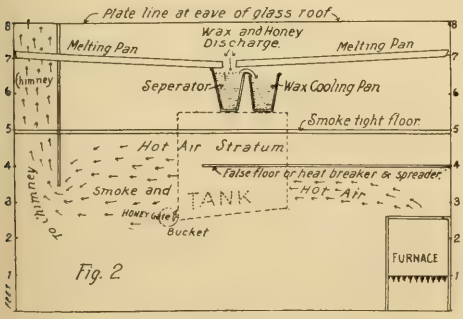
BY R. C. AIKIN.

In my previous article I described the solar wax-extractor that I have in use. It is my purpose in this article to give a complete plan for an ideal extractor, one that I would make if I were to start anew.



GROUND PLAN OF AIKIN'S SOLAR WAX-EXTRACTOR.

In the first place I would build all walls of brick, stone, or concrete. Figure 1 gives the ground plan for a solar 6×12 feet, which would have almost 40 square feet of surface in its melting-pans. A single layer of brick is sufficient for these walls, making them four inches. At the northwest corner I have indicated the chimney or smoke-stack, but it is not necessary to build this from the ground up. Start it at the point indicated in Fig. 2. Right here let me warn against making the chimney too small, and this is good advice in building a chimney for any purpose. Four bricks around make a 4×4 opening; five around make a 4×8, while six around make 8×8. A half more brick quadruples the capacity. In our residences for a common



ELEVATION PLAN.

cook or heating stove the flue should never be less than six bricks around with an 8×8 opening. As for time in building, one can put up a six-brick flue *almost* as quickly as a four-brick one

While speaking of capacity, the same principle applies to the entire machine. It never pays to run an engine up to its extreme limit of power. If you are likely to need a large solar at any time, make it large. You won't need to use it very many times before you have gotten back the extra cost in construction; but I will speak of this again when dealing with the subject of wax-presses.

You will notice that this plan calls for a honey-tank 18 in. wide, 3 feet long, and the same in depth. A round tank would be somewhat cheaper, and may be used, but will not fit in so nicely to economize space. If the round form is to be used, the recess to receive it can be made circular. The size I have indicated will hold about 1000 pounds, and for a large apiary it will be found very useful at times.

Next look at Fig. 2. This I have marked with a scale to show the height of various parts, and it shows the lowest wall to be 8 feet high, and there are several reasons why they should be so. I have already spoken of the chimney being made large to give good draft; and to aid in this and keep the smoke from backing out at the furnace-door, especially when starting the fire, the entrance to the chimney should *never* be less than a foot higher than the top of the furnace-door, and better if it could be three or four feet. As I have this drawing, the top of the furnace-door would be about two feet up, while the bottom of the chimney is 3½ feet.

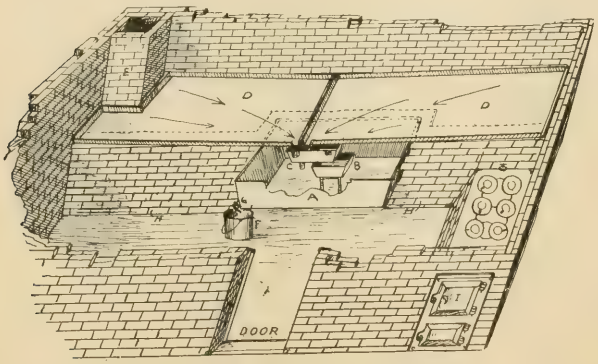
At 5 feet I have the smoke-tight floor. When the walls are built up to this height, old boiler flues or tubes or any kind of iron that will give strength and support a floor should be laid across from the back to the center wall at intervals of 18 to 24 inches, and imbedded in the brick so that the tops of the tubes will be level or even with the bricks on top. On this lay sheet metal to cover the entire top of the chamber except the chimney. For this, cut out a corner and fit all so the metal laps over at least an inch or more on to the bricks on all the outer walls. On the inner or partition wall let it extend even with the bricks, entirely covering them—yes, better, come an inch past the brick, to be turned down at right angles. The outer walls are to be continued on up, building right on top of the iron, but this partition wall stops at this point, and the problem is to hold the iron snug down on top of this wall so smoke will not escape. Of course, the iron should be laid in mortar; and at once, before the mortar can set, small nails may be driven through the iron, right down into the bricks, using 3 or 4*d* in size. Another way would be to have several small but long bolts set into the brick when building, and let the iron be punched with holes to match and put on over these bolts; then on top of the iron a plate such as old wagon-tire, with holes also to match the bolts, may be put on and the taps adjusted.

As to what kind of sheet metal to use, it ought to be heavy—at least $\frac{1}{16}$ inch, and $\frac{1}{8}$ would be better. If one has pieces of stove metal, as cook-stove backs or bottoms, and such flat or nearly flat pieces, these may be laid on the boiler-tube joists, either matching on a joist or lapping each other until the chamber is covered; then on top of this may

be spread a covering of some kind of concrete to cover and fill all cracks. I think cement would be all right for this.

But I have gotten ahead of myself. At 4 feet is indicated a short or false floor at the furnace end—that should be put in first. Its purpose is to break and scatter the heat as it pours into this chamber from the furnace. If there is not something of the kind the heat will become so intense at this point that wax and honey will be scorched. Make this floor of boiler tubes laid close together, and covered with a concrete of some kind, or of stove or other plate metal laid on and covered with concrete. The drawing shows one foot between these two floors. Less space will do; but whatever you do, make sure to put in a good heat breaker and spreader at this point or you will have cause to repent when you have spoiled some wax and honey.

The smoke-tight floor is 1½ feet above where the smoke enters the chimney, and here is the reason for it: The hottest air, as it comes from the furnace, pulls to the highest point. This is a principle commonly understood.



INTERIOR VIEW OF THE BUILDING.

[Unfortunately the drawing shows the structure on a slant. The reader should, of course, understand that the walls are square and plumb.—ED.]

It naturally follows, then, that there will be a layer of hot air hanging all the time against the floor, and must be more or less cooled before it starts up the chimney. It is a matter of economy in fuel, and of equalizing the heat. If I could have the furnace still lower, and the chimney entrance correspondingly lower, giving several feet of the hot-air layer, it would be much better. Do not make the mistake of building too low.

These plans are for an all-above-ground structure; but one may build over a cellar or excavate for part, but this would also require a pit for the furnace and ash-door, or else have these inside the building. The inside feed will work all right except for smoke and dust, provided you have looked well to the matter of good draft in the chimney arrangements. My present solar has two furnaces. One feeds inside and the other out. I like the latter much better.

Next come the melting-pans. These are at 7 feet—that is, higher than a man's head from the bottom or ground-floor level. A solar is a hot place. I am describing a machine that not only melts up burr-combs and such scrap, but one that will fix all the cappings from your extractor, will melt and separate from the wax all honey in candied sections, or any combs whatever that we may wish to get the honey out of by melting or straining. But more on this point later. That tank is calculated to receive much honey, and any new combs or cappings when one is producing extracted honey can be put into the melting-pans; and as soon as the honey is liberated from the comb it runs through the separator (this will be described later), and drops into the tank, where it is perfectly safe from overheating. This tank is to be set with its top 5 feet up, or at the level of the smoke-tight floor, or nearly so—at least eight or ten inches below the outlet from the melting-pans, and to be high enough from the ground so that a five-gallon can may be set under its faucet to draw out honey. A bench or platform will be needed to stand on when loading the combs to be melted on to the melting-pans, or when stirring the refuse, or other work in the pans. One may spend quite a length of time working in the pit without much inconvenience from heat when wax is melting and running above; but a very few minutes up close to the roof would suffocate one. Just about long enough to stir the combs is all the time one would want to be there, yet he could draw off honey sitting below and be comfortable.

There may be cases where a solar could be arranged, say, on an upper floor, and have the honey run down to the room below. Or one may have the honey-tank in a cellar or pit, and also have the heating-plant there too, which would be almost an ideal arrangement if it can be so arranged. I have contemplated making just such arrangement by digging into a bank sloping south, and have a basement with the furnace and work-room and tank all below. The melting part of it only is above ground. The whole front of the basement could be glassed to give good light in it. Always have good light in any work-room.

Fig. 3 shows the separate, up-to-date, all-above-ground building as it would appear completed viewed from outside. If made lean-to style there should be but one slope. You will notice that the roof has two slopes. The south slope is glass, and not very steep. From a fourth to a third pitch is steep enough. It runs back over four feet of the structure, the rest, two feet, being roofed at about a half-pitch. This short north slope may be of tin or other metal, or may be of wood; but if shingled or boarded it should have paper or something between to prevent leakage of air. The reason for making this north slope so steep is to let the sun shine under it, which it will do in the short days, while in mid-

summer and hot weather the little shadow cast by this roof in midday does no harm, as the machine may easily be made too hot at midday. The facts are, the machine I am describing, when well constructed, can be made to do quite a little work without the

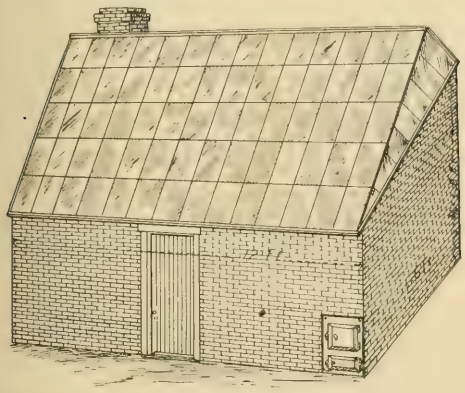


FIG. 3.—EXTERIOR VIEW OF THE LARGE SOLAR WAX-EXTRACTOR.

aid of the sun at all. It is midwinter, and I am now running my solar almost regardless of sun or even outside temperature. I have many times had wax running with a morning temperature outside close to zero, but the sun shining, and also many times have melted combs and run some wax in midwinter without sunshine. Remember what I said about capacity and effectiveness in appliances. If they will work under adverse conditions we know favorable conditions will produce wonders.

I have spoken of rendering the cappings from extracted honey. I always put these through the solar. Many people think that honey that has been through the solar is thereafter unfit for table use — that such should be sold as second or third grade honey. Well, it is said that the proof of the pudding is in the eating of it, and the same is true of honey. I have for several years been selling honey that was melted out in the solar, and the way the people smack their lips and ask for more of the same honey is proof enough that it satisfies. I can sell such honey, even though darkened somewhat, and give satisfaction, when if I ship virgin extracted that is white and not quite so thick, but such as the bee-keepers are striving for and calling No. 1 and fancy, I get complaints right along.

A few years ago I sent a paper to a meeting of the National at Buffalo, N. Y., advocating the production of extracted by having new combs built, and then cutting them out and straining the honey out. That paper raised such a *furore* that, from reports, I guess had I been there in person I should have been in danger of being mobbed. Just the same, if I had my choice of an average grade of extracted honey as put out by the fraternity in general, as against a product properly rendered in a mammoth solar, and furnace heat combined, I would choose the latter every time, and so will the consumers in 90 cases out of 100, when it comes to a question of that which tickles the palate. The consumer does not care one snap whether the honey is amber or even dark; the taste of the article tells every time, and the matter of color is always secondary. We get to using a thing because we like it; and if we have been accustomed to eating a fine-tasting article that is even black we naturally would be suspicious of any change in color until the palate has passed judgment. Color counts in exhibitions where the eye alone must feast, and the cards warn "touch not nor handle;" but in the mouth, where taste rules, the eater never stops an instant on color.

In this region, and I think in all alfalfa and sweet-clover regions, honey tends to granulate quickly. Another thing is also true: As a rule the flows are slow, and the bees seldom have any trouble in secreting sufficient wax, and build all the comb needed as fast as they can use it; and for *one* time they can not supply comb fast enough, there are *many times* when there is a surplus of wax. Then also arise questions of management that make it so much easier to produce extracted than section or box honey, and with it the control of swarming, and there arises the question whether it would not be more profit to produce extracted than the other. I believe there is a great future for extracted, and that the solar, and melting to separate wax and honey, will come more and more into the problem. But that is a question by itself, and is mentioned here only incidentally to show that there is a great future for a good solar and its products of both wax and honey.

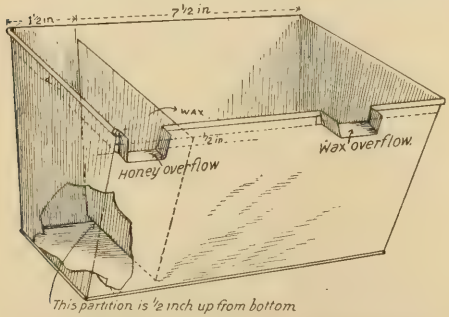
MY HONEY AND WAX SEPARATOR.

This invention of mine was illustrated and described in GLEANINGS, and then copied into the *American Bee Journal* several years ago; but up to the present, little more has been said about it. I do not know how many have taken advantage of it and use it. Recently J. A. Green called attention to it in these columns, and wondered why so little notice was taken of it. I here offer Mr. Green my thanks for his complimentary mention of the device; and let me assure him and all readers that the separator is not a discarded implement in my practice. I have been constantly using it since its invention, and have put tons of both honey and wax through it the past few years. I expect to increase its use. Every solar that handles the product of 100 or more colonies should have one; in fact, it is almost a necessary adjunct to every solar. It is inexpensive, simple, and a great saving implement. Here is the principle of it:

Drop a cube of wax into water and it will float and stand a trifle above the level of the water. The specific gravities of the two are nearly equal. The wax is slightly less dense than the water, so it floats. Now put the same cube into honey and it will stand about one-third its bulk above the level of the honey. I give these figures as approximate, but

they are near enough for illustration. What is true of the cube of wax is just as true of a liquid block confined in a vessel. Pour melted wax in on either water or honey in a bucket, and the wax all remains on top. But suppose the bucket has a partition in it with an opening through or under it at the bottom. If you pour honey into one compartment it flows under the partition and stands just as high in one as in the other. Now drop the cube of wax in one compartment, and immediately the honey in the other rises in bulk equal to two-thirds the bulk of the wax, and there they remain. If the cube of wax is 3 inches deep, the honey level in the other compartment will be one inch lower than the top of the wax cake. Now start a stream of honey running in where the wax is, after punching a hole in the other compartment at the honey level, and, barring a small per cent of friction, the honey will maintain its level where the wax is, and flow all day down and under the partition and up and out at the hole provided. Now make another hole in your bucket on the wax side at its level, then start a stream of liquid wax running in with the cake, and it will flow out at the hole provided for it, and continue so flowing as long as the supply continues pouring in. That is the whole philosophy of the separator.

I have used in illustration the proportion of inches; but if the honey outlet be one inch below the wax-vent you will always have in your separator a body of wax three inches deep. This is more than is necessary. I now use a separator with the wax-vent half an inch higher than the honey-vent, and this works very satisfactorily. I have never tried it, but I think even a ¼-inch variation abundant. This would reduce the bulk of the wax very materially—a half. However, if



AIKIN'S HONEY AND WAX SEPARATOR.

very large quantities of either honey or wax are to be put through, if the variation between the levels be too slight there will be almost sure to be sediment flow over with the wax. So far as possible, all sediment should be held back on the melting-pans; but there is always some of it that goes into the separator; but it remains between the honey and the wax, and comes out with the cake of wax that hardens in the separator. This has to be removed the next morning before another run is made, so I would recommend about ½-inch difference in levels as most likely to give best satisfaction.

Herewith you will find an illustration of the separator I have used for several years. The levels in this vary ½ inch. The thing is made of tin, and is 5×12 inches at the top, and about 2×10 at the bottom, and 7 inches deep. The small compartment is about 2 inches wide—less would do, as all that is necessary is a capacity to let the honey flow up as fast as it pours into the other compartment. I think half the length of this would be just about as satisfactory, and require much less remnant of honey and wax each time. The flaring shape of the pan is for two purposes: It makes it easier to remove the wax remnant, and takes less honey and wax to fill. However, there is necessarily a limit to the curtailment in size, for reasons already indicated, about sediment, and this applies more to the question of depth than width. I would not recommend less than 5 inches in depth.

Now, friends, this is a valuable implement, and effective; it not only separates the wax from the honey, but the honey passing through is in a measure strained. I set the separator over the honey-tank, and the honey overflows to the tank. The wax flows into a slightly shallower pan set beside the separator, which pan should have a little water in it. If one pan is not sufficient, it in turn can be made to overflow into another, and so at pleasure.

To be continued.

THE ALEXANDER PLAN OF BUILDING UP WEAK COLONIES.

Leaving the Weakest Colony on the Old Stand.

BY A. A. ASHLEY.

Seeing so many reports of the success and failure of the Alexander plan of treating weak colonies, I want to give my experience. I tried it on three colonies, and it proved a success with me. I think the reason some fail is because they fuss with the strong colony till they get them too thoroughly roused up. I put on the excluder, then put screen wire over that, and I set the weak colony on; twenty-four hours later, I lifted off the weak colony and quickly and gently removed the screen, then very gently set the weak colony back, and I never had a bee killed. After 30 days I separated them, leaving the weak colony on the old stand, moving the strong one to one side. This gives the weak colony the most of the flying bees. I can't tell any difference in the strength of them. One of my colonies was so weak there was scarcely a handful of bees, and they had not attempted to start any brood. I gave them a frame from the strong one. This plan is at least worth trying again, and I believe that if some of those who have failed will try again, and be a little more careful, they will succeed.

Blanket, Texas.

GASOLINE-ENGINES IN THE APIARY.

Their Value to the Bee-keeper; How Used for Running Extractors; the Cost of Maintenance.

BY H. H. ROOT.

Extracted honey is produced on a very large scale in this country and several others. The astonishing number of bee-keepers who number their colonies by the thousand serves to show the magnitude of the industry. Many are beginning to use large extractors driven by gasoline-engines. One who is not in possession of all the facts often wonders how it can be possible that honey can be produced on so large a scale that an engine would be needed; but we can name nearly a dozen producers to-day who no longer run their extractors by hand. It is needless to say that these men have found it paid them well. Considering the first cost of the engine, however, it may be that, if the bee-keeper used this engine for no other purpose than to extract honey, he would be paying a pretty high price for his power; but we shall show in this article that the expense of running the engine, including gasoline, oil, and repairs, and the interest on the investment, is not nearly so great as the expense of hiring a man to do the work. But the engine may be used for many different kinds of work, so that the large producers will find that it pays many times over to buy an engine.

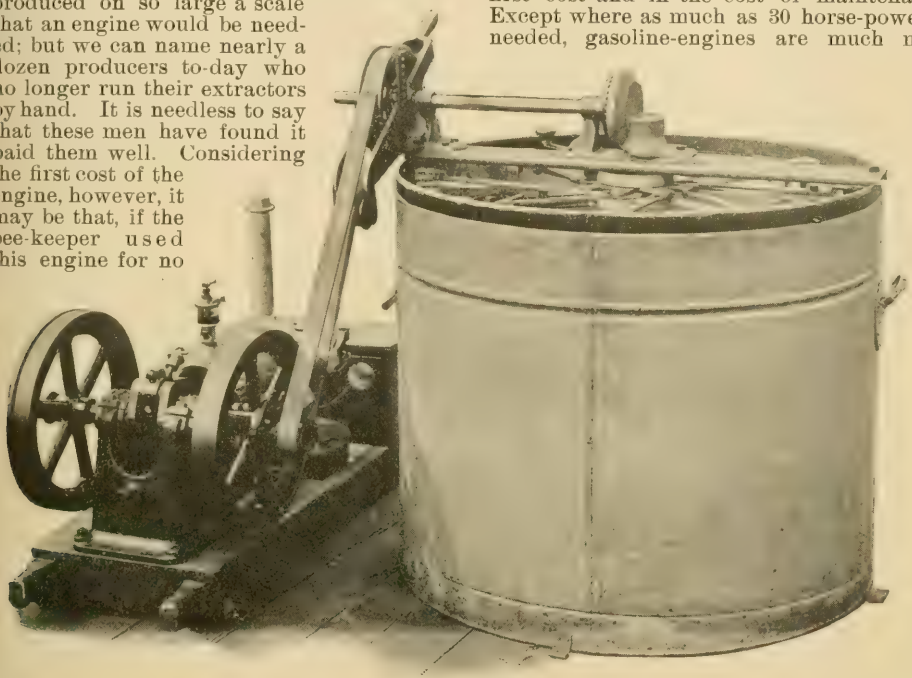


FIG. 1.—A ONE-HORSE-POWER AIR-COOLED GASOLINE-ENGINE CONNECTED TO EIGHT-FRAME EXTRACTOR.
For economy of floor space and convenience of the levers this arrangement is perhaps the best.

Cleaner work can be done with a power-driven extractor, both on account of the greater speed and because the combs can be kept revolving until the very instant that they are to be stopped, when the belt may be loosened and the brake applied, bringing the reel to a standstill in a little more than a second of time. After new combs are in, the tightening of the driving-belt speeds up the reel in about two seconds. The extra time saved keeps the combs revolving just that much longer, which means that the cells will be left dryer of honey. The fact that the work is much easier need hardly be mentioned. The breeze created by the rapidly revolving reel is sufficient to make the hottest extracting-house quite cool, which makes the work a real pleasure instead of a drudgery.

Now that the gasoline-engine has reached such a high state of perfection, small steam-outfits are almost unknown among farmers. A steam-engine with a boiler is a complicated and expensive outfit—expensive in the first cost and in the cost of maintenance. Except where as much as 30 horse-power is needed, gasoline-engines are much more practical. They are simpler and cheaper, easier to operate, and easier to move; and they can be much more quickly started, as there is no time lost in waiting to get up steam.

Some believe that the gasoline-engine will soon be replaced by alcohol-engines. The chances are, however, that it will be several years before alcohol will be as cheap as gasoline. But even if alcohol does come into general use, it can be used as well as gasoline in the same engine. In some cases a different carburettor will have to be substituted for mixing the fuel with the air; but even this change would be trifling, as the expense would be but a very little. For a complete discussion of the use of alcohol and gasoline in farm engines our readers are refer-

red to *Farmer's Bulletin* No. 277, which can be obtained for ten cents by addressing the Superintendent of Documents at the Government Printing Office, Washington, D. C. This also explains fully the principle on which the gasoline-engine works, and gives quite a discussion on the relative merits of steam and gasoline engines for use on the farm.

It is our opinion that internal-combustion engines using gasoline or alcohol as a fuel are becoming more popular than ever among farmers. A few years ago a gasoline-engine was considered a very unreliable source of power; but since the advent of the automobile they have been improved upon and made so perfect that there is no reason why they should not give good service every day in the year. It used to be a common occurrence to see a man with a gasoline-engine struggling hard and getting himself out of breath trying to make it go; but with the machines put out by factories at the present time, a failure in starting the engine and keeping it running is almost unknown unless the operator knows nothing at all about the principle or pays no attention to the very complete

FIG. 2.—This shows the levers in the same positions as in Fig. 1, but the engine is turned around, thus taking up more floor-space.

FIG. 3.—This arrangement gives economy of floor-space; but the positions of the operating-levers are not quite so convenient.

instructions that are sent out by all manufacturers of good outfits.

WHAT KIND OF ENGINE TO BUY.

This is a question that every intelligent farmer or bee keeper must decide when he is contemplating the purchase of an engine. We have spent hundreds of dollars in testing different makes of engines, and have on hand now two or three kinds which will probably never be used, simply because they are not adapted to the work required of them. We formerly were of the opinion that a very small light engine of the type used on motor bicycles would be very satisfactory for running honey-extractors; but we found that they were very delicate, and easy to get out of adjustment. Although we had no trouble in running them, yet the average person not experienced would have a good deal of trouble.

We next tried a marine engine of the two-cycle type instead of the four-cycle engines marine engines when it is considered that the last mentioned are not ready to run, and have to be practically rebuilt when used for stationary work. Even then they are not nearly so satisfactory as an engine designed for the purpose.

We consider an air-cooled engine much the best for purposes requiring from one to two and a half horse-power, as there are no troublesome and heavy water-tanks with the attendent complications of water-pipe connections, pumps, etc. When three or more horse-power is required a water-cooled engine is a necessity.

WHAT A ONE-HORSE-POWER ENGINE CAN BE USED FOR.

Besides running honey-extractors, a one-horse-power engine can be used in many ways on the farm. They are just right for pumping water, running churns, cream-separators, feed-cutters, feed-grinders, and buzz-saws, in case the bee-keeper makes his own

FIG. 4.—ONE ENGINE DRIVING TWO LARGE FOUR-FRAME EXTRACTORS.

which we had been using. These, in some ways, were simpler, but we found them entirely unsatisfactory for all work where the load varies. They are all right when used for propelling boats or in all cases where the load is constant. Where the load varies, small marine engines require constant attention to keep them from racing or going so slow that they stop. Furthermore, the marine motor when fitted with all the accessories, including a heavy water-tank for cooling the cylinder, is as heavy as a farm outfit. It is our opinion that it is much more satisfactory in the end to buy an engine that is intended for stationary work and for use on the farm. Such engines are sent out all set up and ready to run, and the price is not very much higher than that of the bicycle or supplies. We tried the last mentioned and found that a two-inch oak plank could be cut with ease. Greater power would not be needed unless very heavy stuff were to be cut. Very often five-horse-power engines are used where a one-horse power would do the work easily. The one-horse-power air-cooled engine here shown weighs about 275 pounds complete, mounted on skids with all the accessories, so that it can be easily moved by two men.

We believe that, if a much lighter engine is used, there will be a great deal of trouble in keeping it running regularly. If the parts are made large, so they are not easily gotten out of order, a small boy can quickly learn to start and stop the engine and take entire charge of it.

COST OF RUNNING.

Almost every thinking man will want to know, before he buys an engine, how much gasoline and lubricating oil he will have to use; and, furthermore, what the general expense of running the engine will be. One-horse-power engines of the type here shown consume a quart of gasoline in about ten hours of constant work. If this work during the whole time crowds the engine to its full capacity, about a quart and a half will be used. The lubricating oil is a small item, as there would be no necessity of using over one cent's worth a day. The five dry batteries sent with the engine would last a year at least, unless the engine were running constantly ten hours every day, when they would have to be replaced, probably, in from two to six months. But the batteries sent with the average farm engine should last a year, for usually they would not be required to give service every day. New batteries can be purchased for 25 cts. apiece, making $1.25 as the total battery expense for a year. The spark-plug should last several years; but to be on the safe side we will assume that a new one would have to be purchased at the end of the year at a cost of $1.50. We believe that this engine will require very few repairs. If the farmer reads the instructions intelligently, and is careful to keep the bearings tight, etc., the repair bill would be next to nothing. It will be seen, then, that a one-horse-power engine can be operated for about 8 cts. a day.

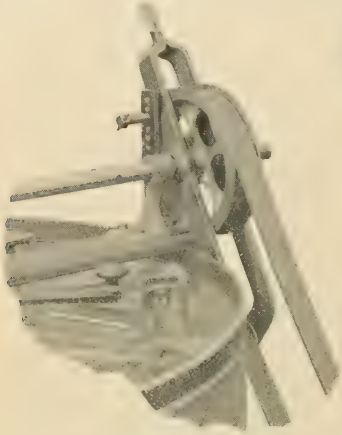


FIG. 5.—Detail of driving mechanism; the idler released and the belt loose.

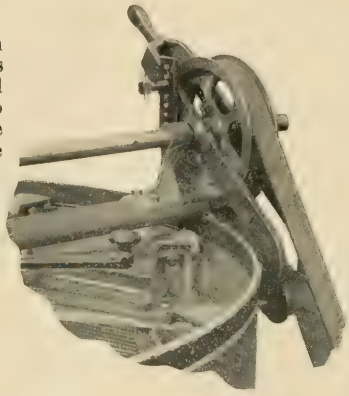


FIG. 6.—Detail of driving mechanism; the idler in position and the belt tight.

HOW TO CONNECT THE ENGINE TO THE EXTRACTOR.

The illustrations show that we transmit power from the engine to the extractor by means of a belt which is ordinarily left loose, but which can be tightened at will by means of the idler, so that all slipping is prevented, and the extractor-reel begins to turn. Unless an old-style extractor is used in which the reversing of the comb-baskets requires a reversal of the direction in which the reel is turning, there is no reason why the reel should turn both ways, hence only one belt is necessary. With this method of working it will be seen that the engine is

FIG. 7.—HOW TO OPERATE THE EXTRACTOR.

To start the extractor, push down on the handle A. This moves the idler, B, up, tightening the belt so that the reel begins to turn. To reverse the baskets release the idler and pull on the brake-lever, E, thus tightening the band, F, and causing the reversing-hub to move slower than the reel. This difference of speed in the motion of the hub and the reel reverses the baskets.

FIG. 1.—F. A. LOCKHART IN HIS APIARY AT LAKE GEORGE, N. Y.

allowed to run all the time, and that the reel of the extractor is stopped by simply releasing the idler, thus loosening the belt and applying the brake. When the engine is running alone a sensitive governor cuts off practically all the gasoline and electricity, so that there is almost no waste. With this plan it is unnecessary to place the engine and extractor at any exact distance apart. They are simply placed so that, when the belt is in position on the pulleys, it has some slack. Since the idler does not need to be at any fixed position, it is obvious that it will take care of the slack in the belt unless there is altogether too much or too little.

SOME YORK-STATE BEE-KEEPERS.

F. A. Lockhart, the Queen-breeder, of Lake George.

BY D. EVERETT LYON.

About three miles from Fort William Henry, and on about 600 feet up a mountain-side, is the house of F. A. Lockhart. He is well known to the readers of GLEANINGS as a breeder of Carniolan bees as a specialty. While Italian bees of the long-tongued variety and Banat bees are reared, yet Mr. Lockhart has been best known as a careful breeder of Carniolans. Some bee-keepers have objected to this race, not alone on the ground of swarming, but also because some strains of them vary so in color. Mr. Lockhart has, by conscientious and careful breeding, produced as beautiful a type of Carniolans as I have ever seen, and I have seen them in different parts of the United States.

From 50 colonies of pure Carniolans he produced in one season over 7000 lbs. of comb honey, and had but 7 swarms out of the 50 colonies. Of course, in every colony he practiced "shook swarming," which accounts for only 7 natural swarms. This, certainly, is not a bad showing for a race of bees that have been charged with carrying the swarming impulse to extremes.

Mr. Lockhart has 700 full colonies in outapiaries, and about 500 nuclei for rearing queens. As he does most of the work himself he says it pays him to have two nuclei in an eight-frame hive, and three or four Langstroth frames to each nucleus. This saves much time and care, as no feeding is required.

Another big advantage he finds is that they are better able to put up a fight against robbers, especially when he is doing work among them after the honey-flow has stopped. If a rare case of robbing does occur he stops it very quickly by squirting some kerosene oil about the hive entrance, with an oil-can, and in a few minutes all is at rest.

I was very much amused at the editor's account of how Quirin the queen-breeder did his work with lightning speed; but after a few days' visit with Lockhart I felt that he was in the same class with Quirin for work.

Recently, while filling a large order, Mr. Lockhart found and clipped 150 queens in three hours.

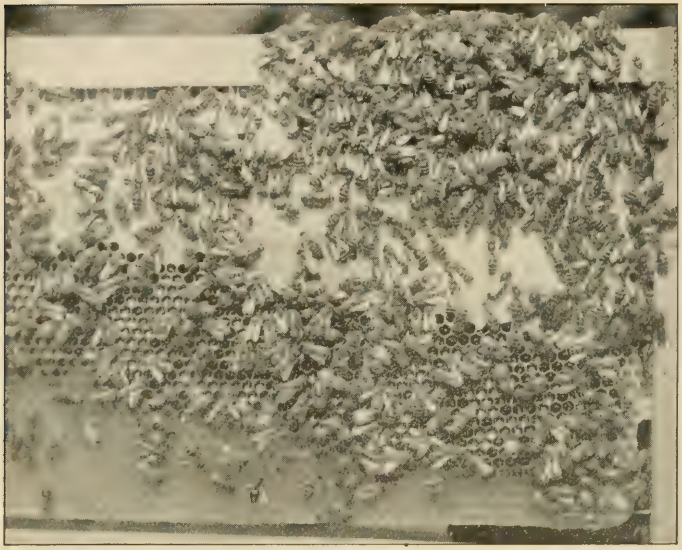


FIG. 2.—A COMB OF BANAT BEES FROM THE YARD OF F. A. LOCKHART.

I learned a little of the way he does it, and it was because he used a pair of manicuring scissors instead of the regular ones. And, by the way, this is quite an idea for those who have much clipping to do, for the curved blades of these manicuring scissors make it easy to clip a queen's wing without the slightest danger of crippling her by cutting off a leg or other part of her body.

Of the many things that interested me, none did so much as a careful study of his new race of bees, the Banats. They appear thus far to be disinclined to swarm, and it is the hardest thing in the world to get them to rear drones. As workers they seem to take first rank, and build a beautiful white comb such as is shown in the illustration. I also found them to be practically non-stinging, and as gentle (if not more so) as the Caucasians, and as I took out comb after comb I was amazed at their quietness under manipulation. They are not inclined to build burr-combs, and do not daub their frames with propolis; in fact, the nearest approach I found to it was a slight yellow stain on the edges of the frames.

I send a photo of the Banats.

The country around friend Lockhart's home is wild and picturesque, and on more than one occasion deer and bears have been seen from the house. The best bee on the place, however, is the queen-bee that presides over the home. Friend Lockhart told me with considerable glee how he had captured this queen. It seems he had an outapiary located in a farmer's orchard; and when he drove up to it one day he was surprised to find the farmer's daughter up an apple-tree trying to capture a runaway swarm. Upon his appearance, the estimable young lady hastily clambered down, and, with many blushes, took to the house in double-quick time. Our friend, however, was fortunate enough, some time later, to capture her, and she now presides over his home, and is the mother of his two splendid boys — Lester, five years, and Donald, two.

Mrs. Lockhart gave me the recipe for a lotion for bee stings, and one that has real merit in it. Mix equal parts of laudanum, aconite, and chloroform, and apply to the part stung, and the effect is almost immediate in the relief afforded.

The end of my visit came with much regret, for I felt it a real privilege to enjoy the hospitality of such a home, and to come into close touch with such a master in the art of queen-rearing as Mr. Lockhart is known to be.

Rye, N. Y.

FIG. 3.—A COMB OF HONEY FROM A COLONY OF BANATS, SHOWING THE VERY WHITE CAPPINGS.

VEILS.

How to Make and Wear Them.

BY DR. C. C. MILLER.

I doubt the wisdom of going among an average lot of bees without wearing a veil. In a very hot day it is decidedly uncomfortable to have a smothered sort of feeling that a veil gives, and I may not have my veil down, but I want it ready to pull down at a moment's warning. To the beginner there's a sort of fascination about the idea of being able to say, "I never wear a veil," and even some of experience take pride in going without one when they might do better with one.

One objection to going without a veil has perhaps never presented itself to many. It is that the absence of a veil is hard on the bees. Before reading any further, stop and think whether you can give the reason why. Give it up? Well, I'll tell you. If you wear no veil, it's practically certain that you'll use a good deal more smoke than you otherwise would, and I don't believe bees enjoy having a lot of smoke blown into their eyes any more than you do.

I think I hear some one reply, "But I can work at bees without either veil or smoke." So can I; and I think it's a good way for the amateur who keeps bees for the fun of it, and has time to burn while playing with them. Indeed, I think if I should live to be an old man, with nothing else to do, I should thoroughly enjoy sitting at a hive by the hour, watching the bees at work, and manipulating their combs with such gentleness and deliberation that they would have no inclination to sting me, withdrawing from them if, on account of weather or for any other reason, they made any protest against being handled without smoke or veil. But for one who is working his bees for the money that's in it, and wants to slam through a certain amount of work in a day, whether the bees are kind or cross, it's too expensive business to move so gently that the bees think you're not moving at all.

There may come a day when we have bees so gentle and so industrious that they will store more than any bees we now have, and at the same time need neither veil nor smoke under the swiftest manipulation, but that will probably be some time after next week. For the present, barring amateurs, all bee-keepers need veils, with the exception of the man in the city close to neighbors, and he ought to be obliged to do without a veil—at least a good many of him.

Of all the veils I have tried, I like none better than the plain bag open at both ends. Get bobinet, which goes also under the name of cape net or lace net, and is about 21 inches wide. It must be black if you care to preserve your eyes, also if you care to see clearly. Soak in hot water to take out the starch. Cut a piece as long as or a little longer than the circumference of your hat-rim. Sew the two ends together, and make a hem at each end of your open bag, through which you will run a rubber cord. The upper cord will hug the hat at the place of the hat-band. For a permanent hat and veil, it is better, instead of the rubber cord at the top, to sew the veil to the hat at the outer edge of the brim and under it. It is also better to sew a piece of white material at the bottom to make the lower hem, as the black material crocks the clothes.

Cross bees, when making an attack, fly in a horizontal line, so they do not often get under the veil, even if the rubber cord does not hold very close about the neck. Still, they do get under sometimes, and a little kink to prevent this I consider of much value. It is the invention of my good sister-in-law, Miss Emma M. Wilson. She takes a safety-pin of liberal size with which she pins the lower edge of the veil to her dress, at the middle in front. After seeing her wear her veil thus

DR. MILLER'S PALM LEAF HAT AND METHOD OF FASTENING A VEIL BY MEANS OF A RUBBER-CORD.

for some time I thought I would try it. After trying it I said to her, "I don't like your plan; it's all right while I stand straight, but when I lean over a hive the veil bags out enough to make an opening at each side above the fastening, where the bees can enter by a horizontal flight, which doesn't happen when it's not pinned down."

"You don't make it tight enough," she replied. "You must make it tight, *tight*."

So I stretched the cord down very tight, fastening it to one suspender-buckle, as you will see in the illustration, and, sure enough, it hugged close, no matter how much I bent over.

You will note there is no face-piece in the veil. A face-piece of tulle, a gauzy silk material (the bobinet is of cotton), is very nice, making practically no obstruction to the vision but always getting torn.

Isn't that hat a beauty? It was sent as a gift of a Cuban friend who promised to send me another when it wore out. I think he must have chuckled when he made that promise, for it looks as if it might wear a lifetime. It is of palm leaf, and so tough that, although it came through the mail done up in a tight wad, not a strand was broken.

Lest some one should have an unsatisfied curiosity regarding the figure in the background, I'll just say that's my good old Scotch mother-in-law enjoying the sunshine, while a pair of kittens in her lap are enjoying her accustomed caresses.

[Dr. Miller seems to be very much amused over something, or at least he was at the time the camera caught him with a Cuban hat on. But even if it does look outlandish, doctor, it may, nevertheless, be serviceable. —ED.]

BEE-KEEPING IN A MONASTERY.

Being a friend of the little bees, and having built up two colonies of them this summer, I am glad to send you a photo of a swarm ready to be hived, while some of my confraters are looking on. I am keeping a few hives merely for pleasure.

Cincinnati, O. BRO. EMIL, O. F. M.

[Some time ago we had a cover-page illustration of a French Trappist monk in the act of hiving a swarm. We also alluded to the fact that so many men belonging to the religious orders in Europe were amateur bee-keepers, and some of them experts. Evidently our American monks are not to be outdone by their transatlantic brethren, and are making a fair beginning as the illustration sent in by our friend, Bro. Emil, O. F. M., of Cincinnati, will show. It ought to be remembered these religious orders kept up the culture of bees and fruit during the Dark Ages when the rest of mankind were more intent on killing each other than on peaceful commerce and trade.—W. K. M.]

YOUNG MONKS ABOUT TO HIVE A SWARM AT A MONASTERY IN CINCINNATI.

HOW ABOUT IT?

The Muscle Tissue of the Bee: is it More Efficient than That in Man? an Interesting Discussion.

BY B. C. AUTEN.

In discussing, in his articles on the anatomy of the bee, the efficiency of the muscle tissue of the bee as compared with that of man, Professor Cook, I fear, is continuing the promulgation of a fallacy, refutation of which I have never but once seen in print. It is, of course, true, as we all know, that an insect can do much more work in proportion to its size or weight than a man; but from that it by no means follows that its muscle tissue is more efficient. Various factors enter into the problem, such as the method of attachment of the muscles, and favorable or unfavorable leverage determined by the method and place of attachment. It is, however, on the basis of relative size that I wish to discuss the subject. In doing so I shall assume that man and the bee are similar in proportions and construction, which is not the case, and will, therefore, give very inaccurate results.

According to the A B C of Bee Culture it takes about 4500 bees to weigh a pound. If we take 137 pounds as the weight of a moderate-sized man, we find him equal in weight to about 614,125 bees. As the volume varies according to the cube of the lin-

ear dimension, we find by extracting the cube root of 614,125 that our bee should be $\frac{1}{85}$ the length of our man. If our 137-pound man be 5½ feet tall, we find our bee ¾ inch in height, which isn't so bad.

Of any two muscles of equal quality, the strength will vary according to the area of cross-section. Areas vary according to the square of the linear dimension. The square of 85 is 7225. To recapitulate, taking the linear dimension of our bee as the unit, our bee compares with our man as follows: In height as 1 to 85; in area of cross-section as 1 to 7225; and in size, as 1 to 614,125, and the ratio of cross-section, or muscle strength, to size will be as 7225 to 614,125, or 1 to 85. That is, a man is 614,125 times as big as a bee, but his muscle area only 7225 times as great: or, in proportion to his size, his muscle area is only $\frac{1}{85}$th that of the bee.

According to that, to show that its muscle tissue is of equal efficiency, the bee must exhibit a strength 85 times as great in proportion to its size as a man in proportion to his. If a man can carry himself, to show itself equal in muscle efficiency the bee must carry itself and 84 times its weight additional. If the man can carry a burden equal to his own weight, the bee must carry a burden equal to 169 times its own weight. If our man can pick up twice his weight, our bee must lift a weight equal to that of 254 other bees. Can it?

This is not all, either. The bee, in carrying its own weight, is under only $\frac{1}{85}$th the muscle strain that the man is under in carrying his. A man, in carrying a burden equal to his own weight, is soon overcome by fatigue; but the bee should be able, by walking, of course, to carry indefinitely a burden equal to several times its own weight without ever learning the sensation of fatigue.

Let us look also at the matter of relative nerve efficiency. A motor center can not repeat a command until it has cognizance that the performance of the first command has begun; for example, if you wish to perform a repetition movement of lifting the finger, you can not will the finger to lift the next time until you feel it begin to lift this time. All nerve action takes a definite length of time, in proportion to the length of nerve fiber traversed. To illustrate, if you will at one instant to wink your eye and to lift your foot, your eye will be shut and open again before your foot is up; to have the movements simultaneous, you must send the command to the foot slightly in advance of that to the eye. As the length of nerve fiber in the bee is only $\frac{1}{85}$th the length of that in the man, the bee should have 85 times the nerve activity without exhibiting any superiority.

The movement, too, of the man must pass through 85 times as much space as that of the bee, and, therefore, take 85 times as long. Nor are we through yet. The man has 614,125 times the inertia (or it might algebraically be called "momentum minus") to overcome, with only 7225 times the muscle ratio to do it, or $\frac{1}{85}$ as much in proportion; and it will, accordingly, take him 85 times as long to get the inertia overcome as it will the bee. To recapitulate again, in man it takes a motor impulse 85 times as long to reach its destination as in the bee; it takes 85 times as long to get the movement under way, and 85 times as long to perform it, granted that the nerve and muscle function in both are of equal efficiency.

The wing movement of the bee, as is well known, is extremely rapid, and, of course, indicates high nerve activity. The movement is, however, except in its starting and stopping, automatic, or reflex; that is, it does not depend on the brain for its nerve impulse, but on a nerve center between the brain and the point where the power is applied. In vertebrate animals, the motor impulse for unconscious voluntary movements is supposed to come from the spinal cord. In the wing of the bee, the power is applied by a muscle at the base of the wing, and the distance from there to the main nerve channel of the bee must be extremely small. Moreover, the wing is extremely light in structure and in inertia. Movement, then, does not have to wait on slow nerve action, nor nerve action on slow movement. In view of all these considerations, a high rate of speed must not be considered strange.

It may be true, as alleged, that a bee has higher nerve and muscle efficiency than a man, but other data must be adduced than the simple facts that it is stronger for its size, and can repeat movements more rapidly.

One of my earliest statements herein I wish to qualify. When I had nearly finished the final transcription of this thesis, memory reverted to a book with which I was familiar when a boy, which remarked how fortunate it is for the whales that they are adapted to marine life, as it would be impossible for them to have manageable legs strong enough to support them out of water.

A VISIT TO THE GREAT CORN-GROWING REGIONS OF SOUTHWEST OHIO.

Something about Corn and Chickens.

BY A. I. ROOT.

When T. B. Terry, the great specialist on potatoes, astonished the world some thirty years ago by what he had accomplished, it not only gave a great impetus to potato-growing all over the world, but his efforts and success gave a general uplift to agriculture at large. Well, down in Butler Co., O., there is a man who has spent almost *fifty* years in studying and experimenting on *corn*. I did not know about him until I wrote up Prof. Holden's great work. A few days ago, when I happened to be down in that part of the State, I decided to accept an invitation that I received some time ago to call on Mr. Calvin S. Hunter, of Seven Mile, Ohio. Friend Hunter told me to get off at a station called North Caldwell; but the con-

ductor on the trolley line said he did not know of any such place. So I got off at Overpeck, within two and a half miles of his farm. I went into a country store and asked if there was a livery stable in the place. I was told there was none. If it had not been raining at the time I should have enjoyed the walk of 2½ miles. While I was discussing about getting over there, with the loungers who sat around the stove, the storekeeper's wife remarked:

"There is a man coming in the door who lives within a mile of Mr. Hunter's place."

Said I to the new comer, "My friend, I am told that you live within a short distance of C. S. Hunter's place. Can you arrange to take me over there if I pay you for your trouble?"

I was a little bit surprised at the reply I got from an utter stranger. "Yes, I can take you over to Mr. Hunter's, and I shall enjoy doing so; but so far as the pay is concerned I am paid already. I used to be a bee-keeper, and took GLEANINGS a good many years; and, if I am not mistaken, you used to be the publisher."

C. S. HUNTER IN ONE OF HIS CORNFIELDS.

We were soon on the way; and as my new-found friend was a *chicken*-man, had several

incubators, and four or five hundred chickens already hatched, we forgot all about that cold rainy spell in the latter part of April.

As I looked out over the wheatfields of that region I uttered an exclamation of surprise. I knew already that that was a great wheat region; but I never in my life saw so good a stand of such strong thrifty plants as met my view that afternoon. As we went right on to friend Hunter's I did not stop to see the chickens, but promised to do so before my return next day.

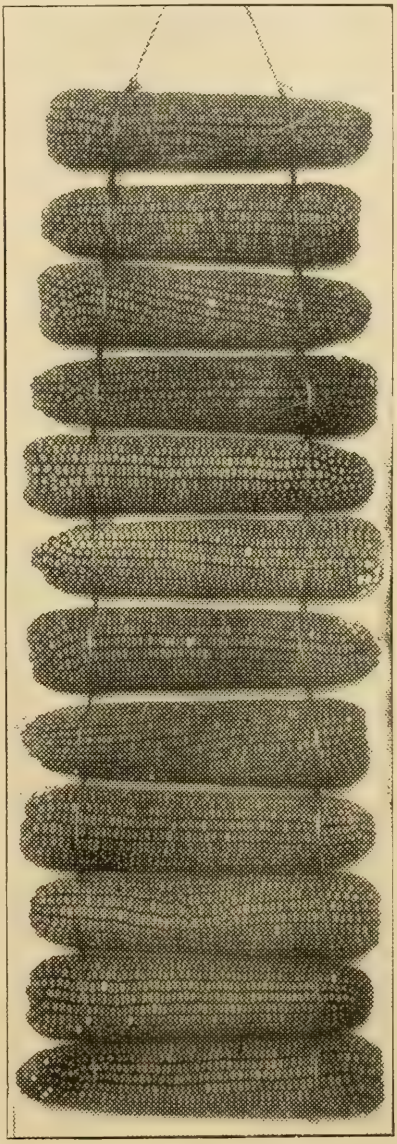
Friend Hunter has a large fine country home right on top of a beautiful natural mound. You can look over his acres of cornfield extending off in every direction. While corn is the main crop, and has been for many years past, the fertility of the fields is kept up by proper rotation, something on the plan followed by Terry. The home farm has perhaps 400 acres, and one of his sons has about 600 acres more. The friend who drove me over to the place said he believed they rented some land besides on which to *grow corn.* Of course, with this tremendous acreage it would be impossible to keep up the fertility by producing or purchasing stable manure. The main reliance, if I am correct, is clover. In order to get this heavy growth of clover they grow wheat and oats; but corn is their principal crop, and oats and wheat are only a side issue.

Some might say that Mr. Hunter is a lucky man in having ground so favorable for this great corn crop; but it would not be favorable without this splendid management; and another thing, I presume he selected corn, at least to some extent; because the environments left him by his ancestors were favorable for corn.

Now, I shall have to give a good deal from memory, and may be I shall get my figures wrong. If I am correct, the average corn crop for the State of Ohio is something less than 40 bushels per acre. Mr. Hunter and his sons made an average last year of over 98 bushels per acre. There were places in many of the fields where the yield was, no doubt, close to *200 bushels* per acre; and repeated tests by measuring a part of some of the best rows showed at the rate of more than *240 bushels per acre.* A report of this enormous yield reached the editor of the *Indiana Farmer* some time in October, 1905. He said to the students who gave him the information that if this were true he was going to see that cornfield "before he slept." He accordingly made a visit on the 27th of October, 1905, went out into the field, and measured off a part of one of the rows of corn, husked it himself, and weighed the corn himself, and the result was the astonishing figures of *247.57 bushels* per acre, counting 70 lbs. to the bushel. He said in his report in the *Indiana Farmer* for Nov. 11, 1905, that there were, no doubt, places in the field that would do still better.

While I was there, one of his sons was loading up a big high-topped wagon with ears of corn to carry to market. I think the whole load would average more than 1 lb. to the ear. The picture accompanying gives an excellent view of friend Hunter himself standing among the corn he has been so many years in developing.

Somebody said of Prof. Holden that he had succeeded in putting corn on the witness-stand, and in making the corn answer questions. Friend Hunter has been doing this, and what he has succeeded in doing with



SOME EARS OF CORN THAT ARE TO BE KEPT FOR SEED.

corn, and the particulars of the experiments he has made during the past fifty years, would make quite a book, and I have been urging him to write that book. The basket of corn in the illustration (see next page) was sent

to President Roosevelt, and Mr. Hunter received quite a nice letter from the President in return for it. Below I submit some extracts from letters that give you some information, told in Mr. Hunter's own words:

Our "Ideal" white corn (bred in line for fifty years) seems to show for itself. In 30 minutes after I had entered Agricultural Hall at St. Louis I had sold seed to Supt. Stilson, and the basket you see in the inclosed picture was ordered sent to President Roosevelt, resulting in my getting splendid letters from both the President and expert Hartley, of the "plant-industry" division. A few sheaves of fodder set up against the fence (by the experiment plots) in the Indiana State fairground two years ago brought visitors to our house from many different States. The call of A. C. Campbell and Mr. Keifer, of Brazil, Ind. (near the Illinois line) resulted in a visit from the editor of the *Indiana Farmer* (Mr. Kingsbury), an account of which may be seen in an enclosed clipping of his own paper. Our white corn was first in production at Purdue, Ind., last year—98 bushels and 56 lbs. per acre. Mr. Kingsbury came here two years ago and husked a small piece at the rate of 248 bushels per acre; also at the same rate husked by A. C. Campbell, of Brazil, Ind.; also two rods of one row husked by Prof. C. G. Williams, of our stattion, gave 41 lbs. sound corn last fall. This is my 50th year in its cultivation. C. S. HUNTER.

Seven Mile, Ohio.

THE HALF-BUSHEL BASKET OF CORN THAT WAS SENT THE PRESIDENT.

POULTRY, AND THE PART IT PLAYS IN THE CORN BUSINESS.

At the time of my visit the skies cleared up, and in the morning I was out bright and early to look over the farm. One of the first things that attracted my attention was the large number of fine-looking healthy chickens, mostly Barred Plymouth Rocks. Besides the grown-up fowls, there were something over 100 chickens only a few days old, all raised by sitting hens. Now, the Hunter folks are great on poultry; but because they are corn-growers, the poultry, like every thing else, is a side issue. I think there were something over 200 grown-up fowls; and as soon as it is light enough they scatter about in every direction.

In our walk over the fields I said, "Why, friend Hunter, your chickens reach out a quarter of a mile in every direction."

"Yes," he replied, "I think you will find them fully half a mile."

Then he pointed them out to me off over the hills, so far away I could hardly be sure they were chickens had I not seen them moving about after the men at work. You see his rich soil furnishes not only angleworms but bugs and other insects that might do positive harm were it not for the chickens that so persistently follow the plow and the cultivators. What attracted me particularly was the fact that they managed the chickens a good deal as I do mine in Florida. Instead of being cooped up or fenced up, they scatter about at their own free will. When I suggested that they might make nests where it would be a good deal of trouble to find them, he replied, "That does not do any harm. If we do not find them at all, they come off with a good-sized troop of chickens; and the first announcement we have is their marching up to the house, demanding to be fed and cared for."

But so far as the feed is concerned, I think nothing ever suffers around the Hunter homestead from a lack of food; but in the way of shelter the hens mostly take care of themselves. I saw them trooping around when some of our scientific poultry-keepers would

think, perhaps, they would "catch their death-cold," and they did not seem to die very much either. I think Mrs. Hunter told me they gather something like six or seven dozen eggs every day. Of course, this was an estimate. When I spoke about the expense of *feed* Mr. Hunter volunteered, "Why, Mr. Root, we scarcely feed our grown-up chickens anything from along in April until freezing weather comes." This does not mean that they gather all their feed from the fields. In disposing of their hundreds (or perhaps I should say thousands) of bushels of beautiful corn, there is more or less scattered around the corn-cribs in loading and unloading; and the chickens make it a point to "gather up the fragments that nothing be lost." Some of the kernels of corn shelled from those monstrous ears seemed to me to be almost too large for a chicken to swallow unless it was some of the larger breeds.

On our way to the station we stopped to see the incubators belonging to my good friend J. A. Scott, who brought me over from the station. We first went down into the cellar where they kept the incubators. When the matter of testing the eggs came up, the daughter, who has charge of the poultry, showed me how they tested out the unfertile eggs; and I then made a discovery — something that had not occurred to me before. In order to get out the unfertile eggs (say in 3 days) before they were spoiled for table use we older people would need to get some spectacles of strong magnifying power. While the young lady detected the embryo at once, I could not see it at all with the glasses I use for every-day use.

Now, I hope that these kind friends and others where I have visited will excuse me for a little criticism. I had just been admiring friend Hunter's healthy handsome chickens *running loose* here and there and everywhere during the cool morning hours. At friend Scott's they had them housed up in brooders or brooder-houses, with lamps burning to keep them warm. Well, I have found this condition in every great poultry establishment I have visited in the Northern States. They were warming chickens up with artificial heat when it seemed to me they would be ever so much better off, happier and handsomer, if they could get warm by the heat of the sun or by running after their mothers outdoors. At Xenia I saw chickens running out in the rain, comparatively without harm, when the thermometer showed a temperature of 45 degrees. At friend Hunter's it was the same; and this morning, May 1, my Rhode Island Reds, only ten days old, were outdoors as lively as crickets when it was cloudy, and the thermometer was down to 40. Of course, the mother warmed them up once in a while. Friend Scott explained that his four or five hundred chickens would have been outdoors on the morning of my visit had it not been for the fact that they had not got their poultry-netting up around the yards so they could let them outside without getting mixed up.

Friend Hunter is a jovial man, as you may gather from his looks. Every little while he was getting off some of his jokes. When I said I felt that I must get around to see some of those wheat-fields during the harvest-time he replied, with great gravity, "Mr. Root, you certainly *ought* to come, for it is indeed at times a *shocking* sight." At another time he put his finger on a piece of poultry-netting and said, "When testing these ears of seed corn, just cut out a piece of poultry-netting and lay it on top of your box of dirt, then you take the six grains from each ear of corn and put them inside of one of the meshes of poultry-netting."

Then he added, "Now here is another short cut for you chicken-men."

As he said this he turned to his neighbor Scott with a comical look, "You want to get a good post-auger and dig a deep hole somewhere near your brooder. Cover it with a round board or something of the kind. When you find a dead chicken just drop it in this deep hole and put on the cover. It is less trouble than to dig a place to bury the chickens one by one as fast as they die."

This last suggestion hit me in a spot where I felt a little sore, for there was one time in Florida when I found it quite a little task to dig so many "burying-places" for each dead chicken. Mine did not have any disease, however. I had no losses except those that were induced by the coal-oil lamp of that chick-brooder I told you about. Perhaps I am taking a big responsibility on myself, especially while I know so little about modern poultry-keeping, to undertake to criticise those who raise chickens by the thousand; but I can not help thinking, again and again, that more *people* and *chickens* are killed by warmed-up houses and artificial heat than because of exposure to the weather and a lack of protection. Of course, we want to keep warm—chickens as well as people; and old chickens as well as old people, perhaps, should avoid being chilled—that is, chilled in a harmful way. But I think we both need to beware how we try to substitute artificial heat for sunshine, outdoor air, and exercise.

Before closing let me get back to the corn once more. On page 45 of our issue for Jan. 1 I told you how our station was getting a strain of corn that would not blow down during high winds. Well, Mr. Hunter has been working along the same line. But he adds something like this: "It is true we can produce a strain of corn with stalks so strong that they will stand ordinary blows; and this very thing illustrates something we have met in developing desirable traits in corn or any other plant. We get a strong stalk, it is true; but it is more or less at the expense of the ear of corn. If you wish to grow fodder, get a big strong stalk with little or no ears; but for grain the strong stalks must not be pushed too far. A strain of corn that produces a good-sized ear, not too high up from the ground, and an ear that soon turns over and hangs down by its own weight, with a reasonably strong stalk to support it, is what we want rather than to lay so much stress in our experiments in

getting a crop that will not break down or blow over during heavy rainstorms."

SOMETHING STILL LATER FROM CALVIN S. HUNTER.

We got two fields planted in April, and our testing-boxes show the seed to be good. The three old strawberry-boxes (covered by frames of chicken-wire of 2-inch mesh) will test 264 ears of corn at one setting (enough seed for 25 acres). Each twine suspends the number of ears that fill one row of the meshes, and is tagged at its *loop* for its number or row in its box, always counting the ears from the bottom one up to the loop by which they are hung up to dry or season.

I fill our testing-boxes more than full of garden soil, so it may settle and yet the wires fit snugly on the surface; then I push each grain *point* down (and deep) so as to economize space, the two butt grains in the center of the *block*, so as to waste only the point of the ear, if that is *all* that is bad. I have a grain with two hearts, or germs, and to me it is as rare as to see grains on the inside of an open cob, which I have seen. This two-heart grain would make a suitable wedding-present. C. S. HUNTER.

Seven Mile, Ohio, May 2.

A SEASON'S WORK WITH SECTIONAL HIVES.

Swarm Control and Comb-honey Production.

BY J. E. HAND.

[This is the beginning of the promised series of articles by Mr. J. E. Hand, on the general subject of comb-honey production and swarm control in localities where the honey season is short, and where, generally, no surplus can be secured with ordinary management and appliances.

Our friend has been saying for a year or two back that he had a system of management, in connection with the divisible-brood-chamber hive, which not only brings swarming under control, but secures for him extra fancy comb honey. We did not think very much about the matter, as there are not a few (good beemen, too) who sometimes become so over-enthusiastic over some method of management that they have developed that they come to the conclusion there is no other plan to equal it. We were finally induced to look into Mr. Hand's method. Indeed, he made a trip to Medina to explain it. We called together a coterie of our men. At first we were really sorry for him; then we became interested; finally enthusiastic. While we did not lose our head (at least, we hope so) we will say this much: Mr. Hand has perfected a system which will merit the closest and most careful scrutiny of those comb-honey producers who have been annoyed by the swarming problem, and who have been unable, owing to the shortness of the season, to secure a paying crop of comb honey.

The result of our interview was that we made arrangements with Mr. Hand to write us a series of articles detailing his method, describing how he works with the Heddon divisible-brood-chamber hive as he has modified it. These articles we now have in hand, and we expect to send a member of our editorial staff to his place to-morrow with a set of cameras to photograph each step and detail of this method. We hope, therefore, in succeeding issues, to place before our readers something of more than ordinary interest.

We may say further that we have talked with a number of divisible-brood-chamber experts since that time, and have been surprised to note the remarkable agreement among them as to the possibilities in the handling of this hive.—ED.]

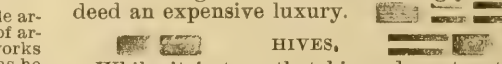
That swarming is the most serious obstacle in the pathway of successful comb-honey production on a large scale is evident from the fact that, notwithstanding there is an almost unlimited demand for a fancy article of comb honey at a high price, nearly all the large apiaries are engaged in the production of extracted honey, which brings less than half what it would if stored in the form of section honey.

In a series of articles which I have promised to give to the readers of this journal, of which this is the beginning, I will endeavor to tell, in a clear and concise manner, just how very nearly, if not quite, as many pounds of comb honey can be produced as of extracted, and with no more trouble from swarming than in the production of extracted honey. That there is need of such a system, all producers of comb honey will agree.

It is true that shook swarming, with its many variations, is better than nothing; but it is only a partial success at best, in that, like natural swarming, the strength of the colony is being continually reduced by the dropping off of old bees while no young ones are hatching out to take their places, and the colony soon becomes perceptibly weakened right in the midst of the honey-flow, which means a loss to the honey-producer. Hence it is very desirable to have a system that will keep the brood and bees together, thus keeping up the full working force of the colony for any length of honey-flow that may come.

These articles will tell you, not only how to do this, but how you can have every one of your colonies just boiling over with bees, so that you can take advantage of any honey-flow that may come, however early. They will show you all the advantages of the two-queen system as applied to comb-honey production and swarm control. They will tell you of a new method of putting foundation in sections, four at a time, in such a manner as to insure a perfect section of honey firmly fastened on four sides, and practically free from pop-holes in the corners, which means that practically all your honey will be fancy.

I will begin in early spring, taking the reader right along with me throughout the entire season. We will clip queens, unite colonies, and, in fact, carry on all the necessary manipulations with lightning rapidity, and yet not hurry, for all our manipulations will be by hives; not a single brood-frame will be removed during the entire season, thus proving to your entire satisfaction that the handling of brood-frames singly is indeed an expensive luxury.



HIVES.

While it is true that hives do not gather honey, and that, other things being equal, a colony of bees will store as much honey in one hive as in another, it is no less true that our success or failure in the production of surplus comb honey and swarm control depends upon the principles involved in the construction of our hives to a greater degree than on any other one thing.

That the advocates of large fixed-brood-chamber hives are the ones who are calling loudest for a system of swarm control, is a significant fact.

To the user of these hives, swarming is indeed a calamity; for with the issuing of a swarm vanishes all their hopes of a crop of surplus comb honey, since a swarm hived in one of these large brood-chambers would not enter the sections unless the honey-flow were of long duration.

The fact that these large brood-chambers only delay swarming, and do not prevent it, makes the matter still worse. It were far better if they had swarmed before they had begun work in the supers, for now the user of these hives finds himself in possession of a lot of partly filled sections from which to extract the honey, since his hive is no better suited to feeding back to have them finished than it is for hiving swarms.

That there are locations so good that even these large fixed-brood-chamber hives will give good results in comb-honey production, I am free to admit. It is no less true, however, that there are hundreds of locations, including my own, where it would be impossible to produce comb honey with such a hive. Many of us are compelled to meet changed conditions; and where, a few years ago, there was an abundance of basswood timber, to-day such timber is scarce and is growing painfully less each year; and, owing to intensive farming, our one-time bee-pasture is now under the plow, and the producer of comb honey is compelled to adopt an improved system — one that will enable him to take advantage of a very short honey-flow and get all the honey in the sections, or else go out of the business and produce extracted honey, as many have been compelled to do in my vicinity. All this has a tendency to create a better demand for comb honey; and the bee-keeper who can produce it will find a ready market at a good round price. It is just as easy to produce comb honey as extracted if you know how.

SWARMING — WHAT IS IT?

Swarming is nature's plan for the perpetuation of the existence of the honey-bee, and is governed by certain laws which, to break, would often result in the complete destruction of the swarm. If this were not the case, and if bees could swarm at will, there would not be a colony of bees in existence to-day. Bees are intricate machines, and it is the height of folly for any one to expect to be able to solve the perplexing problems of successful apiculture without a correct knowledge of the nature and instincts of the bees, and also of the forces that control their acts; for if the diagnosis is wrong the medicine must of necessity be wrong; and, instead of effecting a cure, will only aggravate the disease.

There are two forces that govern or control the act of swarming. One is external, and is a combination of natural influences, all of which may be controlled by man; however, external influences could not compel the issuing of a natural swarm of bees without the coöperating power of the internal force, which is instinct; and, on the other hand, even though all preparations have been made for the issuing of a swarm, if the external pressure is suddenly withdrawn the combination is broken up and the bees will not swarm, although queen-cells are well under way. A certain law forbids it without the coöperation of the external influences.

Therefore the issuing of a natural swarm of bees is the result of united and harmonious action on the part of both the external and internal influences.

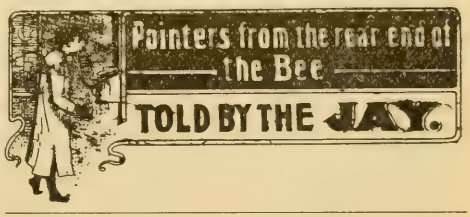
HOW CAN WE PREVENT SWARMING? INSTINCTS OF BEES ALWAYS THE SAME.

Every effect has its preceding cause, and the same causes will produce swarming irrespective of location. The word *locality* is becoming too often used to cover a multitude of extravagant claims. We should bear in mind, however, that, in solving the problem of swarm control, we are not dealing simply with the little bee, that we may easily crush between thumb and finger, but with nature, which neither time nor location can ever change. Instincts first implanted by the hand of the Creator have passed through centuries of time unimpaired to the present day, and will continue unchanged through all future time, notwithstanding all talk about breeding out the swarming impulse—as well try to breed a drone to lay eggs!

Man can not destroy nature, yet he may and does in a thousand different ways defeat her plans by removing the causes which she uses to bring about certain results. This is the key to the problem of *perfect swarm control*, and will be fully demonstrated further along in our season's work in the apiary.

Although you have the key to the problem, yet, unless the principles involved in the construction of your hives will admit of the manipulations necessary to enable you to keep the brood-chamber clear of honey, you are not yet master of the situation.

Birmingham, Ohio.



THE TOAD THAT WOULD NOT TAKE A BLUFF.

Last year a big fat motherly-looking toad established her domicile under one of my Danzenbaker hives at the back of the apiary —no objection to that. In the evening, just after the sun went down, I would sit out there watching the late-returning bees as they struggled into the entrance. Where the old-style bottom-board was used, many bees fell short, and some were unable to get in. They would try to climb in, and then would rest awhile and try again. They seemed to tell me that that was their last load, and if they could only deliver that safely they would be willing to die. I could never see a bee trying that but that I always helped it in.

Where the wide alighting-board was used they had no trouble. One evening, as I sat there with the musical hum of the bees in my ear, out came my friend, the toad. Around she hopped, lapping up flies, bugs, and sometimes accidentally a straw or stick. The lat-

ter she would claw out of her mouth with a front foot. At last she happened in front of a hive-entrance, and saw the bees pouring in. She stopped and craned her neck. Did you ever know that a toad had a neck before? Well, you should have seen that one. She hopped right up to the entrance; and as a bee made a fumble at getting in, that toad just swallowed it without even being near it. At first I thought the toad could not reach, as it made a sort of awkward jump and then stopped as if she had changed her mind. But the bee always disappeared. I watched this for some time as the toad stood there and actually reached right into the entrance with that great long tongue and got a bee every time.

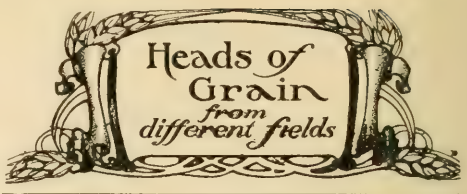
Now, this toad and I had gotten along pretty well up to this time; but the thought that any animal could have such contempt for my little fighters as actually to eat them and then wink merrily as if they tasted good! This was too much for me to look at and remain neutral; so I thought that, perhaps, I might teach that toad a lesson. I caught it, tied a string to one of its legs, held it down in front of the hive-entrance, and gave the hive a jar. The bees came out to see what was wanted; and as the toad began to kick they fell to with a vengeance. They covered it all over and left their stings so thick that it looked more like a Texas toad than any thing else. I got so interested in watching how the bees had the laugh on the toad that I got close up on the firing-line. The bees thought they would see if it would do any more good if they stung me some. This brought better results, for I dropped the string and vamosed. I thought the toad had gotten her finish; but not a bit of it. Next evening there it was with the dried-up stings still in the tough hide.

She could actually jump further, stretch her neck longer, and seemed to have a "longer tongue-reach." I took hold of the string, swung it around over my head, and her Wartship landed in the blackberry bushes about 50 feet away. Next morning I looked under the hive and there she was, trying to hide her face with her hands. I put her in a sack and took her to a swamp about a mile away. I think we are shut of her, for this was last summer, and she is not back yet.

A toad one day was feeling bad,
Her mind somewhat erratic;
And then her limbs were sorter stiff,
A little bit rheumatic.

She got into a hive of bees—
That, surely, did the biz;
And goes to prove that all bee-stings
Will cure the rheumatiz.

Special emphasis to be placed on the "tiz." I have overcome some of my bad habits, but the poetry habit is chronic. Just been in consultation with my physician about it, and he said it was caused by acute cerebral disintegration. The remedy he usually recommended was plenty of air, but said I had too much of that already. Oh, my!



HOW TO KILL THE COMB-HONEY LIE, AND WIN A CUSTOMER.

I have made a trip every year for ten years to the upper peninsula of Michigan, selling comb honey. I don't have any trouble with the person who believes there is manufactured comb, and knows all about it. I just keep my temper; and if that person gets abusive or ungentlemanly, all the better. When the reaction comes, and it surely will, he will buy a case of honey. The best and only argument worth any thing with one who knows so much is the $1000 reward offered by A. I. Root for one pound of manufactured comb honey. They won't believe that, of course. Then I say, "Friend, I will give you $500 for one or more pounds of manufactured comb honey that the bees did not make, and I am ready now to give you any reasonable security for making my promise good." Be courteous and gentlemanly first, last, and all the time. The customer finally thinks that, perhaps, your honey is the real bee honey, and guesses he will take a case. The next year he doesn't stop to argue, but says he has been waiting, for yours is surely pure honey. Of course, he won't admit it; but if you could hear him talk with his friends you would hear him say he doesn't believe there is such a thing as manufactured comb honey after all.

Mt. Pleasant, Mich. H. G. WHEELER.

[There is another strong argument that you can *now* advance, viz.: that the national pure-food law, even if it were mechanically possible to manufacture comb honey, would effectually bar the product from the markets. No one would dare sell it, for the moment it left the borders of the State of its alleged manufacture there would be trouble. —ED.]

A NEWLY FORMED NUCLEUS LEAVES HIVE.

In the forenoon of June 13th I took five empty combs—four full and one partly built out—and put them in a box with wire-cloth bottom and a one-inch auger-hole for entrance, as Swarthmore describes in his book "Increase." There was some honey in the combs. Then I shook in four frames of bees from a strong colony, and carried them into the cellar and let them stand there for seven hours; then I nearly dug out the candy in the candy-hole of a cage containing a new queen I had just reared, and put the cage on top of the five frames, as there was ¼-inch space between frames and cover. I then carried the box and bees two miles away from home, set them in the shade on the north side of a tree, and opened the flight-hole.

Well, in the evening of the fourth day I went over to bring the bees and queen home, and you can well imagine my surprise and dismay on finding that the queen and bees had taken French leave, or swarmed out. The bees had started to build some comb in the frame that was partly built out, and the queen had laid a few eggs, but probably she was not sufficiently fertilized, and tried to go out and find some drones; but there were none around there. I think I was foolish for not clipping her wing.

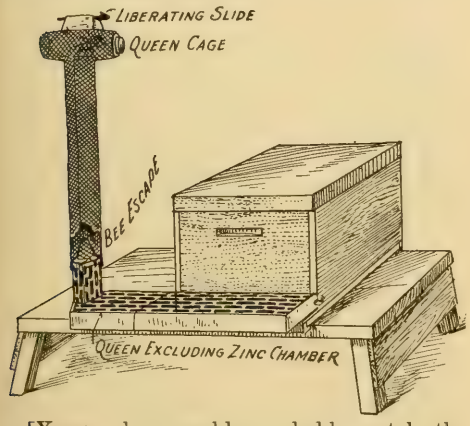
Deerwood, Minn. G. H. PETERSON.

[Ordinarily the bees would have stayed all right without swarming out; but it would have been better to clip the queen's wing, and, in addition, given the bees a frame of unsealed brood.—ED.]

AN AUTOMATIC SWARM-CATCHER.

I send you a drawing of an automatic swarm-catcher, of which I desire your opinion as to whether it would be practical and efficient. The tube and cage are made of fine wire screen, which prevents the bees from killing the queen on finding that she can not leave with them, and the rest is made of perforated zinc. WILLIAM BACON.

Burt, Iowa.



[Your plan would probably catch the swarm; but a far cheaper plan would be an Alley trap. Bees very seldom if ever kill a queen in an Alley trap. After making one or more fruitless attempts to swarm they may supersede her in the hive. Your device would be no better than the Alley trap, and cost more.—ED.]

PAINT FOR HIVES MADE OF OIL AND PORTLAND CEMENT.

I paint the covers of my hives too, with three coats of boiled oil and Portland cement. It hardens like stone, and the covers do not leak. I have some covers and hives that were painted this way 13 years ago, and they are good to-day.

Mix like paint. The last coat is sprinkled with cement. Rub it in with the hands.

Tully, N. Y. J. W. TUFFT.

[Such paint is excellent, as we know from tests.—ED.]

A QUESTION CONCERNING INCREASE.

Does it set a strong colony working well in supers now to take two frames of hatched brood from them and give full sheets of foundation in return, the same brood being used for increase? Would you advise me to take one colony and divide it up in four nuclei rather than take a little from hives over my apiary? E. D. RUSSELL, M. D.

Clare, Iowa.

[There would be nothing in particular gained, but something lost, by taking away two frames of hatching brood. A colony, to work in a super, should have a large force of bees; and while young bees can not for some days go to the fields, they serve to keep up the necessary animal heat of the colony for comb-building.

Better by far make your four nuclei out of one colony than to take a few bees from many colonies, thus reducing the strength of all of them in proportion to the number of bees taken from them.—ED.]

FEEDING OUTDOORS TO STOP ROBBING.

It is with much pleasure I read the article from the pen of Mr. Wm. McEvoy, and your comments thereon, in current No. 8 of GLEANINGS—especially that portion referring to feeding bees outside the hive. I am delighted to hear some one who is regarded as authority on subjects about which he talks, say that robbing can be stopped by feeding outside. Feeding has been practiced by me in the yard, not ten feet away from the hives, to prevent robbing; but there has been so much said against the practice of feeding outdoors that I've been afraid to mention the fact that it has been my practice for at least ten years, fearing I might get a sharp pen, or something else sharp, jabbed at me. My first experience was immediately after reading a very authoritative article against the practice. You know I am curious to know if these things are so, consequently do some experimenting, though it may be risky sometimes. I have found out a lot of things myself by so doing, and think then I know that sometimes they are not so.

Lake Geneva, Wis. WM. M. WHITNEY.

[Orthodoxy does not even yet recognize the possibilities of outdoor feeding to stop or prevent robbing; but it will some day, especially when such old wheel-horses as Boardman, McEvoy, Whitney, as well as some others, vouch for it. For extracting after the season it will prove a great boon.—ED.]

ALEXANDER PLAN FOR WEAK COLONIES.

I tried Mr. Alexander's plan of strengthening weak colonies by placing them over strong ones and failed completely. I feel sure the fault lay in not placing something between to prevent their killing each other. I think I will try it once more, putting screen wire between and making an opening above for the upper colony. R. C. MORRISON.

Rutherfordton, N. C.

OUR HOMES

by A. I. ROOT

"And God blessed them, and God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it.—GENESIS 1 : 28.

For of such is the kingdom of heaven.—MATT. 19:14.

On my return from Florida I met Mrs. Root at the home of our youngest daughter in New York city, and we passed a week very pleasantly in studying the great metropolis. It was not exactly the kind of "nature study" that I have been telling you all about on my Florida island, for we studied *humanity*, at least a part of the time, rather more than chickens. Among other things, we took an automobile trip around the city, and listened meanwhile to a megaphone lecture. We passed the residence of Mrs. Russell Sage, Mrs. Hettie Green, and various other celebrated personages. The "lecturer" seemed to give special attention to the homes of millionaires. I remember he said in one place something like this:

"Gentlemen and ladies, the man who lives over there had so much trouble with his wife that he gave her two million dollars to vacate and get out of his way. But after he got rid of her he invited her to come back, and he let her keep the two million dollars too."

Now, I can not just tell whether it was the lecturer or somebody else who intimated that this multi-millionaire had got his eye on a young actress, but the good wife stood in the way. When he found, however, that this actress was not impressed by his millions as he had calculated, he was glad to get his lawful wife back again.

Owing to my deafness I could not catch all the talk, especially as most of it was given while we were going at a rapid rate. But I caught something like this: The speaker, swinging his hand over a certain part of the city, said, "Over in this section there are sixteen babies born every minute." Then he named another part of the city — I am sorry I can not give it—where, he said, there were only sixteen babies born in a *whole year*. I presume the "sixteen every minute" referred to some regions densely populated by the lower classes of emigrants and foreigners. The other location was probably among the millionaire people and well-to-do folks, and I greatly fear, dear friends, it is beginning to apply to our educated, intelligent, fairly well-to-do men and women.

You who have known me longest are perhaps well aware that I rejoice to see young people get married; and it pains my heart to see any man or woman, especially gifted and talented men and women, when they get along to 25 or 30, seem to be making no plans for the building-up of a home. Now, after these young people get married I still feel anxious in regard to their future welfare and future value to humanity in general, until I see some little ones coming to that home, provided it is such a home as God designed every home should be from the foundation of the world; and I propose, dear friends, to consider in my talk to-day some of the obstacles that stand in the way of the making of American homes. I have already considered the objections to getting married, but I will go over them briefly here. One of them is that young people can not afford it; that the young man is not getting sufficient salary, etc. When Mrs. Root and I had decided that we would work together side by side, this question came up. I think it was $3.50 a week that I was paying for my board. Well, with this $3.50 she provided the table for us both and had something left. Mrs. Root is a worker, as you may happen to know. She was a worker when she was a girl; and although she is now well along toward 70 she is a pretty lively worker yet. Our fathers and mothers were none of them well to do, but they managed to give us a few things to start the home; and Mrs. Root gave me better fare than I ever got at any boarding-house, and had something left, to say nothing about the fun *we two* had every day of our lives. Of course, there was a little bit of a cloud over us when we first had intimation that a little prattler was coming to stay with us a little *earlier* than we had planned; and when another and another came along, I fear, perhaps, there was some murmuring. But, dear me! how difficult it was to learn that God's plans were very much wiser and better than ours! Had it not been for the five little prattlers that came along, one after the other, how could I have gone up to Michigan and started a peach-orchard, or gone down to Florida when bleak weather came, and played with my chickens all day long? Young people, when they start out in life, seldom think of these things; but, my dear young friends, how in the world are you going to *keep* young to the end of your days, and enjoy life up to a good old age, unless you have not only children but *grandchildren* as well to take up life's duties and give you a respite and vacation in due time, to say nothing of making things lively and full of life all around the neighborhood?

Perhaps the getting married part of it can be got along with; but I am told that the obstacles are multiplying against having *children* in the home. Our youngest daughter has one of the most convenient homes—that is, convenient for making it easy and pleasant for housework — that it has ever been my good fortune or that of Mrs. Root to see. They live in one of the New York apartment houses or flats. There are no cottages in New York, with their vine-covered porches and pretty little dooryards. Although Mr. Boyden, our son-in-law, went 13 miles away from his office out in the suburbs to find a place where apartments were reasonably cheap, about the only thing they could do

was to get some third-floor rooms in a flat. But these rooms are most beautifully arranged for the housekeeper. There is hot water, both in the kitchen and in the bathroom. There are hot-water radiators, nice large windows so you can have sunshine as well as outdoor air; and there is a dumb waiter to bring up every commodity close to or into the kitchen. Men come around regularly to take away your waste in the kitchen, and other men deliver ice, bread, groceries, etc. All the appliances are so handy that every thing may be kept scrupulously clean with the least amount of labor, and the whole thing seems to be ideal for a young couple—*with no children.* The people who own the apartment houses do not want families; and, if I am correct about it, they do not seem to want any babies around. It is out of the fashion. May be I am wrong about this. I hope so. This same lecturer on the automobile informed us that in many parts of the city the occupants owned the apartments where they lived; and many of these apartment houses go up many stories. You see it does not make very much difference whether you are high or low. The elevators and appliances furnish almost every convenience to those up in the upper stories that they have in the lower ones.

Our last and most serious obstacle in the way of raising families seems to be a growing fashion among hired help to find places where there are no children. Our agricultural papers are now discussing, and have been for several years past, not only the difficulty but the impossibility of getting competent help on the farm, for any thing near such prices as the average farmer can afford to pay. Now, of late the trouble in getting competent help for the mother of the home seems to be still more difficult. I am told that, while wages are constantly increasing, the quality of the help in the market is constantly decreasing. If the mother of the home is sick you can probably get a hired nurse by paying her three or four dollars a day and her board. But this hired nurse gives you to understand very quickly that she is not to do housework, cooking, washing, nor any thing of the kind. When you get a hired nurse you must also get a hired girl to cook for this nurse and the rest of the family. Then this hired girl will give you to understand very soon that she is not to do the washing. When washday comes you must hire a wash-woman; and when housecleaning time comes you must hire still another woman to clean house; and in some places they not only hire a woman to clean house, but they get two women, for it is too hard work for one woman to do the necessary lifting, etc. And to be right up to date you must also get a man to come and whip the carpet—a professional carpet-whipper. When I talk about the revolt or rebellion against these modern innovations they tell me, "Oh! you have *got* to do it. Things are different now from what they used to be." Do they need to be so different? Do we need so much house? By the way, there is a little hymn that commences something like this:

Oh to be nothing, nothing,
Only to lie at his feet!

A few days ago it was my good fortune to have a chance to talk this over with the wife of a prominent minister. They have several beautiful children in their home. A minister's wife has no end of demand on her time that most other women know little about, especially if her husband is pastor over a congregation of several hundred. The lady knew all about—I was going to say the hired-girl problem; but I do not like to say "hired girl." Why not say help for the mother? The *minister's* wife, especially such a sweet-tempered devoted Christian woman as this one of whom I am speaking, would be expected to get along with any help that is half way decent; but just at the time of our talk the "help for the mother" was on the eve of going away. Said I, have you somebody else in view?"

She shook her head.

"Well, now," I continued, "may I ask what you propose to do if you do not succeed in getting somebody?"

She gave me a bright pleasant smile—yes, it was a happy smile full of faith and hope and energy—and said she was going to do the work herself. Of course her bright, energetic, and talented husband will stand by her side and relieve her of a great lot of hard work. (One may wonder if this is exactly the thing for a high-priced minister to do.) I said right here (in fact, I have said it before to Mrs. Root and her grown-up daughters) that we must be careful about worrying or borrowing too much trouble over this matter of hired help. Said I, "I am sure, dear friends, that in all this difficulty God is striving to teach us wholesome lessons—lessons that we need. We want to remember the first and second lines of that little hymn that we all know so well, or ought to know:

Have you trials and temptations,
Is there trouble anywhere?

Take all these troubles about hired help and every thing else—no matter whether on the farm or in the home—"take it to the Lord in prayer." And, O dear friends, when you do take it to the Lord in prayer, have the men who are at work on the farm, and the girl or woman who is helping the mother—have them present. Be sure they hear the morning Bible-reading that you have selected. Have them kneel with you and the rest of the family if they will. If not, persuade them to be present, even if they do not kneel. If circumstances are such that you find it difficult to have Bible-reading and prayer in the morning, by all means ask a blessing of some kind. And that reminds me of a letter on my desk asking if I will be so kind as to give a pattern or a suggestion for a blessing to be asked at the table. I can not give you a pattern, friends. I am sure the great Father would not be pleased to have me do so; but I can give you some suggestions. I would have the blessing at the table include the thing you are anxious about—the things

you are *all* anxious about—if possible I feel as if the Holy Spirit prompts *me* not to have any two prayers or "blessings" exactly alike. If there is a general want of rain when you sit down at the table I would say, "Lord, give us the rain we are needing so much if it be consistent with thy holy will." If it has been raining for two weeks, and everybody is wishing for sunshine (the way it is now, May 7) I would say, "Lord, give us the sunshine if it is best for us." Then I would try to think of the things we have to be thankful for. If there are those present who represent other families or homes, let the blessing be so worded as to include them especially. If you have just succeeded in banishing the saloons from your neighborhood, do not forget to thank God for that. It would surely help the cause. If there are friends or neighbors ailing, remember them when you ask a blessing; but do not make it too long. Not only are the children restless, but many times work is crowding. We often hear complaints that prayers are too long, but seldom that they are too brief. The most effectual prayer I think I ever uttered, and the one that has brought the most wonderful and speedy answers, is my little prayer that I have told you so much about—"Lord, help."

Now, do not forget, when you are having trouble about help in the home, or trouble on the farm, to utter that brief prayer, very often—"Lord, help."

In our town of Medina we have quite a little colored help in the homes. Our people send off somewhere, and advance several dollars. The help sent is to pay this back in work. Now, there are excellent colored girls just as there are excellent white girls; and then there are others who seem to take advantage of you just because you undertake to treat them in a Christianlike way. They will be insolent and overbearing toward some of the sweetest-tempered and most beautiful Christian mothers. These girls do not seem to have enough intelligence to recognize the kind and benevolent spirit shown toward the people of their race. I know of one colored girl who held her place for a couple of years in a way that seemed to be a credit to herself and a credit to the mother of the home. The girl was intelligent, read one of Booker Washington's books, and seemed to be benefited by it. She studied the Bible every day; but when there was a prospect of a new comer in the family, this girl began to be cross and overbearing, and threatened to leave. She was offered an increase in wages to fix things for a little while; but she finally declared in substance she would not work anywhere for anybody if she had got to have small children around. Notwithstanding her daily Bible-reading, *her* religion seemed to be only a protest against any more increase in population in this world of ours. In the effort to find another girl to take her place, girl No. 2 announced that *she* would not go anywhere, under any consideration, where there was a baby in the home; and I am informed it is getting to be the fashion for hired girls, especially since they can get a job almost anywhere (*without references*), on almost a minute's notice, to declare they will *not* work for people who propose to have children. I wonder if there is going to be a universal strike, and that if those who propose to live as God directed in our text will have to hire a nurse at $4.00 a day. But I am not sure that some of this "mothers' help" will be willing to stay even then. Now the above are some of the reasons given me why there should be so many childless homes. This world is too *busy* for children any more. Nobody wants them around. Perhaps it is because there is no room. "Of such is the kingdom of heaven," and just now "heaven's kingdom."

A great deal is said in the papers about patriotism, patriotic men—patriotic *young* men, for instance—those who, instead of thinking so much about self all the while, have in mind the welfare of our nation. We used to have patriotic speeches on the Fourth of July, and we need them yet. At the time of the war with Spain there were any number of patriotic volunteers. Now, friends, a worse war threatens us—or perhaps I should say *something* worse than war—worse than ever before threatened this world of ours: and nothing can avert this terrible calamity but true patriotism; and in view of what I have outlined in the above is it not true that we need patriotic *girls* and *women*, as well as patriotic men? And I do not know but we need them even *more*—girls who have not got their heads filled with schemes to get big pay with little to do. Why, I heard a young woman, whose business in life was to help mothers, discourse eloquently on the desirableness of getting good pay in some place with rich people where there were no children around. That seemed to be her idea of heaven on earth. Are there no girls who work for a living who are interested in the future of America and American industries? Where shall we get our statesmen? where shall we get our great inventors, our electricians, our Edisons, our college professors, our learned divines, our historians, unless some of these girls who work for a living will volunteer to help the mothers in the homes? I wonder if they think a way is going to be discovered so we can people the world as they raise chickens in incubators—chickens that never had a mother and never saw one. God forbid. There are not only educated men and women in our land, but there are young girls who are devoted Christians, who not only seek beautiful homes, but try to honor God in their lives, in the language of the old hymn—

> In the cross of Christ I glory,
> Towering o'er the wrecks of time.

But where are the girls who sing this hymn as above? When I undertook to raise motherless chickens in Florida I decided that at the very first opportunity I was going to make a careful study of human babyhood. I want to be where I can see some child of humanity when it first begins to look about with those baby eyes, to see what this world is

like and what is going on; and I want to see them develop as I saw those chickens and studied their development. Is there not some girl (may God help us if there is not), or, say, a lot of girls, who are so much interested in the coming humanity that they will just *love* the job of taking care of the baby? There may be some woman living who is helping to take care of the future President of the United States while he is now a helpless infant. Just think what a joy it must be to such a one, if that woman is then alive, to see what is being done to hold up and inculcate this very sort of patriotism I have been trying to describe. Of course, such girls are not to work for nothing. The world is ready to give them *good pay;* and they ought to be glad of the opportunity of giving *good service*, for surely this is "the Lord's work." It rejoices my heart to know that our good President has again and again given us some grand exhortations on this subject.

Some of you may ask, "Well, Bro. Root, what lesson is it that God is striving to teach us by this scarcity of help in our homes?" Well, one lesson is, I am sure, that we must get over our craze for being in fashion. May be you call it being up with the times. I well remember the time when my two older sisters used to get up early enough on Monday morning so they had the family washing done and the clothes hung up a little after daylight. They did this rather than be kept out of school, and because mother had about all she could do to get breakfast for a family of seven without being bothered or troubled with a washing. Did these girls suffer by it? Were they behind in their lessons because of getting up so early on Monday morning? Not a bit of it. When I spoke about the children in the home—that is, those that are old enough—taking the place of the hired girls, I met something like this: "Mr. Root, things are different now from what they used to be in those old days. The girls are not only expected to dress better, but they have to be on hand at ever so many gatherings that they did not use to know any thing about. Even girls who would have nothing to do with dancing and card-parties have to go to clubs, church sociables, prayer-meetings, etc. It takes time to get ready for all these various things, besides being away from home. Would you like to see *your* children worked as hard as your brothers and sisters were worked?"

My reply is, if there is no other way of making valuable citizens, both men and women, than by working as my brothers and sisters worked in the good old times, then let us get *back* a little with all our getting forward. Why, we thank God for all these short cuts that have lately come up to make necessary housework easy. Let us be careful we do not undo the results of these great benefits by mixing in too many other things. I do not believe in having so many things going on—say something almost every evening in the week to take people away from their homes beyond the bounds of reason.

After my talk with that minister's wife Huber ventured a suggestion something like this: "Father, are you sure there is such a great calamity in having things as the man expressed it—sixteen children a minute among the laboring classes, and only sixteen in a whole year among the millionaires?"

Well, if you take care of the sixteen that are born a minute in the way our United States can and ought to take care of them, perhaps Huber is right. President King, of Oberlin College, said some years ago that our large cities are absolutely dependent on our country villages for the raw material for our great men as a nation. A good many of our great men, especially wealthy men, have few or no sons; and when they do have they are brought up in such luxury that there is no good material for them to build on. The good oak timber that is so much sought for, and which brings high prices, comes from oaks that are twisted and wrenched by the storms of centuries. No such timber can be grown under glass in hotbeds; but notwithstanding this, God the father certainly lays the responsibility on our shoulders (especially we who are not only educated but patriotic) of doing our part to prevent "race suicide," as our good President has expressed it and held up as a warning.

Do the words of our text, "Be fruitful and multiply," refer only to the poor and laboring classes? Are the educated men and women—those who have means to graduate with honor in our great institutions of learning—did God mean that these should be exempt? God forbid. Further back I referred to that prominent minister and the probable necessity, in the absence of help, of being obliged to assist with the children and perhaps the housework. Some of you may suggest that it is rather expensive business for an educated divine to take the place of the average household help. But, dear friends, here is a fact that has a tremendous bearing on the question. With such hired help as I have described—say with the average hired help—the children in the home are going to be more or less biased as their little minds are molded by daily contact with these ignorant and sometimes vicious people. I told you how my incubator chickens watched every movement of mine, and caught on to something new every day. Their little intellect seemed to be like wax to take impressions and keep them. Is not this true with the baby in the home? We lament because the children of millionaires (when they have children) turn out so badly, and are of so little use in this world. Is it not owing to the environment? Now, suppose this talented and eloquent divine spends some of his time, or, if you choose, a lot of his time, in teaching and training the baby he loves. Even if he could sway hundreds by his eloquence, is it time wasted to spend a good many hours each day with that baby? Farmers are exceedingly careful to keep their young domestic animals away from vicious older ones lest they learn undesirable tricks. Shall we not be equally careful with the lit-

tle ones created in God's own image and entrusted to our care? Remember what the dear Savior said—"Of such is the kingdom of heaven."

If there is a girl or woman who reads GLEANINGS and loves babies, and would like a place to work helping the mother, we should be glad to publish her name. Now who will be first on the roll of honor?

TREASURES IN HEAVEN.

The following, from the Cleveland *Leader*, ought to cause a thrill in the heart of every American citizen:

SAN FRANCISCO, April 28.—The army transport Buford, placed at the disposal of the *Christian Herald* in its effort to relieve the starving in China, will sail for China Tuesday.

Its stores of 28,000 barrels of flour, valued, with transportation charges, at $150,000, will be taken to Chin Kiang, China. E. R. Johnstone, once editor of the Cleveland *Leader*, is commissioner in charge of the relief expedition, and will supervise the distribution in China, when the Buford's four-week trip ends.

Commissioner Johnstone and Rev. Dr. Talmage will speak at services on the pier just before the sailing of the ship.

And the above ought to make every man, woman, and child feel happy that they have got something invested in that shipload of flour. If you neglected to invest something when the call came, make haste and get something in the next shipload; and then rejoice that you have got some treasure laid up in heaven, where moth and rust doth not corrupt, and where thieves do not break through and steal.

FLYING THROUGH THE AIR, SKIMMING OVER THE WATER, ETC.

For some time past I have had in mind something on the principle of a flying-machine, to be used on the water, not in the water, like a boat, but to skim over the surface of it the way flying-fish do sometimes. My plan is to have a machine propelled by propellors that work in the air, so that the craft could, if desired, get clear out of the water and skim on the surface or over the surface, sinking back into the water when the speed slackens or when the operator wants to stop. The higher the speed, the higher out of the water the craft would navigate. Of course, this is not new. Experiments along the same line have been made across the water as well as here in America. You may imagine with what interest I read over and over the following which I copy from the Dayton *Journal* of March 1, 1907:

WRIGHT BOYS SCORE ANOTHER TRIUMPH.

INVENT A HYDROPLANE AND ATTRACT WIDESPREAD ATTENTION BY THEIR EXPERIMENTS IN MIAMI RIVER NEAR BRIDGE-STREET BRIDGE—ENGINE REFUSES TO WORK AND TEST IS INCOMPLETE.

Orville and Wilbur Wright, the inventors of the famous Wright flyer, who have startled the scientific world with the wonderful progress they have made in connection with the difficult problem of aerial navigation, have diverted their attention for a time to new channels and have invented a hydroplane which bids fair to elicit widespread attention.

The art of secretiveness has been thoroughly mastered by the Wright Brothers, and entirely without the knoweldge of their most intimate friends they have perfected their most recent invention. Yesterday they put their queer little craft to a practical test on the Miami River, near the River-Street bridge.

There is but little overt appearance to distinguish the boat from the ordinary vessel of its size, save the fact that there is no visible means of propulsion. The motive power is furnished by a 20-horse-power gasoline-engine, and this part of the entire device was the only obstacle in the way of perfect success in the experiment. The engine refused to operate properly, and, of course, the test was unsatisfactory.

Another distinction of the hydroplane, however, is the fact that it is so constructed that there is very little displacement of water, the craft being practical, even for water but a few feet deep. The front of the vessel has an upward tendency as if supported by aerial buoyancy.

This is not the first hydroplane that has been invented, although never before has such a craft been seen in local waters, or ever been devised by any one in this section of the country. It promises to become another triumph of more than passing interest for the Dayton inventors who have already attained international renown by their marvelous achievements in the degree of perfection they have realized in the field of aerial navigation.

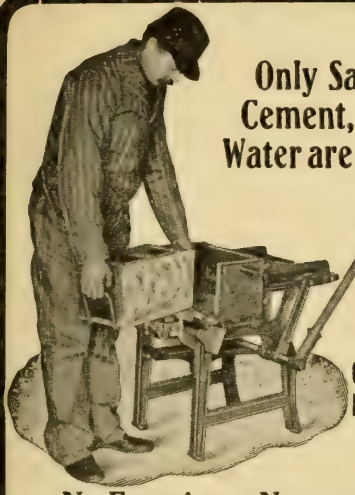
In a talk with the Wright Brothers a few days ago they said such an apparatus might, without question, make more than a mile a minute, rivaling the ice-boats which fly over the frozen lakes in winter. They do not, however, seem to think it worth while to experiment further in that direction, since they have succeeded in flying so easily through the air. The machine described in the above clipping was operated first by one person. When they found it would go all right both the brothers got aboard, and finally one of their helpers besides. This sunk it so low in the water that the blades of the propeller made the water fly pretty lively. The craft was given buoyancy by a couple of hollow drums filled with air. The above experiment was made with one of their old discarded engines, and the power was hardly sufficient to make high speed. There would be one advantage in making experiments of this kind, for in case of accident the operator would be in the water where he could be rescued instead of being up in the clouds. Well, friends, I can not help thinking that some of us may live to see the time when we shall have crafts skimming over the water at a higher rate of speed than automobiles now move over the best roadbeds.

In regard to the above I have just received from the Wright Brothers the following statement:

Dear Mr. Root:—Our only objection to publishing any thing about our experiments is that it may cause people to write us for information, and we haven't the time for answering. WRIGHT BROTHERS.

Dayton, Ohio, May 2.

THERE will be an international pure-food exposition held in the Coliseum Building, Chicago, from Nov. 19th to the 25th. Now, why not get together and make a grand display of honey and beeswax? The time, the date, and the place are all that can be desired. What is wanted now is a display that will surpass any thing of the kind ever seen anywhere. If the National will take hold, this can be accomplished.



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Deposit and withdraw at your pleasure and in strict privacy.

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Four per cent on savings accounts of any size from the first of the month on all deposits received before the 5th.

Our booklet describes our methods and management, and explains the advantage of our simple banking-by-mail system. Write for the booklet to-day.

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Hitch them up and they will make a team

The Poultry Industry and the Bee Industry should go hand in hand. The conditions to success are similar and they can be successfully handled on the same ground, in the same time, with the benefit of

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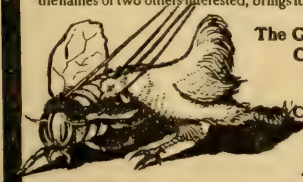
If you wish to post yourself on POULTRY CULTURE, no better guide can be found than

Conkey's 48 Page Book on Poultry.

It tells about Housing, Feeding, Breeding, and the general care and attention necessary to success. 4c in stamps and the names of two others interested, brings it. **Get it today**



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Or at any office of the
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WHILE THEY LAST

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handsomely illustrated—containing a detailed description of the various features of the Exposition, as well as many interesting articles devoted to the agricultural and industrial development of the South and the territory reached by the **Seaboard Air Line Railway.**

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The **Seaboard** traverses six southern States and is in position to offer a variety of opportunities not surpassed anywhere. The magazine will interest and assist you.

The demand for this special edition is great, and you should therefore send to-day before the supply is exhausted.

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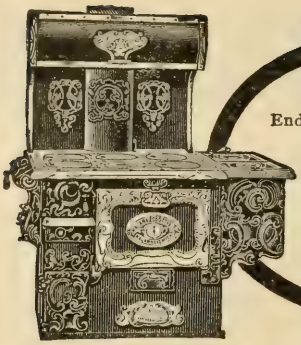

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End your stove worries! Get a Kalamazoo Stove or Range on a

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At least get our prices and compare our offer. Send postal for catalogue No. 416.

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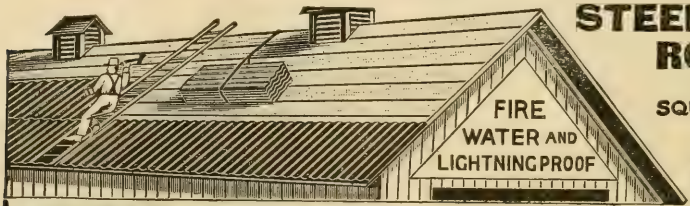
Our patent oven thermometer makes baking and roasting easy.



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Satisfaction guaranteed or money refunded. We will send this roofing to any one answering this ad C. O. D., with privilege of examination if you will send us 25% of the amount of your order in cash; balance to be paid after material reaches your Station. If not found as represented, you do not have to take the shipment and we will cheerfully refund your deposit. **Ask for Catalog No. WE 688.** Lowest prices on Roofing, Eave Trough, Wire, Pipe, Fencing, Plumbings, Doors, Household Goods and everything needed on the Farm or in the Home. We buy our goods at sheriff's and receiver's sales. **CHICAGO HOUSE WRECKING CO., 35TH AND IRON STS., CHICAGO**

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INCUBATORS & BROODERS

We are the only manufacturers of this line in the Central States. Our goods are the standard of perfection. We warrant the goods, and they will please you. **SPECIAL PRICES** on early orders. We can save you money. Send for big **FREE BOOK** that tells all about them. Do it to-day.

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Long-distance telephone, North 1559. **CHICAGO, ILL.** **191-193 East Superior Street.**

Carries a full line of new Lewis Bee-supplies, Hershiser Wax-presses, etc. Slightly damaged Poultry and Bee Supplies at greatly reduced prices while they last. Send for 1907 catalog and fire-sale list. :: Beeswax wanted.

Joseph Horne Co.
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Readers of GLEANINGS IN BEE CULTURE know by this time that this is a store of many sides, and that any thing needed for the person or the home can be found here at popular prices.

Engraved Visiting Cards

One of our specialties is the Engraving of Visiting Cards. Now the point we make is that many readers of this magazine have children away at school, and some of these students will graduate this June. The thing is to have a proper card. Note these prices for engraved name-plate, and send your order at once—you couldn't please young man or woman better than by a present of 100 engraved cards.

100 Cards, Script .....$ .75
100 Cards, Old English..... 1.65
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Incubators and Brooders

are made for business. The extra amount of chicks you save with these machines over what you could raise with other kinds will soon pay for a MANDY LEE Incubator and Brooder. Don't waste time and money. Get the best; write to-day.

Ask about our mixed-grain food and our gape cure.

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METAL MOTHERS.

Complete fireproof Hatching and Brooding plant for $7.50; 2 qts. oil will hatch and brood the chicks. Our nest system is the latest discovery. Full line poultry supplies. Lowest prices. Free catalog. Write to-day.

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Buff, White, Silver, and Golden WYANDOTTES.
White, Barred, Buff, and Black ROCKS.
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Hardy, prolific, farm-bred, pure stock. *For birds, moderate prices.*

Eggs to Hatch at 10 cts. each.
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Mature; vigorous; prolific layers; best table fowl; extra good ones. Fertile eggs, $1.00 per 15. Free circular is interesting.

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Hatching Season is Here.

The farmer's wife is now busily engaged setting eggs and raising chicks for her supply of next year's breeders and layers, for in past years she has found poultry-raising to be the most profitable of all branches of farm industry. Her husband has also become interested, and now among leading farmers we find the poultry well housed, well fed, and as well looked after as the horses and cattle. This is not the result of a greater love for the hen, but simply on account of the profit the farmer has been able to derive from his flock at very little expense, and with little loss of time.

Farmers and their wives are deeply interested in raising poultry by means of incubators and brooders. At this season they are particularly interested, as there is very little time to lose now. The early-hatched chick is the one that pays best, and all the eggs that can possibly be set this month should be set. The heavier breeds of Plymouth Rocks and Wyandottes ought to be hatched this month. Leghorn eggs can be placed in the incubator in May with good results.

The farm without an incubator and brooder to-day reminds us of the farm of a few years ago that had no reaper or mower. No farm should be without its poultry literature, and the catalogs of the poultry supply manufacturers of to-day constitute a most important part of that literature. The Cyphers Incubator Company's catalog is one of the leaders—in fact, the biggest of them all. It is a book of 260 pages, containing more information on poultry and the poultry business than any other book of its size, including illustrations of the principal poultry-plants in the country, some of which raise thousands of hens and thousands of ducks every year. The incubators the company manufactures are illustrated in colors. To every one who is the least interested in poultry we say—write for it now—the hatching season is at its height.

The Cyphers Incubator Company, publishers of this great book, is a firm well known to us, having their factory at Buffalo, N. Y., and branches in New York City, Boston, Chicago, Kansas City, Mo., and Oakland, Cal. Any of our readers who desire to get this book can do so upon request, free of charge, if they will simply mention GLEANINGS. Address Cyphers Incubator Company, writing to the branch office that is nearest to you.

EARLY CHICKS PAY BIG

Hatched in January, February and March, they make big profits. Hatch them in a **BANTA INCUBATOR**

Heat uniform, case tight, ventilation gives strong chicks, regulator reliable. Ten minutes work daily. New catalog free. Banta-Bender Mfg. Co Dept. 23, Ligonier, Ind.

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Did you know that within one hundred miles of me are over three-fourths of the bee-keepers of Michigan? Are you one of them? If so you will find it to your advantage to write for my new catalog. A full line of Root's Goods at Root's Factory Prices. Hilton's double-walled hives are used more than any other in my State. It has stood the test of thirty years. . . . . I ship goods promptly. Wholesale or retail. . Cash or exchange for beeswax at all times.

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BEE-SUPPLIES

AND SAVE MONEY

IT will cost you only one cent for a postal card to get our **delivered prices on Dovetailed Hives, Sections, Section-holders, Separators, Brood-frames, Foundation, Smokers, Extractors, Shipping-cases, etc.** It may mean a saving to you of many dollars. It is the natural advantage we have over others that enables us to make you the Best Price. There are no better goods than ours, and we GUARANTEE SATISFACTION or REFUND your MONEY.

We MANUFACTURE and keep in stock all standard Bee-goods, and can ship promptly.

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The A. I. Root Co., Medina, Ohio: "The cone fits inside the cap so the liquid creosote runs down inside of the smoker."

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The Bingham Smokers and Honey-knives have been the standard in America and every European country 29 yrs. There is no *smoker* so *old*, so *new*, so *perfect*. Accept thanks for 30 yrs. liberal patronage.

BINGHAM SMOKERS. Name.	Size of barrel.	Price of 1	Price of 3	Post-age.
Smoke Engine	4-inch	$1 25	$3 45	25
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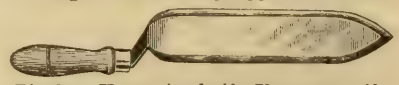
Large	2½ "	65	1 65	25
Little Wonder	2 "	50	1 35	15

Three larger sizes in heavy copper at 50c ea. extra.



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The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

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Catalog free.

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of best quality (JOHN DOLL & SON'S MAKE). Extra low prices quoted on all supplies. Let me figure on your order. I can save you money. BERRY BASKETS AND BOXES in stock. Send for 32-page catalog free. **W. D. SOPER, Jackson, Mich.**

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Why do thousands of bee-keepers prefer it to other makes? . Because the bees like it best, and accept it more readily.

Dittmer's Process . . . . . is Dittmer's

It stands on its OWN NAME and its OWN FOUNDATION —to which alone it owes its reputation and merits. . . We are now ready to make prices for next season for

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TRY THE DANZ. COMB-HONEY HIVE

The Danzenbaker hives I got last season have given splendid satisfaction; in fact, I have kept my bees outside this winter, which is seldom attempted in Manitoba, and up to date they have come through in splendid shape. I think the hive did it.

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Send for catalog. Best shipping facilities in the State.

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Send for our free illustrated catalog of

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We sell at factory prices.
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Manufacturers and Jobbers of Dairy, Creamery, Ice-cream, and Poultry Supplies.

Northwestern Bee-keepers!

We are headquarters for the ROOT supplies for the States of Montana, Minnesota, the Dakotas, and Western Wisconsin.

You can save freight by ordering from this branch. A complete line of bee-keepers' supplies always in stock.

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ORDERS for these books should be sent to your regular dealer in supplies, or to the publisher of any bee-journal. The trade supplied by THE A. I. ROOT CO., Medina, O., distributing agents for E. L. Pratt.

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Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

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and nothing but Italians; an improved superior strain is what **Quirin-the-Queen-Breeder** furnishes. 20 years' experience. A letter before us from a Pacific-coast bee-keeper tells us that by the use of our queens he has become one of the most extensive honey-producers of his State, and that he expects to put in 1000 young queens in '07, and he says the bulk of them will come from **Quirin-the-Queen-Breeder.** We are a honey-producer; our stock is bred for business. Try our stock and be convinced. The editor, in observing some of our stock, made the remark that such bees are in great demand. Circular and list of testimonials free.

Prices of Queens before July.	1	6	12
Select queens	$1 00	$5 00	$ 9 00
Tested queens	1 50	8 00	15 00
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Breeders	4 00		
Golden five-band breeders	6 00		
Two-comb nuclei, no queen	2 50	14 00	25 00
Full colonies on eight frames	6 00	30 00	

ADD the price of whatever grade of queen is wanted, with nuclei or colonies; nuclei ready about May 10; can furnish bees on Danzenbaker or L. frames; pure mating and safe arrival guaranteed. We employ 400 to 500 swarms in queen-rearing, and expect to keep 500 to 1000 queens on hand ready to mail. Our Northern-bred bees are hardy, yet gentle; they will give you results. :: :: :: :: Address all orders to

QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio

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Quick Shipment, Honest Goods, Low Freight

Our sections are manufactured from young basswood timber.
Hives are almost clear lumber—they are beauties.
Shipping-cases made strong and substantial, nice, smooth, and perfect.
Send for our free catalog of supplies.

Marshfield Manufacturing Company, Marshfield, Wisconsin, U. S. A.

BEES and SUPPLIES
— FROM —
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For fourteen years we have been furnishing every thing the Eastern bee-keeper needs. Our office and warerooms are at the same old stand—105 Park Place, New York. Full colonies Italian bees in new hives, $9.00. Catalog free.

Apiaries, Glen Cove, L.I. I. J. STRINGHAM.

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Nothing Better. Try Them.

Three-band and Golden Italians.

We warrant our bees free from disease of any kind, and guarantee safe arrival of all queens. We want your orders and will fill them promptly on and after June 1st, at 75 cts. untested, and $1.25 for tested of either strain. A postal will bring you a circular. Send your orders to

MENNIE & FENTON,
Pine Island, . . Minnesota.

Queens that Please are not always "just for looks." Hear what one of my queens has done, and that before April 15 of the present season. "*Dear Sir:*—The queen I purchased of you last fall has already given me over 200 lbs. of honey this season. I think that is good for so early in the season. Have your bees done as well? M. A. SALAZER, Falfurrias, Texas." I breed the Leather or Red-clover stock of Italians; also the Holy Land and Carniolan races in separate yards. Of the Red-clover stock I can safely say there are none better. I have a few left of those extra-fine breeding queens. If you are going to requeen your apiaries, one of these breeders will be of untold value. Remember, I place a guarantee behind every Laws queen. Price of queens each, $1.00; six for $5.00. Breeding queens, $3.00 to $10.00. Circulars free.
W. H. LAWS, Beeville, Bee County, Texas.

Save Your Queenless Colonies

Introduce a vigorous tested queen. We can furnish them by return mail from our fine Strain of Three-band Italians; queens reared last fall and winter in four-frame nuclei. Choice tested queens by return mail, $1.00 each. Untested queens ready to mail March 15, 75c; $8.00 per dozen. No disease, and satisfaction guaranteed.

J. W. K. SHAW & CO.
Loreauville - Iberia Parish - Louisiana

Same Old Place

is where you get the best of queens; untested, $1.00; $4.25 per 6; $8.00 per dozen. Tested, $1.50; best breeders, $5. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy-Lands, Italians.
The JENNIE ATCHLEY CO.,
Box 18, Beeville, Bee Co., Tex

Italian Queens

Fine young prolific three and five banded Italian queens by return mail. Untested, only 60 cts.; tested, 75 cts.; extra fine queen, $1.00. Full colonies in eight-frame new hive with queen, $4.75. Three-frame nuclei, with queen, $2.75.
J. L. FAJEN, ALMA, MO.

NOTICE

To all apiarists, that *Dr Luigi Simoni* in Leghorn has succeeded to the old established business formerly conducted by Bianconcini in Bologna. *Luigi Simoni*
LIVORNO (LEGHORN)
(ITALY).

ITALIAN -:- QUEENS

Golden and three-banded red-clover stock; Untested, 60 cts. each, or $7.00 per doz. Select untested, 75 cts. each, or six for $4.00. Safe arrival. No disease of any kind. **W. J. FOREHAND, Fort Deposit, Ala.**

Red-clover and Caucasian Queens

Ready now. My red-clover strain do good work on both red and white clover. Untested, 75c; tested, $1. Dovetailed Hives, $1 each; and all kinds of supplies. Give me your bill. Plenty fine queens ready. Circ'l'r.
G. ROUTZAHN, . BIGLERVILLE, PA.

GOLDEN QUEENS

Balance of season at 70 cts. each, three for $2, or six for $3 50. Goldens only. Safe arrival, perfect satisfaction.
R. O. COX, Rt. 4, Greenville, Ala

Red-clover Italian Queens Exclusively.
Warranted purely mated, 75 cts.; three for $2.00.
F. M. MAYBERRY, LEDERACHVILLE, PA.

Moore's Long Tongue and Golden

Queens

Fine select untested queens, $1; 6, $5; 12, $9. Tested, $1.50; 6, $8. Breeders, $3.50. Safe arrival gar'd.
W. H. RAILS, - ORANGE, CAL.

TAYLOR'S STRAIN OF ITALIANS IS THE BEST.

Long tongues and goldens are the best of honey-gatherers; 18 years a specialty, breeding for the best honey-gatherers. Untested, 75 cts. each, or $8.00 a dozen; tested, $1.00 each, or $10.00 a dozen; select tested, $1.50 each. Breeders, the very best, from $3.00 to $5.00 each. Carniolans same price as Italians. Try them. We also sell nuclei and full colonies of bees. Bees in separate yards. Safe arrival guaranteed.
Send all orders to
J. W. TAYLOR & SON, Beeville, Bee Co., Texas.

Better than an Island

This place is just as good as an island for breeding queens, for there are no other bees within five miles, and so pure mating is guaranteed. It is better than an island when you order queens, for the fastest trains stop here, and hence queens are not away from the colony long enough to impair their usefulness. Safe introduction is guaranteed if you follow my special directions. I consider the Banat Caucasian bees the best and gentlest in the world. Banat Caucasian bees are bred here; other races in outyards. Queen-breeders should secure their breeding-queens from this pure stock. Order now. Banat Caucasian queen, $3.00. Caucasian queen, $1.50. Golden Italian, 75c. Tested queens, one year old, double these prices,
Dele Collins, Ph D., Emporium, Pa.

ITALIAN QUEENS

Bred from the best stock this country can produce. Bright golden and 3-banded queens; ready May 20th. I am now booking orders, which will be filed and filled in rotation. After May 20th, all orders will receive prompt attention. Untested queens, 60 cts.; six for $3.35 or $6.50 per doz. Tested, $1.00, or six for $5.50. Two-frame nuclei (Danzenbaker or Hoffman frame), with young queen, after June 1st, $2.00.
Geo. W. Barnes, Box 340, Norwalk, O.

Westwood Red-clover Queens.

No better hustlers flying; will get honey where other bees fail. Try them and be convinced. Nuclei a specialty. Also full colonies of ten frames each. Safe arrival guaranteed. Price list sent on application.
HENRY SHAFFER, 2860 Harrison Ave., Station L, Cincinnati, Ohio.

Yellow from Tip to Tip!

My Adel bees and queens are very handsome. Every queen a breeder, and guaranteed to produce golden queens and beautiful bees; non-swarmers, very gentle, and hustlers for honey. Each queen, $1.00. Catalog ready. **H. ALLEY, Wenham, Mass.**

Queens from 50 Cents Up!
Bred from Root's Imported Italians.
Write for prices, stating wants. . .
C. M. Church, Arnold, Pa.

3-BANDED ITALIAN BEES.

The best all-round bees on earth. My stock is composed of selections from my own strain of 3-banded Italians that were awarded diploma at the Pan-American Exposition, and The A. I. Root Co. clover stock.

Tested queens, $1.50; select tested queens, $2.00; fair breeding queens, $3.00; extra select breeders, $5.00—ready to go promptly. Untested 1907 queens, $1.00; select untested queens, $1.25—ready early in March. Yours for a prosperous 1907.

W. O. VICTOR,

Queen Specialist, HONDO, TEXAS.

"ROSE - LAWN - QUEENS"

Three hundred select untested Golden and Red-clover, reared in our Southern yards, at $1.00 each; six for $5.00; dozen for $9.00. April delivery. . . Quality guaranteed. Northern reared, May 1st. Caucasians, Banats, Carniolans. Place orders now.

Rose Lawn Apiaries, Lincoln, Nebraska

College View Station

DOOLITTLE & CLARK

Have a fine lot of Italian Breeding-queens ready for immediate delivery. They are also booking orders for 1907 queens.

	1	3	12
Untested	$1 00	$2 50	$ 9 00
Tested	1 50	4 00	14 00
Tested last year's rearing.	2 50	....	....
Select breeding	5 00	....	....
Extra select breeding	10 00	....	....

BORODINO, ONONDAGA CO., NEW YORK.

Italian Queens

Golden, Three-banded, or Leather-colored. Write for circular to-day. . Prices right. . Queens all right.

Robt. B. McCain, Rt. 1, Oswego, Ill.

MOTT'S LONG-TONGUED

IMPORTED QUEENS!

Also Goldens. Nuclei a specialty. Untested, 75 cts.; tested, $1.25. Write for prices. Postal-orders drawn on Decatur, Mich. **E. E. MOTT, Glenwood, Mich.**

QUEENS! and NUCLEI!

Circulars free. D. J. BLOCHER, Pearl City, Ill.

Caucasian and Long-Tongue Italian Queens.

1905, '06 Queen-breeder in Apiary of Dept. of Agriculture, Washington, D. C.

	Before June 15.			After June 15.		
Both Races.	1	6	12	1	6	12
UNTESTED,	$ .75	$4.25	$8.00	$ .60	$3.35	$6.50
SELECT "	1.00	5.50	10.00	.75	4.00	7.50
TESTED	1.50			1.25		

Satisfaction Guaranteed. Descriptive Cir. free.

LESLIE MARTIN,

Birdcroft Apiaries, Lebanon, Tenn.

QUEENS of MOORE'S STRAIN OF ITALIANS

Produce workers that fill the supers, and are not inclined to swarm. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Mr. W. Z. Hutchinson, editor of the *Bee-keepers' Review*, Flint, Mich., says: "As workers, I have never seen them equaled. They seem possessed of a steady, quiet determination that enables them to lay up surplus ahead of others. Easier bees to handle I have never seen."

My queens are all bred from my best long-tongued three-banded red-clover stock (no other race bred in my apiaries), and the cells are built in strong colonies well supplied with young bees.

PRICES: Untested queens, $1 each; six, $5; doz., $9. Select, untested, $1.25 each; six, $6; doz., $11.

Safe arrival and satisfaction guaranteed.

Descriptive circular free. Address

J. P. Moore, Queen-breeder, Rt. 1, Morgan, Ky.

Golden Italian Queens

Ready for points where weather permits reception. Untested, $1.00; dozen, $9.00—after March, $8 00; selects, 25 cts. extra; tested, $1.50; select, $2.00; breeders, $3.00 up. Circular free; 17 years' experience.

J. B CASE, Port Orange, Fla.

ITALIAN QUEENS and BEES

I can supply select untested Queens at 75 cts. each; $7.50 per dozen. Orders for early delivery will receive careful attention.

David S. Hurst, Box 102, Letohatchee, Ala.

Bright, Plump and Vigorous Young Untested **QUEENS**

Root red-clover strain.

A. H. KANAGY, . . MILROY, PA.

ITALIAN QUEENS

Golden or dark. Untested, $1.00; tested, $1.50.

C. D. BENTON, . . . AKIN, N. Y.

ANGEL'S GOLDEN BEAUTIES and his bright three-banded Italian Queens have but few equals and no superiors. A fine large queen of either strain for $1.00; an extra select breeder for $2.50. I have had 12 years' experience at queen-breeding. Address

SAMUEL M. ANGEL, Route 1, Evansville, Ind.

BIG DISCOUNT

ON ALL MARSHFIELD SUPPLIES

Dovetailed hives, 8-frame, 1½-story, $1 35; 10-frame, $1.50; No. 1 sections, $4.00; No. 2, $3.50. FREE—a Standard Root's 3¼-inch smoker, with order amounting to $15.00 or over. Send for 48-page catalog, free. I sell Root's supplies at factory prices—4% discount.

S. D. Buell, Union City, Mich.

LICE AND HOW TO GET RID OF THEM

Lambert's Old Reliable "Death to Lice" simply exterminates all kinds of lice on poultry. One can of Lambert's will save dozens of dollars in the hatching season. Use it on your setting hens, no lice on the chicks. Sample 10c. 100 oz. $1. 1907 Pocket Book "Pointers" free.

O. K. STOCK FOOD CO., 687 Monon Bldg., Chicago.

Classified Advertisements.

Notices will be inserted in these classified columns at 20 cents per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Help Wanted.

WANTED.—An apiarist accustomed to large apiaries. State age, experience, and wages.
DR. GEO. D. MITCHELL & Co., Ogden, Utah.

WANTED.—A boy from 14 to 18, as helper with 300 colonies, and on 7 acres.
E. LANE, Trumansburg, N. Y.

WANTED.—An apiarist; state references, experience, and lowest wages.
A. TALFOURD, Billings, Montana.

WANTED.—Young man to help with bees at once. Write age, lowest wages, and experience.
E. F. ATWATER, Box 37, Meridian, Idaho.

WANTED.—Single man of good habits, to work in apiary. A. E. WOODWARD & SON,
Rexford Flats, N. Y.

For Sale.

FOR SALE.—Bee-keepers' supplies. Root's goods.
E. C. RICHARDSON, Adrian, Mich.

FOR SALE.—Opaline honey-jars, all kinds; send for price list. HAROLD E. SHORE, Germantown, Pa.

FOR SALE.—Fine job-printing outfit.
C. A. STEBBINS, Broad Creek, Va.

FOR SALE.—Souvenir postals, ruins John Brown's tannery, 6c each. LAURA BAKER, New Richmond, Pa.

FOR SALE.—Good Smith Premier typewriter. Will take beeswax or good offer. Box 95, Medina, Ohio.

FOR SALE.—1000 second-hand bee-hives in good condition. L. hives, 40 cts.; Heddon, 30 cts.; Chaff, 50 cts. H. & W. J. MANLEY, R. F. D. No. 3, Sandusky, Mich.

FOR SALE.—Alexander wire bee-veil, guaranteed to protect the face from any stings, 75c each, or 3 for $2.00 post paid. FRANK ALEXANDER, Delanson, N. Y.

FOR SALE.—A quantity of Hilton chaff and other hives in the flat, cheap to close out. In quantities to suit. A. G. WOODMAN Co., Grand Rapids, Mich.

FOR SALE.—Good bee and farm range, about 130 acres, 2½ miles southwest Escondido, San Diego Co., Cal. Price $2600. FRIEDRICH HASSE, Escondido, Cal.

FOUND.—After thirty years' experimenting, a comb-frame that is practical and bids defiance to propolis. All about them; write the inventor.
D. S. HALL, So. Cabot, Vt.

FOR SALE.—One two and a half H. P. engine and boiler in good working order. Used not over 150 days. Cost $150. Will sell for $75. J. W. UTTER,
Amity, Orange Co., N. Y.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1907 send your name and address to FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE.—50 to 75 Root's ten-fr. Dov'd one-story hives, complete, nailed and painted. Used but little; frames new and mostly wired; 60c each. Also about 75 Root's ten-fr. supers for 4¼x4¼ plain sections, and new inside fixtures for 40; 20 cts. each in any quantity.
F. W. LESSER, Syracuse, N. Y.

FOR SALE.—A quantity of second-hand chaff hives, consisting of 10-frame Quinbys and 13-frame Gallups; no inside furniture; only $1.00 each.
E. D. TOWNSEND, Remus, Mich.

FOR SALE.—Best Wisconsin sections, per 1000, $4.00; No. 2, $3.40; plain, 25 cts. less. Discounts on Danz. hives and other Root's goods; also berry-boxes. Italian bees for sale. H. S. DUBY, St. Anne, Ill.

FOR SALE.—One-piece sections, of all the standard sizes, 1000, $4.00; No. 2, $3.50; plain, 25 cts. less. These sections are strictly first-class. Also other supplies very cheap. JAS. E. MORGAN,
Dansville, Ingham Co., Mich.

FOR SALE.—38 new Dovetailed comb-honey supers complete with fence separators, filled with No. 1 4¼x4¼x1½ plain sections and foundation starters (all Root's make), same as designated in Root's catalog 4P-8, except not painted Also ten supers as above, without sections of foundation (used only once). Price $23 00. 500 Root's make No. 2 4¼x4¼x1½ plain sections, $2.00. 25 lbs. thin super foundation (Dittmer's make, in perfect order, $10 50. The lot for $35.00. Or will exchange for L. or Heddon extracting-combs or brood foundation. Address
O. H. TOWNSEND, Otsego, Mich.

FOR SALE.—Seven-room house with cellar—two-story; stone-basement barn, 36x48; three acres of good land with plenty of fruit-trees and grapevines, located on Canada St., Munnsville, Madison Co., N. Y., in the Stockbridge Valley—a very desirable location for a bee-keeper, with plenty of basswood timber, clover, buckwheat, etc. Several years ago my brother kept a large stock of bees here and was very successful; located on the O. & W. R. R., nine miles south of the city of Oneida. Price $1800, with $800 cash, and balance on long time at 6 per cent if desired. Any further information will be given by
R. H. WOOLVER, Munnsville, N. Y.

FOR SALE.—The following foundation-mills. Wish to dispose of them at once. Write for sample if interested, and fuller information will be given about any mill.

Mill No. 1—14-in., old-style high frame, in perfect order, price $15.00.

Mill No. 2—6-in., old-style high frame; has had a pin run through the rolls, otherwise is in good order; price $8.00.

Mill No. 3—12-in. new style, large rolls, used but very little, in perfect order; price $25.00.

Mill No. 4—12-in. blank rolls, used but little, in perfect order; price $20.00.

Mill No. 5—6-in. mill, new style, in perfect order, used but little; price $12.00.
W. W. BLISS, Duarte, Cal.

FOR SALE.—On account of age I wish to sell my ranch of 163 acres, 8 miles back from the Pacific coast, at Del Mar. It is nearly all fenced and cross-fenced; 100 acres under cultivation the rest pasture; is as near frostless as any place in Southern California; small house 500 feet above sea-level, giving a fine view of the Pacific Ocean; stable, well, and other improvements; Lusardi P. O., with tri-weekly mail service at my house. Besides home consumption I have sold $1000 produce yearly, and am not able to cultivate more than half the tillable land any year. Through exceptional opportunity I know it is the best bee location within a radius of more than 20 miles. At all times from January to November there is something more or less plentiful for bees. In May and June I get a surplus of white honey from sage, than which none is finer, five or six weeks longer, a surplus of darker honey from other sources. My honey-house and bee-yard are the most convenient and easiest worked I know of. I am not anxious to sell the apiary, because it is profitable, and I can and *like* to handle bees; but if it will promote the sale of the land, which I can't handle, for I am in my 68th year, I would sell part or all the apiary. For further particulars address
A. J. BURNS, Lusardi, San Diego Co., Cal.

Bees and Queens.

FOR SALE.—400 colonies pure Italian bees in lots to suit. Write for prices. F. A. GRAY,
Redwood Falls, Minn.

FOR SALE.—Queens from bees that gather honey: also full colonies of bees. HAROLD HORNOR, Jenkintown, Pa.

FOR SALE.—25 colonies of Italian and hybrid bees in 8-frame L. hives—Hoffman frames. H. M. WEST, North Kingsville, O.

FOR SALE.—Italian queens, hustlers. Untested, 65 cts.; tested, $1.00. Select tested, $2.00. Breeders, $3.00 each. MRS. J. W. BACON, Waterloo, N. Y.

FOR SALE.—Bees, queens, and bee-keepers' supplies (Root's goods), at factory prices. F. W. VAN DEMARK, Mehan, Okla.

FOR SALE.—Thirty colonies Italian bees in shipping-boxes, on seven L. or H. frames, in good condition, at $3.50 per colony. WM. AMELANG, Ottumwa, Iowa.

FOR SALE.—Untested golden Italian queens. Good queens. Safe arrival guaranteed. One, 50 cts.; three, $1.25; five, $2.00. D.T.GASTER, Rt. 2, Randleman, N.C.

FOR SALE.—Mechanic Falls, Me., branch of The A. I. Root Co. will ship full colonies, nuclei, and queens of same grade direct from Mechanic Falls, Me., at regular catalog prices. Safe arrival and satisfaction guaranteed.

Poultry Offers.

FOR SALE.—Mated homer pigeons. Inquire North Wilcox, Northside Farm, Royal Oak, Mich.

FOR SALE.—S. C. W. Leghorns; heavy laying strain; eggs, $1.00 per 15. F. BURDETT, Clifton, N. Y.

FOR SALE.—Homers for squab-breeding; mated birds. MISSOURI SQUAB CO., St. Louis, Mo.

FOR SALE.—Extra-fine rose-comb Rhode-Island Reds exclusively. Eggs, $2.00 per 15; $5.00 per 50. MRS. R. J. DEEBLE, Lucas, Kansas.

FOR SALE.—Mammoth Imperial Pekin duck eggs. Will supply customers strictly fresh eggs, $1.00 per 13. JOHN W. OLSON, Rt. 1, Box 50, Stratford, Ia.

FOR SALE.—15 choice barred P. eggs, 90 cts., from a purely bred, prize-winning stock. Write me at once. H. G. LARUE, LaRue, Ohio.

FOR SALE.—R. C. Brown Leghorn eggs, 18 for $1.00; 50, $2.50; 100, $4.00. White Holland turkey eggs, $3.00 for 12. ELLA THARP, Box 6, Mt. Sterling, Ia

FOR SALE.— Single-comb Buff Leghorn eggs, Arnold strain, 1906 egg record, 177½ eggs per hen; per setting of 15 eggs, $1.50. FRANK RAUCHFUSS, 1440 Market St , Denver, Col.

FOR SALE.—Eggs from premium birds. M. B. turkeys, $2.00 for 12. Pearl Guineas, $1.00 for 15. Incubator eggs, $3.50 per 100. May delivery. Orders coming in fast. SIMEON G. KILGORE, R. F. D. No. 1. Box 24. London, Ohio.

FOR SALE.—Ideal White Plymouth Rocks exclusively. Fishel strain. Stock and eggs for sale—$2 and $3 per 15. Satisfaction guaranteed. Write your wants. DR. C. L. VAN OSDOL, Dillsboro, Ind.

FOR SALE.—Eggs for hatching, from prize-winning W. Wyandottes; Duston strain; best layers, fine large birds, pure white—scoring 90 and above at Michigan shows. 15 eggs, $2.00. Discount on large orders. WESLEY C. RICHARDS, "Brookside Farm," R. F. D. 2, Carleton, Mich.

FOR SALE.—Eggs for hatching from my celebrated strain of S. C. Brown Leghorns; line bred for winter layers; greatest layers on record; farm range; fertility guaranteed; $1.00 per 15. Incubator eggs at reduced prices. Prompt shipment. J. E. HAND, Rt. 1, Birmingham, Ohio.

Wants and Exchange.

WANTED.—Feathers. What have you to sell? Mail samples. BANGOR MATTRESS CO., Bangor, Me.

WANTED.—To exchange Edison phonograph, 36 records, good as new, for good second-hand typewriter. W. C. PALMER, Box 52, Elk Park, N. C.

WANTED.—To exchange Indian Runner, Mallard, Rouen, Cayuga, duck eggs, $1 doz.; black, white, Partridge Cochin bantams, $2 doz., pheasants, for light and dark Brahma bamtam eggs. H. S. LITTLE, Newbury, Mass.

WANTED.—Bees. State what kind, on what frames, and price. H. H. JEPSON, 182 Friend St., Boston, Mass.

WANTED.—Prices on 50 untested Carniolan or Italian queens, delivered June 1st. Bee-man wanted. W. L. COGGSHALL, Groton, N. Y.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price. OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

WANTED.—To sell drawn combs (extracting combs) standard size, from healthy bees. Going out of business. Write for prices. D, S. JENKINS, Las Animas, Colo.

WANTED.—To exchange $50.00 violin, printing-press, rifle, bread-kneader, building lot, incubator, for camera, or rotary printing-press. WELLS, Roseland, N. C.

WANTED.—To exchange Remington typewriter, with two-color ribbon, steel carrying-case, in perfect condition, for type, or any thing of value in a job printing-office. FRANK LACEY, Danbury, Conn.

WANTED.—Names of parties interested in the "Mills" pasteboard honey package. Orders being taken for the coming season. Prices will depend on number of orders received. Send 10 cents for particulars and sample. HOWARD C. MILLS, Camillus, N. Y.

WANTED.—Western bee-keepers, notice! Two carloads of Root's bee-supplies. Write us for prices, stating goods wanted. Would also like to quote distant bee-keepers delivered prices. SUPERIOR HONEY CO., Ogden, Utah.

WANTED.—Every Western bee-keeper to send for our new illustrated catalog. We can save you money Write to-day. THE COLORADO HONEY-PRODUCERS' ASS'N, Denver, Colorado.

Honey and Wax Wanted.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. BURNETT, 199 S. Water St., Chicago, Ill.

WANTED.—Beeswax, any quantity; will make remittance the day wax arrives. THE COLORADO HONEY-PRODUCERS' ASS'N., Denver, Colorado.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of. HILDRETH & SEGELKEN, 265-267 Greenwich St., New York.

Honey and Wax For Sale.

FOR SALE.—Fancy water-white sage honey, 60-lb. cans, at 8c per lb.
E. R. PAHL & Co., Milwaukee, Wis.

FOR SALE.—800 pounds of pure beeswax for sale. Refuse from wax-extractors wanted. Will pay cash.
W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—Gilt edge, Michigan and Wisconsin clover and basswood honey in 60-lb. cans; also basswood in round jacket cans; 9½ cts. per lb., f. o. b. Clyde, a suburb of Chicago. B. WALKER, Clyde, Ill.

Bee-keepers' Directory.

QUEENS.—Clover stock. Experience and methods count. Write me. H. G. LARUE, LaRue, Ohio.

ITALIAN queens bred for honey, untested, $1.00 each.
GEO. H. PLACE, 816 No. 49th St., Omaha, Neb.

ITALIANS, CARNIOLANS. No disease. Two-comb nucleus with queen, $3.00. A. L. AMOS, Comstock, Neb.

Extra honey queens and choice mountain honey.
Francis J. Colahan, Bernardo, San Diego Co., Cal.

QUEENS.—Pure Gold, Red-clover, Caucasian, Banat.
ROSE LAWN APIARIES, College View, Lincoln, Neb.

ITALIAN QUEENS.—Golden and leather, 60c each; worth $1.00. G. W. BARNES, Box 340, Norwalk, O.

Bee-keepers' supplies, Italian queens. Send for a free catalog. ARTHUR RATTRAY, Almont, Mich.

ITALIAN BEES and queens—Red-clover strain imp'd mothers. A. W. YATES, 3 Chapman St., Hartford, Ct.

ITALIAN BEES, queens, and Root's bee supplies.
E. SCOGGIN, Carlsbad, N. M.

I club a high-grade Italian queen with GLEANINGS, new or renewal. W. T. CRAWFORD, Hineston, La.

WANTED.—500 colonies of bees in Texas, Arizona, or California. N. E. MILLER, Box 373, Logan, Utah.

ITALIAN BEES and queens—red-clover and golden strains. E. A. SIMMONS, Greenville, Ala.

ITALIAN bees and queens bred for honey; price list free. B. F. YANCEY & SON, Angleton, Tex.

FINEST Golden and red-clover queens, Caucasian and Carniolan. DANIEL WURTH & GRANT, Pitkin, Ark.

ITALIAN AND CAUCASIAN bees and queens of best quality; price list free. A. E. TITOFF, Ioamosa, Cal.

MAPLEWOOD APIARY.—Choice comb honey, Italian bees and queens. GEO.H. REA, Reynoldsville, Pa. R. 2.

ROOT'S SUPPLIES at factory prices; wholesale and retail. ANTON G. ANDERSON, Holden, Mo.

ITALIAN BEES, queens, and bee supplies.
H. H. JEPSON, 182 Friend St., Boston, Mass.

ITALIAN BEES, queens, nuclei, and bee-keepers' supplies. A. T. DOCKHAM, Rt.1,Box 95, Eagle Bend,Minn.

ITALIAN BEES, queens, beeswax, honey, and bee-keepers' supplies. M. E. TRIBBLE, Marshall, Mo.

FOR SALE.—Bee-keepers' supplies. Write for catalog. Lengst & Koenig, 127 S. 13th St., Saginaw, Mich.

FOR SALE.—Golden and red-clover Italian queens.
WM. A. SHUFF, 4426 Osage Ave., Philadelphia, Pa.

ITALIAN BEES and queens—red-clover and golden strains. E. E. MOTT, Glenwood, Cass Co., Mich.

SWARTHMORE Golden-all-over, Caucasian, Banat, Carniolan,Cyprian queens.E.L.Pratt,Swarthmore,Pa.

QUEENS. Free list giving safe method of introducing, ready Feb. 15. E. E. LAWRENCE, Doniphan, Mo.

ITALIAN BEES, queens, honey, and ROOT'S bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

FOR SALE.—Root's bee-supplies, wholesale and retail; factory prices; catalog free. Beeswax wanted.
W. E. TRIBBETT, Staunton, Va.

Improved Carniolans always winter best, breed up strongest early in the spring; the finest comb-honey builders. (Italians for those preferring them.) Catalog free. W. W. CRIM, Pekin, Ind.

GOLDEN-ALL-OVER Caucasian Banat bees and queens. We book orders for early queens from our best imported breeding stock for honey, with 600 twin mating-boxes. THE SNYDER APIARIES, Lebanon, Pa.

QUEENS.—Improved Red-clover Italians bred for business; June 1 to Nov. 15, untested queens, 60c; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

IMPROVED ITALIAN QUEENS now ready; nuclei and colonies about May 10, Danzenbaker or L. frames; 20 years a queen-breeder; 500 colonies to draw from. Circular and testimonials free.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

KODAK and Camera users, send us your developing and finishing. Send for price list. A full line of Kodaks, films, and all Photo Supplies.
FURNAS & MADDOX, 552 A, Louisville, Ky.

Convention Report.

UTAH BEE-KEEPERS' MEETING.

The Utah Bee-keepers' Association met in Salt Lake City last week in their annual convention, and transacted considerable business. The first business transacted was the election of officers for the ensuing year. The following well-known bee-keepers were elected: President, E. S. Lovesy; first Vice-president, R. T. Rhees, of Weber Co.; second Vice-president, Willard Belliston, of Juab; Secretary, A. Fawson, of Tooele Co. Mr. W. C. Burgon was elected county Vice-president for Salt Lake Co., *vice* J. B. Fagg; A. J. Butcher, Davis Co., *vice* C. E. Garrett; H. B. Horsley, for Carbon, *vice* Mrs. I. Bryner.

President Lovesy reported that the claims against the various smelter companies in the valley for the loss of the bees had been finally settled, and all litigation ended; and, further, that the parties sustaining losses had all received compensation in accordance with the loss sustained. The President also reported that the treasury now had a considerable sum of money on hand by reason of the 10 per cent deducted.

A committee was appointed, consisting of E. S. Lovesy, A. Fawson, and W. C. Burgon, to formulate resolutions of respect for O. B. Huntington, a deceased member. It was also decided to appoint an auditing committee, this committee to consist of John Oborn, W. C. Burgon, and W. B. Bringhurst. The question of a remedy for ants was discussed, as it was considered by the members that ants are very injurious to the bee industry. It was suggested that quicklime be placed on the ant-hills.

Upon motion of Mr. Rhees, the President, Mr. E. S. Lovesy was authorized to place an exhibit of honey in the Chamber of Commerce Building, this exhibit to be placed at the expense of the association.

The President read his annual report. The report consisted of a brief review of the industry during the past year. He said that indications are very promising for a good honey crop in all parts of the State. He also made favorable comment on the good condition of the bee-keepers' organization, and suggested the formation of joint stock companies in favorable locations. He also said that there was a need of a revision of the bee-laws, and the appointment of a State inspector in addition to the county inspectors. He said that a depot for the distribution of bee supplies and bee-products would be a good thing. He also thought that the bee-keepers should use every effort to prevent the location of smelters in the agricultural districts. He did not want to see the experience of Salt Lake County, where ten thousand colonies have been killed during the past few years, repeated in other sections of the State.

Special Notices by A. I. Root.

"THE LAND OF BEULAH," ETC.

Since I gave the words of the little hymn on p. 498 (GLEANINGS for April 1) I have been informed the verses were composed by Mrs. Harriet Warner Re Qua, of Winterset, Iowa. This lady is also the author of a book of poems that have been very warmly received and highly commended by many of our great religious journals, by Ira D. Sankey, Francis E. Willard, and other noted Christian workers.

While speaking about poems and hymns, one of the kind friends who reads GLEANINGS has furnished me with the words and music that impressed me so much at the close of Wooley's address at St. Louis last fall (see page 187, Feb. 1st). The title is, "The King's Business." I am told it is one of the revival hymns used by Torrey in his recent meetings in Cleveland. The friend who was so kind as to tear out a leaf from the hymn-book and send it to me recognized it by the closing words, "Oh, be ye reconciled to God!" We have made arrangements so we can mail this latter hymn, with the words and music, on receipt of a two-cent stamp.

CELERY CULTURE THROUGHOUT THE UNITED STATES.

A beautiful little bulletin, just published by the Department of Agriculture, is in my hands. It contains 36 pages, and is full of excellent illustrations. I planned to make mention of celery-growing, which has lately become a great industry in the southern part of Florida; but this bulletin goes over the whole ground so well I think I will not take up the subject again. By the way, I notice that now in Florida, and perhaps other places, the celery is taken up and trimmed and crated out in the fields, without any washing. The washing and final trimming are done at the destination. A few years ago it was thought necessary to trim and wash thoroughly before shipment. The growers told me that it keeps much better in transit without being wet at all before shipment. I should hardly dare to tell you how much money some of the Florida growers get per acre. Of course, it costs more down there where such expensive fertilizers are needed; and one of the most beautiful sights—beautiful to the nostrils as well as the eye—is to see a gang of men harvesting a successful up-to-date crop of celery. The tempting perfume is carried by the wind quite a distance from the field. Now, if you wish to grow only a little celery for your own use in the garden, you should send for this bulletin; and if you make a business of growing celery for the market, it ought to be worth dollars to you. Address United States Department of Agriculture, Washington, D. C., asking for Celery Bulletin, No. 282.

"WHAT TO DO, AND HOW TO BE HAPPY WHILE DOING IT."

The above is the title of a book published in 1888, and appendix added in 1900. This book was published at a time when great numbers of people were out of work, and it has had quite a sale. Just now, while everybody has a job, no matter whether "good, bad, or indifferent," there is, perhaps, not quite so much of a call for the book; but I think it will still be found to be very helpful to people who are getting interested in gardening, growing stuff under glass, and all other rural pursuits. I have looked it over very carefully to see whether I would at present approve of the several chapters on poultry, written in 1888. I am glad to tell you that my experience since then corroborates every thing I then wrote. The book contains over 200 pages the size of GLEANINGS; and it is almost the only book that gives full details of steam-heated hot-beds. While the scope of the book is principally agricultural, and written in a way to make it attractive to the young, it also upholds righteousness, temperance, and purity more or less all the way through. It has been my happy privilege to give the world quite a few useful books, but I deem this one of the best of them, although it has but little to say in regard to bee culture. The price of the book is, in paper covers, 50 cents; but in order to get it before the people we will send it for $1.35 with GLEANINGS for one year. If you have already paid for GLEANINGS, send us 35 cents. If you want the cloth-bound edition, send 60 cents instead of 35 cents.

"GOLD-MINE" SWINDLERS, ETC.

Collier's Weekly for May 4 gives about the best warning in regard to the gold-mine swindles of any thing I have ever come across. Not only are these human vultures hunting up the deacons of our churches but ministers of the gospel, and even the governors of our States, to add character and confidence to the gambling speculations. Something over a year ago a relative of mine, younger than I, was persuaded to invest in a gold-mine. I did every thing I could to keep him out of it; but the promoter was a deacon in the church, and the company finally agreed to pay his way to a mine in Colorado and back again if he would just "look the thing over." For a time it seemed all right, and clear sailing. But recently this deacon in the church died, and then his villainy came to light. My relative, to use his own words, said, "The rottenness of the whole institution was simply disgusting." His money is gone; but he has some recompense in the fact that he is probably for ever cured of his desire for gold-mine investments.

The Chicago *Evening Post* says:

"The public can expect nothing from the human vultures who prey upon the poor and weak through oil, mining, or other schemes of wildcat finance. But it has a right to expect protection from its reputable press. That this is refused is the gravest indictment lying against American journalism to-day."

"R. G. Dun & Co. say, during the past year more than one hundred and fifty million dollars have been blown in on fakes, largely mining stocks, not a dollar of which will ever be returned to the investors."

A $5.00 POULTRY-BOOK.

In many of the poultry-journals just now we find the following advertisement:

PROFITS IN POULTRY-KEEPING SOLVED.

Title of my new book, which is revolutionizing the poultry business all over the country. My great feed at 10c per bushel will save you $25.00 on every 100 hens you feed a year, as well increase your egg yield over 30 per cent. Nothing like it ever discovered for producing winter eggs and fertile eggs. For growing chicks, it has no equal. No mashes or cooking feed under this great system. Broilers grow 1 1-4 lb. in 7 weeks on it. No science required to feed by my system. Failure impossible. Start right. Circulars and testimonials free. Write to-day and stop that big feed-bill. EDGAR BRIGGS, New Rochelle, N. Y.

The author informs us that this information is given only through his $5.00 book. Well, that book, which I now hold in my hand, is a paper-covered pamphlet of only 71 pages. I am sorry to make this criticism, because the writer of the book is one who has taken GLEANINGS toward 20 years, so he tells me. I suppose the excuse for charging $5.00 for a 25-cent perhaps a 50-cent poultry-book is for the valuable information it contains, especially that part about feed at 10 cents a bushel. This food is sprouted oats; and as one bushel well sprouted will make three or four bushels, the cost of the product may be only 10 cents per bushel or less. Where poultry is confined, or at seasons of the year when the fowls have no access to green food, this, no doubt, is a great help, but it is not new. On p. 112, Jan. 15, I wrote the following:

Green food I furnish in my yard by burying rather more corn and wheat than they scratch out before it sprouts, and they enjoy digging up the sprouted grain fully as much as if they had gotten into your garden.

Besides, the same information has been given in our poultry and other journals. See the following, which I clip from *Poultry Husbandry* for April, the same periodical in which I found the advertisement:

GREEN STUFF.

Sometimes oats sprouted in thin layers of soil on plates or in shallow boxes supply the first green food.

The book in question is well written, and contains perhaps more than the average amount of information to be found in our cheap poultry-books; but I hope our good brother will furnish all who have sent him $5 00 a good large cloth-bound book or else send back a part of the money he has received. A new enlarged edition of the book is already under way.

If this sprouted grain is really of such great value for poultry, why should it not be of like value for other domestic animals? We all know how fond crows are of sprouted corn; and, by the way, I have just been feeding our Rhode Island Reds some of the corn that was sprouted in testing our seed corn. Those that were confined in the yard would take down with great avidity grains of corn with sprouts and roots an inch or two long. The sprouting process converts the starch into sugar; and we have malted nuts and other malted products on the market already for human food. Very likely this is a matter of much importance; but is it right to charge $5.00 for calling attention to something that is already pretty well known?

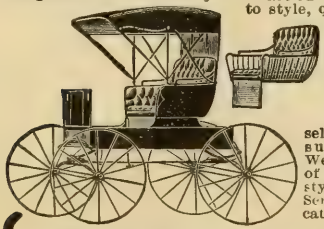
LOFTIS SYSTEM **Diamonds** on Credit

YOU CAN EASILY OWN A DIAMOND OR WATCH, or present one as a gift to some loved one. Whatever you select from our beautiful catalog, we send on approval. Pay one-fifth on delivery, balance in 8 equal monthly payments. Your credit is good. As a pure investment nothing is safer than a Diamond. 20% annual increase in value. Written guarantee of quality and value. Catalogue free. Write for it today. *Do it now.*

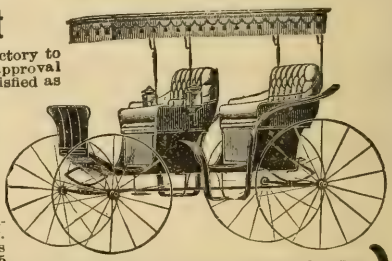
LOFTIS BROS. & CO. THE OLD RELIABLE ORIGINAL DIAMOND AND WATCH CREDIT HOUSE, Dept. E637, 92 to 98 State St., Chicago, Ill.

34 Years Selling Direct

Our vehicles and harness have been sold direct from our factory to user for a third of a century. We ship for examination and approval and guarantee safe delivery. You are out nothing if not satisfied as to style, quality and price.



We are the Largest Manufacturers in the World selling to the consumer exclusively. We make 200 styles of Vehicles, 65 styles of Harness. Send for large, free catalogue.



No. 316. Light, One Horse, Canopy Top Surrey. Price complete, $68.50. As good as sells for $25.00 more.

No. 656. Combination Top Buggy and Driving Wagon with Stanhope Style Buggy Seat and Bike Gear. Also Extra Seat for Open Wagon. Price complete, $61.50. As good as sells for $85.00 more.

Elkhart Carriage & Harness Mfg. Co.
Elkhart, Indiana

This is a Real Free Trial

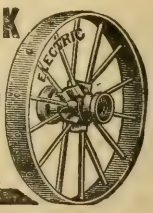
Write to-day for our plan. Positively no notes, nor one cent of money required of free trial of this buggy for 30 days. You can **"Try an Anderton with your money in your pocket."** Let us tell you about our full two-year Guarantee, backed by $25,000 Bank Bond. Write for 140-page illustrated catalog. The "Anderton" line includes Buggies, Surreys, Stanhopes, Driving Wagons, Spring Wagons, Pony Vehicles, Carts, Harness, etc.

THE ANDERTON MANUFACTURING CO., Cincinnati, Ohio, 41 Third Street.

SAVE YOUR BACK

Save time, horses, work and money by using an

Electric Handy Wagon



Low wheels, broad tires. No living man can build a better. Book on "Wheel Sense" free.

Electric Wheel Co. Box 95, Quincy, Ill.

THE "BEST" LIGHT

The only light that **makes** and **burns** its own gas at the extremely low cost of 2c per week and gives perfect service with **NO GREASE, DIRT, SMOKE OR ODOR.** Every burner equal to 100 candles burning at one time. Think of it—brighter than electricity or acetylene and cheaper than kerosene. You cannot afford to be without it. Over 100 styles. Every lamp warranted. Agents Wanted Everywhere.

THE BEST LIGHT CO., 306 E. 5th St., Canton, O.

I Want to Send You a

SPLIT-HICKORY BUGGY

On 30 Days' Free Trial

Nothing to Pay, Unless Satisfied

Write me at once about this offer and ask me to mail my **BUGGY BOOK FREE TO YOU.** It is the greatest Book about Buggies ever published, it's free—write me a postal today.

H. C. PHELPS, President
The Ohio Carriage Mfg. Co.
Station 293 Cincinnati, Ohio

$53,700

Made by O-HI-O Cooker Agents in 1905 Selling the

O-HI-O

COMBINATION STEAM COOKER-BAKER.

We have many agents making $5 to $10 daily. Write us and we will give you names of agents near by who are making at least $5 daily. We can easily prove that the "O-HI-O" is the best money-maker you ever heard of, and will make you more money than anything you ever sold or are now selling. *Write us at once and we will prove it.*

Guaranteed to save 50 per cent in fuel, labor, time, and provisions. A whole meal cooked over one burner on any style stove. It assures you deliciously cooked hot meals; *30 days' trial.* No intermingling of odors or tastes. Fine for use in summer cottages. A necessity every day of the year. The only healthful way to cook foods and breadstuffs. :: *Handsomely illustrated catalog free.*

"O-HI-O" COOKER CO., 908 Jefferson Ave., Toledo, O.

LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address

COILED SPRING FENCE CO., Box 448 Winchester, Ind.

A New Factory

and also a new firm name, but in the same place with the same management. We have just put in a complete

Weed Process Comb Foundation Factory

of the very latest type, and we are now ready to work up wax for western bee-keepers at low prices. . . We want several thousand pounds of beeswax at once, and will pay top market price for same. Let us hear from any one having wax to offer. .· .· .·

Buck & Wilson, Augusta, Kan.

Butler County

Predictions for CLEAR WEATHER in the near future.

Six weeks of cold weather when we should have had Spring, must not discourage. Better order now so you will have your supplies on hand when needed. As always, we have a large stock of

Root Co.'s Supplies

on hand to fill orders promptly. Also a fine lot of Italian

Queens and Bees

in one, two, and three frame nuclei and full colonies. Send for our forty-page catalog, etc.

John Nebel & Son Sup. Co.

Montg. Co. :: High Hill, Mo.

Mr. Texas Bee-keeper:

I should like to talk to you *personally.*

First, I want you to know about my supplies. I handle Root's Goods, of course; for I believe in giving my customers complete satisfaction—for that's better in the long run than low prices. My place of business is on the S. A. & A. P. Ry., just opposite the passenger depot, where I have built a warehouse 40×250 feet, and I have filled it full to the brim, for I handle Root's goods by the carload. This means I can furnish you with supplies with the utmost promptness.

Then, too, I have installed a complete Weed-process Foundation factory. I can turn out 500 lbs. a day. I can work your wax into foundation. In fact, my facilities in this line are not surpassed in Texas.

My can business is increasing by leaps and bounds. That is because of the quality of the goods. It will save you dollars to get my prices. Better write for them to-day.

Nothing pleases me better than for bee-keepers to make their headquarters at my office when in San Antonio. You are always welcome. I have fitted up my office with plenty of desks and chairs, with writing-material, a reading-table, and all the bee journals on hand. Consider yourself invited.

If you haven't my catalog just drop a postal.

I can supply Red-clover and Golden Italian queens promptly.

I am now paying 23c cash and 26c in trade for average clean beeswax delivered here. Save your slumgum. I will buy it. Let me know how much you have, in what condition the slumgum is, and in what kind of an extractor it was rendered, and I will make you price I am paying.

Call or Address

Udo Toepperwein, - San Antonio, Texas

1322 South Flores Street

We are Not in a Trust!

Bee-hives, Sections, Brood-frames, Extractors

Every thing that bee-keepers use at LOWEST PRICES.
Quality the Highest. We've been making them 25 years.

American Bee-keeper

A profusely illustrated practical bee-journal which we have published for 17 years. 50c year. Sample copy and our 1907 illustrated catalog and price list free. Address

The W. T. Falconer Mfg. Co., Dept. C, Jamestown, N. Y.

New Goods - Big Stock

New Warehouse : Root's Goods : Prompt Shipment : Low Freight

Everything for the Bee-keeper at Savannah, Georgia

We are prepared to furnish promptly a full line of supplies; choice new stock just from the factory. BEES and QUEENS. We have large apiaries of fine stock. Book your orders at once, as there will be a heavy demand this season. Catalog sent free. Correspondence solicited.

Howkins & Rush, 124 West Liberty St., Savannah, Ga.

Dadant's

Foundation

It Excels

Every Inch Equal to Sample

Beauty! Purity! Firmness!
No sagging; no loss.
Twenty-eighth Year.
We Guarantee Satisfaction.
Wax Worked into Foundation.

Bee-supplies of All Kinds

Beeswax wanted at all times.
Send for Our 1907 Catalog.

Dadant & Sons, Hamilton, Ill.

Root Goods

for the West

Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS.

My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

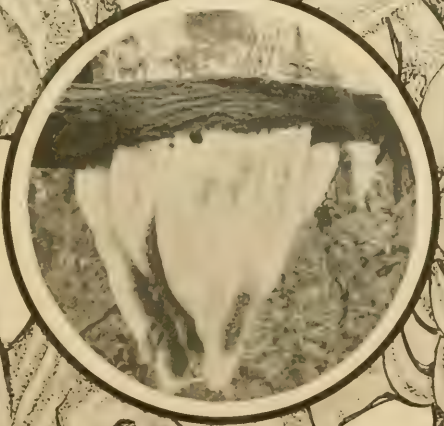
Write for estimate with liberal discount for orders sent in now.

Jos. Nysewander, Des Moines, Iowa

565, 567 West Seventh Street

Gleanings in Bee Culture

E 1, 1907 VOL. XXXV. NO. 1



THE A. I. ROOT CO.
MEDINA, OHIO.

Telephone Your Rush Orders

A great many of our customers can reach us through the Michigan State Phone at an expense of from ten to twenty-five cents. When you are greatly in need of goods in the busy season, it will pay you to use the phone.

BEESWAX.

We always pay the same price for wax as The Root Company. Watch the notices in "Gleanings." You can save freight expense by shipping to us. Put your name in the box and ship by FREIGHT to BEECH, Mich., via. P. M. R. R.

We believe in the Goods we Sell

When we say "Root-Quality," we mean that for selection of material, excellence in workmanship, and for up-to-date methods, Root's goods are unequaled.

M. H. HUNT & SON, Redford, Mich.

Jobbers and Dealers in "ROOT-QUALITY GOODS" in Michigan.

The Swarming Season

will soon be here. Are you prepared? Why not order your supplies now, and take advantage of

The Large Discounts

which we offer this month on Bee-supplies? Only remember the

Low Freight Rates

from TOLEDO places our goods in your door cheaper than you can get them elsewhere. We afford you every advantage in both Poultry and Bee Supplies. We sell The A. I. Root Co.'s bee-supplies, Model Incubators and Brooders, Prairie State Incubators and Brooders, Poultry Supplies of all kinds.

Our Large Illustrated Catalog

illustrates and describes our complete line; tells how to raise bees and chickens successfully. . Free upon request.

The Griggs Bros. & Nichols Co.

523 Monroe St., Toledo, Ohio.

APICULTEURS

des pays de langue Francaise.
Nous vous informons que

L'Apiculture Nouvelle

Revue mensuele illustree,

est tiree de:

Gleanings in Bee Culture

augmentee et completee par des collaborateurs Europeens, reconnus comme Apiculteurs eminents.

L'Abonnement d'un an est envoye franco pour tous pays de l'Union Postale, contre l'envoi par mandat poste de 7.50.

Un numero specimen, ainsi que notre catalogue francais de tous les articles de la

A. I. ROOT CO.

est envoye gratuitement sur simple demande, adressee a

Emile Bondonneau,

Agent General pour l'Europe et les Colonies

de A. I. ROOT CO.,

142 Faubourg Saint Denis 142 Paris (10e)

France.

L'Edition Francaise de l'A B C de l'Apiculture est egalement parue.

C. H. W. WEBER

Headquarters for . . .

BEE-SUPPLIES

Distributor of Root's Goods Exclusively at Root's Factory Prices

GIVE ME your orders for the **Best Goods Made.** You will be pleased on receipt of them. You will **save money** by ordering from me. My stock is complete; in fact, I keep **every thing** the **bee-keeper** needs. **Cincinnati** is one of the best **shipping-points** in the Union, **particularly in the South,** as all freight now **goes through Cincinnati.** Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly **free.**

A SPECIAL DISCOUNT ON EARLY ORDERS

I will buy your Honey and Beeswax

I pay **cash on delivery;** or, if you are in **need of honey,** write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of **extracted** or **comb honey.** I guarantee its purity.

Queens and Nuclei

Let me book your orders for queens. I breed the finest **Golden Italians, Red-clovers, Carniolans, and Caucasians.** Can furnish **Nuclei** beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White Sweet-scented Clover, Alfalfa, and Alsike.

C. H. W. WEBER

Office and Salesroom, 2146-48 Central Ave.
Warehouse, Freeman and Central Avenues.

CINCINNATI, OHIO, U. S. A.

Honey Markets.

GRADING RULES.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

The prices here quoted are wholesale, or what the honey brings on arrival.

NEW YORK.—White comb honey is practically cleaned up, and there is very little demand at this time. Some dark and mixed comb is on the market, but no demand to speak of, and some of this will have to be carried over until next season, or sold at a sacrifice; therefore we can not encourage shipments of off grades or dark honey at this time. Extracted honey is in fair demand, and prices are ruling firm. There is very little new crop arriving as yet from the South; and while it is rather early we doubt whether we shall have any large shipments from the Southern States this season, as we fear there will be a short crop, judging from the reports we are receiving. There is quite a good stock of last year's crop still on the market—sufficient to last until the new crop from various States arrives. There is no change in price as to extracted honey since our last. Beeswax is firm, and likely to remain so for the next two months to come.

May 25. HILDRETH & SEGELKEN, New York.

CINCINNATI.—There is no material change in the honey market at this writing. Extracted honey is not moving as rapidly as it might, owing to the cold weather. Quote amber in barrels at 5½ to 6½; fancy table honey in crates of two 60-lb. cans at 8 to 9; for choice yellow beeswax, free from dirt, we are paying 31 cash, and 33 in trade, delivered here.

May 23. THE FRED W. MUTH CO., 51 Walnut St.

CHICAGO.—Comb and extracted honey supply is exhausted so far as choice grades go, with a few lots of off and low grades for which there is no demand. We do not look for any movement until the yield of 1907 appears on the market. Beeswax sells upon arrival at 32 cts. R. A. BURNETT & CO.,

May 20. 199 So. Water St., Chicago, Ill.

DENVER.—This market is entirely bare of good white comb honey, and we could make quick sales at good figures of any consignments made to us now. We have a good supply of extracted honey which we are quoting at 7½ to 8½ for strictly No. 1 white, and 6¾ to 7½ for light amber. We pay 24 to 26 cents for good clean yellow beeswax delivered here.

THE COLORADO HONEY PRODUCERS' ASS'N,

May 22. Denver, Col.

PHILADELPHIA.—The honey market has been quite brisk for this time of the year. The continued cold weather has made both the comb and extracted honey sell much higher than usual. A number of odd lots have been cleaned out of the market. We quote fancy comb, 14 to 15; No. 1, 13 to 14; amber, 12to13; fancy white extracted, 7 to 8; light amber, 6 to 7. Beeswax firm at 32.

We are producers of honey and do not handle on commission. WM. A. SELSER,

May 25. 10 Vine St., Philadelphia, Pa.

SCHENECTADY.—Owing to the continued cold weather, up to this date, there has been an unusual demand for comb honey, and we are unable to fill orders for fancy white at present, but have some No. 1 buckwheat still on hand; but very little demand for extracted. Prices unchanged.

May 20. CHAS. MACCULLOCH, Schenectady, N. Y.

DO YOU LIKE TO BE STUNG?

What's the use of wearing an old-style net bee-veil that blows in your eyes, sticks to your face and gives the bees a chance to hand you a hot one?

ALL RIGHTS RESERVED.

THE MUTH IDEAL BEE-VEIL

(75c postpaid)

keeps the bees at a distance because it is made of light indestructible wire and strong cloth. You can see through this wire as if it wasn't there; and you can smoke inside the veil all you want. It can't catch fire. If you buy the has-been kind of veils

You Certainly ARE "Stung"!

You get dollars of satisfaction out of it. No doubt about this—it's the best-ever veil on the market. Better send for one to-day—don't be a drone. We're big people in all bee-supplies—ask for catalog.

THE FRED W. MUTH COMPANY,

51 WALNUT STREET, The Busy Bee Men, CINCINNATI, OHIO.

BUFFALO.—No good white No. 1 white-clover honey in our market now. Occasionally a few cases arrive, but it sells quick at 16 to 17. More could be sold if we could get it. There is some demand for No. 2 white, if good color, but slow sale at low prices when the comb shows yellow. Good No. 2 white is 13 to 14; No. 1 buckwheat, 10 to 11, and very slow sale; No. 1 white extracted, 7 to 8; No. 2 white extracted, 6 to 7; dark, 6 to 6½; beeswax, 32 to 33. W. C. TOWNSEND,
May 22. Buffalo, N. Y.

ST. LOUIS.—Extracted honey is coming in very sparingly. We quote our market as follows: fancy white comb honey, 15 to 16; No. 1, 14 to 15; amber, 13 to 14; broken and inferior, less; Spanish needle in 5-gallon cans will bring about 7c; Southern in barrels, 5 to 6; same quality in 5-gallon cans, ½ to 1c higher. Beeswax, for choice pure, 31; impure and inferior, less. R. HARTMAN PRODUCE CO.,
May 20. St. Louis, Mo.

DETROIT.—The demand for comb honey is better than usual for this time of year, and very little honey in town. Extracted is dull. Prices as follows: Fancy and A No. 1 white comb honey, 17 to 18; No. 1 and No. 2, 13 to 14; darker grades, 11 to 12; extracted white clover, 8 to 8½. M. H. HUNT & SON,
May 25. Redford, Mich.

CINCINNATI.—The market on fancy white comb honey is entirely bare. No. 2 is selling slow at 12; extracted light amber brings 5½ to 6. Beeswax is selling here at $35.00 per 100 lbs. C. H. W. WEBER,
May 21. 2146-2148 Central Ave., Cincinnati, O.

COLUMBUS.—Market is almost bare. We can handle some fancy or No. 1 white; selling 15 to 16.
May 23. EVANS & TURNER, Columbus, O.

MARSEILLES, France.—No change in honey; beeswax as follows: French, 31½ to 32; Mozambique, 32; Abyssinia, 32; Morocco, 31½; Madagascar, 30.

LIVERPOOL, England.—Chilian honey, 3¼ to 6½; Peruvian, 3¼ co 6½; California, 5½ to 8½; Jamaican, 3½ to 6½. TAYLOR & CO., 7 Tithebarn St.

EVANS & TURNER

COLUMBUS, OHIO

WANT TO BUY 1907 CROP COMB HONEY

Write us immediately, naming price on different grades. We want to hear especially from Michigan and Wisconsin Producers

The Danzenbaker 20th Century Smoker

Pat. Oct. 3, '05, June 4, '07.

Awarded Highest Prize

A GOLD MEDAL

St. Louis, 1904.

IS THE BEST, STRONGEST, COOLEST, CLEANEST, CHEAPEST, AND LARGEST SMOKER SOLD FOR A DOLLAR

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to CLOG WITH SOOT.

ALL THAT IS CLAIMED.—N. E. France, Platteville, Wis., General Manager of the National Bee-keepers' Association says:

I have given your 20th Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

SURPASSES ALL OTHERS.—Mr. Grant Stanley, Nisbet, Pa.—"After giving the Danzenbaker 20th Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until the fuel is all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker."

BEST IN TWENTY YEARS.—M. D. Andes, Bristol, Tenn.—"I have used the 20th Century Smoker one season. It has given me entire satisfaction. In my twenty years of bee-keeping I first used the old stand-by Clark smoker, and I believe I have tried all the different makes, as I am always looking for the best, and will say that your smoker beats them all up to date."

NEVER TOO HOT TO HOLD.—Dr. Reginald Munson, Washington, D. C.—"I am well pleased with the 20th Century Smoker. It keeps fire well without getting too hot to hold on continuous use, and makes smoke enough to satisfy the most critical."

Price Dan-ze, Large 3½-inch Smokers:
Postpaid—one, $1.15; two, $2.10; three, $3; five, $4.50.
By Express or freight—one, $1; six, $4.20.

"Facts About Bees," a sixty-four-page pamphlet, sent free on request. Send also address of your bee-keeping friend for same.

F. DANZENBAKER, NORFOLK, VA.
(Jamestown Exposition Sta. Money-orders on Norfolk.)

WE WILL BUY AND SELL

HONEY

of the different grades and kinds.

If you have any to dispose of, or if you intend to buy, correspond with us.

We are always in the market for WAX at highest market prices.

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Circulation 32,000

72 pages, semi-monthly
$1.00 per year

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

Published by
THE A. I. ROOT CO., Medina, Ohio

J. T. CALVERT, Business Manager

POSTAGE IS PREPAID by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian postage is 30c per year. For all other countries in the Postal Union add 60 cents per year postage.

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DISCONTINUANCES.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

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Or any class A magazine.		
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Appleton's or Pearson's... "	1 50	$3 65
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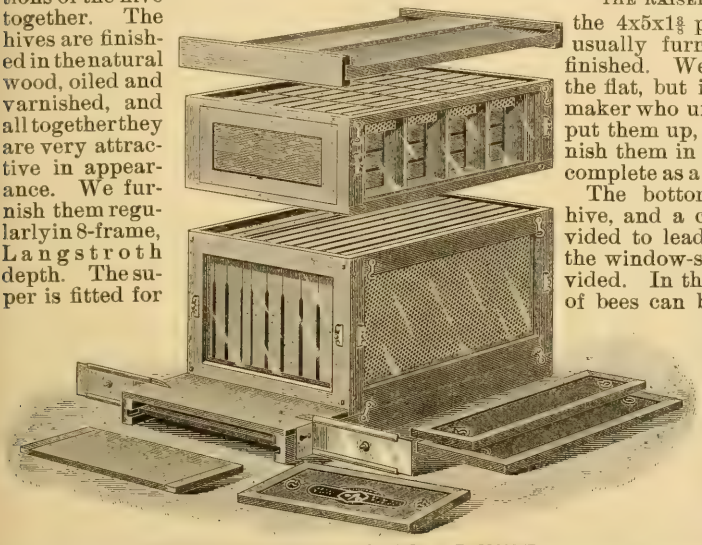
ROOT OBSERVATION HIVE

In recent years there has been an ever-increasing interest in bees as a subject for nature study in the schools, and a corresponding demand for observation hives to facilitate the study of bees at work, without exposing the student directly to them, as is necessary with ordinary hives. To meet this demand we offer several styles and sizes of observation hives. These are made with skeleton frame, with glass in sides and ends of the brood-chamber, and in sides only of the super. Shutters are provided to cover the glass. These shutters have brass rings to handle them by and brass buttons to hold them in place. Brass hooks are also provided to hold the several sections of the hive together. The hives are finished in the natural wood, oiled and varnished, and all together they are very attractive in appearance. We furnish them regularly in 8-frame, Langstroth depth. The super is fitted for the 4x5x1⅝ plain section. Hives are usually furnished put together and finished. We can supply material in the flat, but it is work for a cabinet-maker who understands his business to put them up, and we do not care to furnish them in flat unless you order one complete as a model.

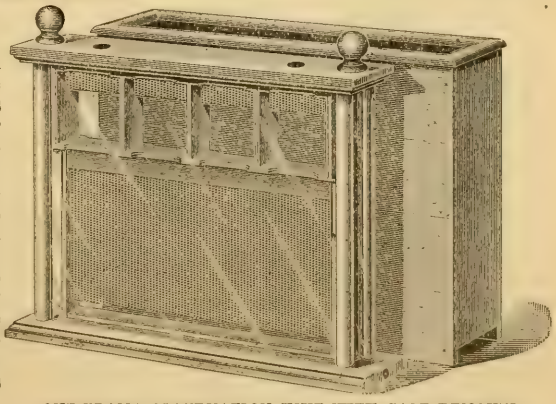
OBSERVATION HIVE INSIDE A ROOM WITH ENTRANCE UNDER THE RAISED SASH.

The bottom is no longer than the hive, and a covered extension is provided to lead the bees outdoors under the window-sash or other opening provided. In the full-sized hive a colony of bees can be kept by a window the year round, or for only a part of the season, as may be desired. The work of the hive, including the building of comb in the sections, can be watched at intervals without opening the hive or disturbing the bees. For work in the schoolroom before a class we recommend the one-frame hive. With the one-frame observation hive it is necessary to remove the frame of bees and put in a fresh one about once a week at least, for the best results. As a rule, arrangements may be made with a local bee-keeper to provide a frame of bees each Monday morning, returning at end of week.



OBSERVATION HIVE WITH PANELS REMOVED.

We make one-frame observation hives for L. frames or for Danz. frames and a row of sections above, or the L. fr. with a row of sections above. These are provided with a wood case to slip over to shut out the light when you are not watching the bees. We show this one-frame hive and the case in accompanying illustration. This consists of turned-wood corners with glass inserted in grooves in ends as well as the sides.



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FOR SALE BY ALL DEALERS IN BEE-KEEPERS' SUPPLIES

Gleanings in Bee Culture

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Department Editors—DR. C. C. MILLER, J. A. GREEN, PROF. A. J. COOK, J. E. CRANE, LOUIS H. SCHOLL, G. M. DOOLITTLE, R. F. HOLTERMANN, "STENOG."

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THE JOYS OF WHEELING.

A beautifully illustrated catalog of bicycles that has just reached our desk fills us with a longing for a spin in the sunshine and open air along some pleasant country road. This attractive and complete catalog of wheels describes many new improvements, such as the new improved coaster-brake, puncture-proof tires, and high-grade bicycles at surprisingly moderate prices, ranging from $12.00 to $25.00. It also contains general information and statistics that should prove interesting to every bicycle rider. Our readers can obtain this interesting catalog free by writing to the Mead Cycle Company, Chicago.

HAVE YOUR WASHING DONE FREE; BIG MANUFACTURER OFFERS TO LET HIS WASHER DO FOUR BIG WASHINGS FREE FOR YOU.

What next? One of our advertisers, Mr. R. F. Bieber, General Manager of the famous 1900 Washer Co., of Binghamton, New York, is so enthusiastic over the work done by his wonderful Gravity washer that he makes a wide-open, unlimited offer to let the machine do all the family washing for a month on free trial.

Everybody who has tried his washer has been delighted with the work it does.

He not only takes all the risk of the full month's free trial, but even pays the freight. You do not need to send him any money in advance, nor sign any bonds, nor make any deposits.

The *hard* part of the washing is all done by the machine itself.

Washes a big tubful of dirty clothes spotlessly clean in *six minutes!* It washes fine lace curtains without tearing them. Yes, and it will even wash carpets!

Any responsible person wishing to let the Gravity washer do a month's washings as a free test can get a machine on free trial, without being obligated to keep it unless perfectly satisfied.

Mr. Bieber will let you pay by the week or month out of what the washer saves. You can get full particulars of this liberal free-trial offer and "pay as it saves for you" plan by sending your name and address in a letter or on a postal to the General Manager of the 1900 Washer Co., Mr. R. F. Bieber, 392 Henry Street, Binghamton, N. Y.

ORGANIZED ANARCHY AMONG BEES.

American Home and Gardens for June contains a brilliant article by Prof. Gaston Bonnier, of the University of Paris, read before the French Association for the Advancement of Science, with the above title. There has been a good deal said about this article in nearly all the bee-papers—more particularly to the discovery of chercheuses, or seekers who look out work for the other bees to do. Prof. Bonnier is one of the brightest minds in all beedom, being the author of several works relating to bees or bee-keeping, so that any thing he has to say is surely worth reading.

It is certainly very flattering to bee-keepers generally that so prominent a magazine should devote six large pages, amply illustrated, to the subject of bee-keeping. This has the effect of bringing the subject of honey prominently before a wealthy class of readers who are discriminating buyers, and who do considerable good to bee-keeping generally by their patronage and encouragement. Many readers of *American Homes and Gardens* keep bees as a hobby; and should you belong in their class you can not do better than join with them and subscribe to it.

I have been writing to queen-raisers all over the country, and can not get any queens. Now, would it not save us buyers a lot of trouble if queen-breeders would say "Queens *now* ready," and have them, instead of "I am sorry to say, etc."?

DR. IMUS, Zeeland, Mich.

We pass the hint to our advertisers who have queens to furnish. We would explain further to Dr. I. that the weather has been exceedingly unfavorable all the spring, not only in the North but in southern localities as well. We know, however, that some breeders have queens to furnish with little delay. We suggest that they make definite statements in our next issue on this point.

The Journal for Less than a 2-cent Stamp.

If you could get several authoritative articles by leading writers on bee culture merely by writing a letter of request for them, you would jump at the proposition, wouldn't you ?

But two cents is MORE than the price of the American Bee Journal when you get it by the year (52 weeks for $1.00).

And the articles mentioned above constitute ONLY ONE of the dozen departments of this great up-to-date Bee Journal, one issue of which is worth more to a bee-man than the cost of a whole year's subscription.

Think of getting a 20-page high-class magazine for less than two cents a copy !

Sample copy FREE, or a "trial trip" of three months (13 copies) for only 20 cents.

Special Offer.—We will send the Weekly American Bee Journal for 52 weeks, and a standard-bred ITALIAN QUEEN (to be mailed in May or June) for $1.50. Subscription can begin with January, or with current number—say which.

Address American Bee Journal, 334 Dearborn Street, Chicago, Ill. Write to-day—this offer may not appear again.

AT THE CLOSE OF THE SEASON FOR 1907

ROOT'S HIVES WILL OUTWEIGH NEARLY ALL OTHER STYLES.

SEND IN YOUR ORDER NOW.

The A. I. ROOT COMPANY

Syracuse **New York**

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Our Advertising Rates.

Twenty cents per agate line, flat.
Fourteen lines to inch.

SPACE RATES (To be used in one issue)

One-fourth page.....$11.00
One-half page..... 21.00
One page..... 40.00

Preferred position, inside pages, 30 per cent additional.
Preferred position, inside cover pages, 50 per cent additional.
Outside cover page, double price.
Reading notices, 50 per cent additional.
Cash-in-advance discount, 5 per cent.
Cash discount, if paid in 10 days, 2 per cent.
Bills payable monthly.
No medical or objectionable advertising accepted.

"A Square Deal."

We believe that every advertisement in this paper is backed by a responsible person. But to make doubly sure we will make good any loss to paid subscribers sustained by trusting any deliberate swindler advertising in our columns, and any such swindler will be publicly exposed. We protect subscribers against rogues, but we do not guarantee to adjust trifling differences between subscribers and honest responsible advertisers. Neither will we be responsible for the debts of honest bankrupts sanctioned by the courts. Notice of the complaint must be sent to us within one month of the time of the transaction, and you must have mentioned GLEANINGS IN BEE CULTURE when writing the advertiser.

We wish to call particular attention to the advertisement of Messrs. Evans & Turner, of Columbus, Ohio, who wish to *buy* honey. This firm is reliable, and hence we are much pleased to have them advertise with us, and hope a number of our readers will be able to have pleasant relations with them this coming season.

We have never yet called attention to the advertisement of the Savings Deposit Bank Company, of Medina, Ohio, but we are informed they do a business with depositors in all parts of the United States, though they have made no special effort to get business through the mails. Curiously enough they do quite a business with depositors in the Eastern States where banking facilities are usually considered very good.

Many people now are adopting the course of depositing their money in more than one bank. Others can not get interest from their local banks and are obliged to send their money abroad to make a profit on it. Needless to say we think this bank is all right and sound, and so does every one else in this neighborhood.

TO THE LADIES OF THE GLEANINGS FAMILY.

We wish to call particular attention to the advertisement of the Joseph Horne Co., of Pittsburg, Pa., in this issue. It is peculiarly appropriate for the ladies at this season of the year, when something suited to warm weather is certain to be urgently wanted by many. The offer made by this firm is so fair and honest that no one of our readers need hesitate about purchasing what she requires in that line. We ourselves have no doubt the Joseph Horne Co. will do just what they agree to do in their advertisement.

The Bee-keepers' Review

For March has for a frontispiece one of the most beautiful winter-scenes that it has been my lot to witness. It is the apiary of Mr. F. J. Miller, of London, Ont., Canada, who tells how he makes a success of hauling honey home to extract it, using a gasoline-engine as power to run the extractor. Mr. Miller says that with his system of management he can manage 500 colonies alone.

Mr. E. F. Atwater, of Idaho, tells how he successfully managed an apiary 36 miles from home, warming up the last batch of honey in a 12x16 honey-house before extracting it.

The April issue shows how to protect a hive with tarred felt by tying it on—only the work of one minute, and one man can do the work alone.

Mr. Townsend is continuing his series of articles on "Helpful hints for Extensive Bee-keeping," and he makes the articles very seasonable, and very helpful.

The foregoing are only a few of the good things that may be found in these issues of the Review; but they show the character of the reading that may be found in the Review.

There are still a few sets of the Review for 1906 on hand, and, as long as they last, a set will be sent free to each subscriber for 1907.

The book, Advanced Bee Culture, is $1.20; or with the Review, only $2.00 for both.

W. Z. Hutchinson, Flint, Mich

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in 1906, but we sold in Michigan

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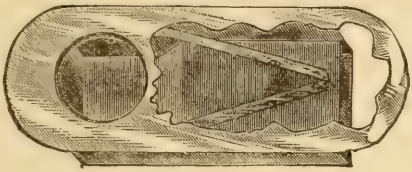

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When taking off surplus this is the greatest saving device. It does away with the shaking of the heavy supers, the cruelty of excessive smoking which causes the bees to uncap their honey and start robbing. Just tip the super to the angle of 45 degrees and insert the board. In a few hours it is free of bees; then take off your super. You can as well afford to be without a smoker as without the Porter Bee-escape.

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The removal of full honey-boxes has become an amusement since we began using the Porter bee-escape.—Ed. Bertrand, Editor Revue Internationale d'Apiculture, Nyon, Switzerland.

This number of the Review contains more unqualified praise of the Porter bee-escape than any other issue has ever contained of any other implement; but so long as it is deserved, who cares?—Bee-keepers' Review.

They are the greatest thing on earth for expelling bees from supers.—G. J. Flansburg, South Bethlehem, N. Y.

I would not be without them for four times what they cost.—Dr. W. A. Tufts, Musson, La.

Undoubtedly the best bee-escape is the one invented by R. & E. C. Porter.—W. S. Pouder, Indianapolis, Ind.

Bee-men are certainly behind the times if they can afford to use them and do not.—M. H. Mendleson, Ventura, Cal.

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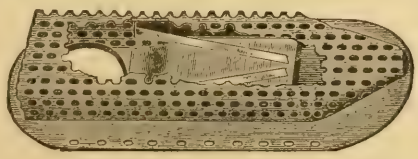

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Avoid Adulterated Oil.

There is no valid substitute for pure linseed-oil as a thinner for paint. The markets are full of adulterated linseed-oils, many of them difficult to distinguish from the genuine in appearance, taste, or smell.

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We guarantee the B. P. S. Paint to be absolutely free from adulteration. But purity alone is not enough; a pure paint is not necessarily a good paint, but the knowledge of the proper proportions necessary to produce the most economical and satisfactory results, combined with the assistance of powerful machinery especially constructed for the purpose, are equally important.

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By using a small proportion of lead and a larger proportion of zinc, or by using sub-limed lead or sulphate of lead a paint at a low price per gallon can be produced, but at a sacrifice of durability and covering-power, and it is not economical to the consumer. Buy your paints by years and square yards, not gallons.

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Our facilities for manufacturing paint are unequaled. Powerful mills, chilled and adjusted so as to crush and grind the paint to its finest degree, combining the pigments with the oil as it can be done in no other way. The nearer ready for the brush you can buy lead-paint, the better it is. Fine grinding enables it to be spread over a greater amount of surface; therefore, although possibly costing more per gallon, it really is cheaper because it costs less per square yard. A pure paint, carefully prepared from selected materials, finely ground by machinery, will resist wear and action of the elements much longer than the same materials stirred together with a stick by hand. For the same reason the paint "works just right" under the brush, and enables the painter to cover over a larger surface in a given time. Being ready for use, no time is consumed in mixing or preparing it on the job; colors are always uniform; no mixing required to match them.

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Economy in Labor.

Much of the inconvenience of painting is largely due to numerous pails and cans required in breaking up and mixing lead-paint on the job, and the annoyance of often being out of a box of chrome or a little dryer. Let us keep the muss, and do the mixing for you in our factory.

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Established 1889

"Exactly Right"

By the Bee Crank.

It is not an easy matter to submit patiently to the annoyance and inconvenience caused by the mistakes and carelessness of others, when the means are at hand to remedy the difficulty quickly.

But that is nothing compared to the intolerable exasperation of having to suffer from the carelessness of a firm with whom one is dealing at long range, when correspondence and tedious delays must intervene before things can be straightened out. When mail-order houses allow such things—not once or twice, but often—that is the limit.

The reason I am more cranky about having things done right in the first place than the crankiest customer on my book is, I put myself in his place. Kicks are a rare thing from my customers. On the contrary, the receipt of such letters as the following is an every-day occurrence:

WALTER S. POUDER, Indianapolis. Tibbs, Miss

Dear Sir:—The five hives arrived promptly. They are exactly what I have been looking for. Yours truly, J. E. TIBBS.

I sell Root's goods at Root's prices. Can supply you quickly with the new metal-spaced Hoffman Frames, Danzenbaker Hives, Dovetailed Hives, Section Honey-boxes, Weed-process Comb-foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, or any thing else that a bee-keeper might require.

Let me send you my new catalog—it tells you as much as I could on forty full pages like this—and it won't cost you a cent, except for the postal you use in writing for it.

Walter S. Pouder

513-515 Massachusetts Avenue, Indianapolis, Ind.

GLEANINGS IN BEE CULTURE

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Vol. XXXV. JUNE 1, 1907. No. 11.

STRAY STRAWS
by Dr. C. C. MILLER

A. A. ASHLEY, p. 698, tells word for word how I worked the Alexander weak-colony plan this spring except some slight difference in length of time. It was an entire success.

FEELING GOOD over the Illinois local-option law passed May 8. James K. Shields, of the Illinois Anti-saloon League, who led the fight for local option, said: "It is a great victory. When the Berry bill is placed on the statute-books of Illinois, we shall have secured, after six years' fight, more local option than Ohio has gotten in fourteen years of continued effort.

IN SPITE of the peculiar way in which *The Far-Western Bee Keeper* locates the hyphen in its name, that occidental youngster starts out in such a wide-awake manner that one can't help thinking that, if it doesn't live, it ought to. Here's success to it at a venture. [We join in your good wishes. But Stenog says that hyphen is all right where it is, but another one is needed in "Bee-keeper."—ED.]

STENOG, you say French spelling is more difficult than English, p. 686. I don't believe it. Even if it is, does that alter the fact that English will more quickly become the world's language if its horrible spelling is reformed? [What I meant to show, doctor, was that exceedingly irregular spelling would not prevent a language from being the court language of the nations of the earth, as the French language shows The marvelous spread of English in the last fifty years is due to its simplicity as a language and the colonizing spirit of England and the United States.—STENOG.]

HERR A. STRAEULI, editor of *Europæische Bienenzucht*, the German apostle of American methods, is enthusiastic over what he calls the Scherzinger plan for preventing increase. When a colony swarms, the swarm is hived in a lower story over which an excluder is placed, and over this the old hive with its brood, all queen-cells being removed. That's the end of all swarming, and the whole force is kept intact. It will be seen that it is much the same as the Demaree plan, only Herr Straeuli waits till after the colony has actually swarmed. Where one is on hand to hive swarms, what better way could there be for extracted honey?

GLAD TO ANSWER your question, p. 686, Mr. Editor. The phrase "dual plan" or "dual-queen system" has so far been used to mean the plan of having two queens in a fertilizing-hive—one a virgin in a cage awaiting the removal of the free queen. This plan is so important, and likely to be mentioned so often, that it is better to let the word "dual" designate it instead of the 23 words I have used in describing it. Then in any other case of two queens in a hive, as mother or daughter, say "two queens in a hive," or use some other wording; but don't use "dual" for any but the one specific thing. [It will be difficult, doctor, to make our language always exact. If some one else has continuously used the phrase "dual-queen system," referring to something different from that to which you refer, you will have a hard job in changing him over; and some of them get mad when we take liberty with their manuscript, averring that they know what they are talking about. We do not see but we shall have to continue to use a good deal of circumlocution as heretofore.—ED.]

C. S. LORD has sent me some spacing-nails that are probably ahead of any thing else in this country—merely a wire nail with a head $\frac{1}{4}$ inch deep, sugar-loaf shape, so that if an uncapping-knife should strike it the blade would slide off. For any other than extracting-frames a head with perpendicular sides would be better. Even for extracting-frames this head would be all right with perpendic-

ular sides, as it is made of type metal, which would hardly dull a knife. [The oft-repeated objection to metal spacers, to the effect that they will interfere with the uncapping-knife, exists more in the imagination than in fact. There are not wanting extracted-honey men who use metal spacers of various sorts; and when we have talked with some of them on the question whether they dulled the uncapping-knife edge on these spacers, they ridiculed the very idea. One of them in particular made the remark that "any one who would dull his knife on a small projection at the end of the frame must be a blundering manipulator." Unless some one will actually testify that the metal spacers make uncapping difficult and annoying, let us scatter this man of straw to the four winds. —ED.]

I DON'T KNOW whether worker eggs are fertilized by the will of the queen or automatically. But I want to enter a protest against what is generally considered as a knock-down argument against the automatic theory. It's given something like this: "The claim that the smaller size of the worker-cell compresses the abdomen of the queen, automatically fertilizing the eggs, is shown to be groundless by the fact that, when a queen lays eggs in worker-cells not more than ¼ inch deep, there can be no compression, and yet the eggs are fertilized." Good friend, you must know that there is no real squeezing of the abdomen, either in a worker-cell or a drone-cell. The worker cell is a trifle shallower than the drone-cell. May not that difference in depth cause such a difference in the position of the queen as to produce fertilization in the shallower cells? And would not fertilization be expe ted in a still shallower cell? Did you ever know drone eggs to be laid in drone-cells only ¼ inch deep? I don't think I ever saw such a case; but I may not have observed closely enough. [If any one *knows* of actual cases where a queen has laid eggs in shallow drone-cells, such cells producing drones and not workers, let him hold up his hand. With our over 30,000 subscribers there ought to be some among the number, if the thing has ever happened, who can certify to the fact.—ED.]

E. E. HASTY, who has been trying the curative effect of honey in considerable quantities, complains that "the naughty foundation-man" puts in soap in tastable quantities —doubtless a serious bar to the eating of large quantities when the appetite is skittish, as invalid appetites are pretty sure to be." If this be a just charge, "the naughty foundation-man" should be strung up by the thumbs until he promises to be good. [We heartily subscribe to the doctor's statement; but we do not believe that the charge can be sustained. By the modern method of continuous sheeting, very little soap, comparatively, is used. But when one attempts to make his own foundation, dipping the sheets into short lengths, he finds it necessary to use a large amount of soap in order to pick off the numerous ends from the rolls when many short sheets are to be milled. There is, therefore, a marked difference between the amount of soap used in the factory-made article and the home-made. We venture to say there is no more soap on ordinary factory-made foundation now than there is on an ordinary teaspoon that has been washed in a strong soapy solution and then wiped on a table-cloth that must necessarily have absorbed a considerable amount of liquid soap. —ED.]

TO TEST WAX, says *Deutsche Bienenzucht*, write on a cake with ink. If the writing is clean, so is the wax. If irregular, the ink bunching in little drops, some sort of fat is present. I've just tried writing on wax. While it isn't as good as paper, I was surprised to find how well one can write on it. [When we first read this over we felt inclined to believe we had an excellent test for wax containing grease. We accordingly went over to our wax-working department, where we keep small samples of various kinds of beeswax adulterated with various ingredients with which to compare doubtful specimens that are sent in. We tried writing with a pen and ink on pure beeswax, and, as the doctor says, we were surprised to see how well the ink flowed. We then tested the same pen and ink on a specimen half beeswax and half paraffine. The ink flowed quite as well. We next tried it on a cake of wax containing a large per cent of grease; and, contrary to what we expected, we could write about as freely on this as on the cake of pure beeswax. If the grease were unevenly distributed in the wax, then we could conceive how there might be a break in the lines of ink; but the test would be, according to our experience, very unreliable. Wax containing grease *looks* greasy on the outside. It does not have that clean hard lustrous surface like pure wax. Our boys have come to be quite expert; and occasionally we get a shipment from which we have to reject a large part.—ED.]

TALK NOW is that the pure-food law will run out of the market the present bleached sugar, and give us a better article of unbleached at a lower price: also that, when the same law prevents paraffine, ceresin, etc., from being sold as beeswax, the price of beeswax will go up. Now, if sugar goes down enough, and wax goes up enough, and there comes a year of failure, instead of letting the bees lie dead idle why not set them to turning cheap sugar into beeswax?

[It is doubtful if white sugar can now be driven from the market, even if it contains injurious matter, as housekeepers generally are prejudiced in its favor. But we beekeepers need not be prejudiced. Yellow sugar, excellent for bee-feeding purposes, can be obtained for less money because not controlled by the trust. It is refined but not bleached. It has been proven by Huber, Milne-Edwards, and others that raw sugar produces much more beeswax than white sugar. This looks reasonable, as the sugar-cane plant secretes a very nice wax. What

is usually mentioned as "raw" sugar is brown sugar from molasses, and is not fit for bees.—W. K. M.

Referring to the other question, that of making wax out of sugar, we may state that this is no idle dream. Beeswax is bound to come up. Paraffine will be barred from foods and drugs when the pure-food law goes fully into effect, which will be next fall; then we ought to see a marked advance in beeswax unless the tropics (as they probably will) furnish the product at a price that will not be much in excess, if any, over the article now sold. Some tropical beeswaxes, at least, conform in every particular to the pure beeswax specified under the national pure-food law, and there is no reason why they should not.—ED.]

"TO MAKE a practical application of the idea is new." That footnote, p. 686, sounds as if I had thought there was nothing new in the Alexander double-queen plan. I hasten to protest most earnestly against any such view, and the Straw next to the last on the preceding page ought to set me right. All the more credit is due Mr. Alexander that facts which had been kicking around for years he picked up and put to good use. But more credit than that is due him. The knowledge that several queens might be in a hive at the same time is not new. The knowledge of how to get them there at will is new. Set that down to Mr. A.'s credit. Set down to him a vastly greater credit for the entirely new discovery that a plurality of queens in a hive will prevent swarming. If Mr. Alexander makes good in telling us how the thing is done—and I presume he will—he will leave his name written high up among those who have benefited their fellow bee-keepers. [But there are others now who claim that a plurality of unrelated queens will keep down or control natural swarming. Speaking about our friend Alexander, it takes a man of about his standing and stamina in the apicultural world to be bold enough to come out and espouse an unorthodox theory or practice. There have been some in our ranks who, metaphorically at least, would have been very willing to burn him at the stake for telling some things "that are not so;" but somehow he has been able to hold his own against all his critics. And right here it is proper to explain that those who do not agree with him should take into full consideration his particular locality, which in many respects is unlike the average locality in the United States.—ED.]

LOUIS SCHOLL asks, p. 692, why the bees gnaw around the splints, filling the space with drone-cells. I don't know; I never had a case of the kind. Perhaps Mr. Smith's answer is the right one. Possibly the splints were pressed too hard, cutting the foundation in two. What's your answer, Louis? My trouble is a different one. Most of my frames were given when pasturage was poor, and the bees gnawed away the foundation more or less next to the bottom-bars, before drawing it out. [You remember, doctor, we have never been enthusiastic over these wooden splints, just because we feared the bees would gnaw around them. Our fears were based on our experience with the metal tin bar that we used years ago in our first wired frames. Any thing larger than a 32 wire seems to be met with disfavor on the part of the bees at times.

Referring to your particular difficulty, the whole trouble can be solved by the use of reversible frames. This vacant space between the bottom edge of the comb and the bottom-bar is likely to be more or less in evidence in all frames of the non-reversing type. While you overcome it to some extent by means of vertical splints, yet you admit that the bees "gnaw away the foundation more or less next to the bottom-bar." By having reversible frames (this vacant space that is just so much waste, and the finest hiding-place in the world for queens) can be filled up solid. This used to be the strong argument of the reversible-frame advocates of twenty years ago—yes, almost twenty-five now; but when reversing did not accomplish *all* that was claimed for it we went to the extreme and abandoned the whole business, just as the owners of Belgian hares abandoned the business, because it did not come up to the expectations of those who pushed the fad to the front; yet Belgian hares have some merit.—ED.]

PROF. COOK says, p. 312, that bees ventilate so effectively at the entrance that it is best to have only one opening to the hive, evidently meaning at all times, and W. K. M., page 686, asks if I subscribe to that doctrine? Emphatically, no. If running for extracted honey I would, in general, have one more opening than the number of stories in use—the regular entrance, and an opening at the top of each story. Each year, for years, I have had one or more piles thus ventilated, and none has ever yet swarmed. Many years ago I learned from Adam Grimm to have an opening for ventilation at the top of the brood-chamber at the back end when running for comb honey. I gave it up because it interfered with the finishing of sections near such openings. But I have gone back to it again, believing that such disadvantage is overbalanced by the gain in ventilation. You can't make me believe that it isn't easier for the bees to have one hole for the air to go out, and another for it to come in, than to make the air go both ways in the same hole. [There are quite a number now who advocate the use of more than one entrance. Among them are Mr. R. F. Holtermann, the Dadants, and Mr. W. K. Morrison, of our own editorial staff. Your last sentence, doctor, suggests a proposition that indicates that our present-day practice of giving bees only one entrance compels them to waste a large amount of vitality and energy as well as bee-life when it can be ill afforded. If we can prevent this loss (we can hardly see how it can be other than a loss), why shouldn't we do it by breaking down our old orthodox lines at this point and make it mechanically easier for bees to keep down the temperature of the hive instead of keeping a lot of workers at home

fanning to keep the house cool enough in order to carry on the work of the hive? Then there is another important advantage to be gained, and that is, the reduction of swarming and a corresponding increase in the honey-crop —ED.]

THE following, received too late for our last issue, will explain itself:

Dear Sir:—I beg to announce to you that the apicultural investigations of this Bureau are now in charge of Dr. E. F. Phillips. I would also announce to you the appointment of Dr. G. F. White as an expert in bacteriology; Mr. Franklin G. Fox as assistant in the apiary, and Mr. Burton N. Gates as colaborator in Massachusetts.

C. L. MARLATT,
Washington, D. C. Acting Chief of Bureau.

EXPERIMENT STATIONS IN CONNECTION WITH IRRIGATION PROJECTS.

SENATOR WARREN has introduced a bill in the United States Senate providing for an experiment station in connection with each irrigation project undertaken by the government. At this distance this looks like a good idea; for some people are going to these irrigated lands who know next to nothing about irrigation, and some one ought to be on hand to advise "tenderfoots" how to get the best results from their land.

In connection with each of these stations there ought to be a person who understands bee-keeping who will warn newcomers when the locality has become overstocked with bees or will bear no more. The advice of a bee-keeper would be useful also in putting out bulletins.

DOCTOR WILEY IN THE CABINET.

Dr. Harvey W. Wiley has been suggested as a member of the "strenuous cabinet" in the interests of pure foods, etc. The Department of Public Health would be the likely designation of the new branch of the cabinet, and while this may seem to be a small matter to those who are interested in diplomacy, and the progress of war and the exploitation of foreign lands, it is something which very vitally affects every individual of the great American family.

Dr. Wiley has been the most instrumental factor in securing the pure-food law; but the country has been very slow to awaken to the fact that this question was something which affected vitally every one of its members. Doubtless there are many organizations, cloaking themselves under the title of "pure-food associations," "honest-label associations," and the like, who, while they would like to be known as strong supporters of the doctor as a member of the cabinet as above indicated, would leave nothing undone to defeat his appointment.

Dr. Wiley is to-day a poor man. He has given his services to the country, and has been mainly instrumental in the enactment of the pure-food law in exchange for a mere living salary; whereas had he listened to the blandishments and force of the great moneyed interests of manufacturers he could, by virtue of his position, be to-day a millionaire.

Advocates of the establishment of the new department urge that there is nothing more important than proper excecution of the various statutes which concern the public health.

GUY E. MITCHELL.
Washington, D. C.

THE suggestion in one of our contemporaries is not so impracticable or far-fetched as it might seem at first thought; for Dr. Wiley, against all opposition, has been a consistent and strenuous advocate of pure-food legislation in spite of the fact that, if he could have been bought off, large sums would have been placed at his disposal. Many a time it has happened that a strenuous official will suddenly and with no apparent reason get over his "strenuousness." Wiley has been strenuous first, last, and all the time.

THE ADVANTAGE OF MORE THAN ONE ENTRANCE IN THE HEIGHT OF THE HONEY-FLOW.

DR. MILLER, in a Straw in this issue, says, in referring to the advantage of having more than one entrance to a hive during the height of the honey-flow, "You can not make me believe it is not easier for the bees to have one hole for the air to go out and another for it to come it than to make the air go both ways in the same hole." This is something for the practical bee-keeper of today to think over very carefully. Too much ventilation sometimes certainly is bad; but is there not somewhere a golden mean by which we can relieve the bees of a great load of work? Or, to put it another way, is it necessary to keep a large force of workers at home fanning during the heat of the day if we can by some mechanical means reduce the temperature of the hive, allowing this force to go to the fields? This question will hinge somewhat on whether comb or extracted honey is produced.

A COMPETITOR TO RAILROADS BY MAKING USE OF NATURAL INLAND CANALS.

A STRONG plea is now being made for a large improvement on our inland waterways as a kind of counter-check to the railroads, which have had every thing their own way until quite recently. Much is being made of a plan for an inter-coastal canal to connect the rivers of Texas with the Mississippi River at Donaldsonville, La., and this ought to be done. It is not generally known, however, that our whole coast is permeated with natural canals, so that a river steamer can be navigated from New York to Brownsville, Texas, and yet not use the ocean at all. If this waterway is improved and shortened so that the largest river-boats can use it we shall have a splendid means of reducing freights. Not only so, but a waterway is excellent for the transportation of honey and bees — far ahead of the best railroads. If this is carried out in its entirety it would be quite possible to ship honey or bees by river-boat at Corpus Christi, Texas, for direct shipment to Washington or Baltimore, or even St Louis or Chicago. No product of the farm requires greater care than comb

on its way to market. Water transportation is immensely superior to railroads in cheapness; and, moreover, it is better. There is no bumping on steamers to knock the honey-comb to a pulp.

Any business firm that does much shipping of heavy goods knows the immense value of water transport, not only in compelling lower rates but in securing more reasonable treatment from the railroads.

FOREST RESERVES ON GOVERNMENT LANDS; MORE IRRIGATION NEEDED FOR THE GREAT WEST.

THE last Congress, before it passed the agricultural appropriation, added a rider stipulating that, in future, no land should be set aside as forest reserves except by act of Congress. This was a direct slap at the President, who saw the animus of it at once; and, to show his sense of duty to the people, he set aside another large area of the public domain as forest reserves, after which he signed the agricultural-appropriation act.

The attitude of Congress in view of the rapid advance in the price of all kinds of lumber, including hive lumber, is to be deplored. It is to be hoped that some future Congress, less subject to great corporate interests, will rise to the emergency; for if lumber continues to advance much more it will take a little fortune to build a home. It is fortunate we have a President who is too great to be cajoled or fooled by a lot of old-timers who are bossed by private interests.

However it may appear to others, we bee-keepers are not particularly anxious to see the public lands of the West cleared off by settlers, and planted to grain crops. On the contrary, we would rather see more irrigation works undertaken by the national government, and any thing of that kind will have our support. There is a movement now on foot to ask Congress for the loan of $300,000,000 to provide for irrigation projects in all the semi-arid States, and GLEANINGS would gladly support any such movement when once it is started, for the irrigated lands certainly make ideal homesteads for worthy people.

That same President will use his great influence to help along this enterprise. Say! Roosevelt is nearly always on the right side of every good thing.

WEATHER CONDITIONS AND PROSPECTS; A STILL FURTHER STIFFENING OF THE HONEY MARKET PROBABLE.

THE season is practically a failure in Southern California. Some of the largest producers in the vicinity of Los Angeles report no honey in sight, and are feeding. While there were good rains, yet subsequent weather conditions prevented the bees from doing much. While some sage honey will be produced in the extreme southern part of California, we are safe in saying that very little of it will find its way to any of the Eastern markets.

Conditions have not been altogether satisfactory for Central California, and we do not expect, therefore, much of a crop from that section.

Weather conditions have improved somewhat for the Northern States; but the season as a whole is still very backward. In many localities the bees are doing exceptionally well in making up for bad weather. Dandelions have yielded honey and pollen as never before; and where there has been any fruit-bloom the bees have done well. Clover and basswood have been put back a couple of weeks; and if they do not come on too early there will be a chance for a fair crop, for the bees are now making double-quick time.

The spring losses, however, have been very severe all over the country, south as well as north. The Southern States seem to have suffered more proportionately, as they were not as well prepared to stand the bad weather as their more Northern neighbors.

Texas is not saying much, but the few reports are not particularly favorable. In Colorado, conditions have not been satisfactory; and the season in Florida has been a complete failure.

There ought to be a strong stiffening of prices, for the market certainly will not be glutted with honey, and there will be very little glucose concoctions on the market masquerading under the name of honey, to hold down prices. We look for a better market than we have ever seen before.

THE EFFECT OF THE NATIONAL PURE-FOOD LAW ON THE MAPLE-SYRUP INDUSTRY.

THE following excerpt from the *Louisiana Planter* of May 18 bears out in a remarkable way what we have been saying to our readers for some time anent the working of the national pure-food law. What is said herein will apply to honey as well as maple syrup or maple sugar.

VERMONT'S CROP OF MAPLE SUGAR.

The national pure-food law is working wonders for the maple-sugar producers, acting largely as it does as a guarantee of the purity of the products offered as genuine maple sugar and syrup. Vermont is the chief sugar-producer, and it is estimated that in that State the total output will reach 20 millions of pounds of sugar and syrup combined. The general price for the genuine article during the last few years has been from 8 to 12 cents; and now, with the increased demand for it, owing to the probable purity of all that is offered, the crop is bringing from 15 to 20 cents per pound. At 15 cents per pound the maple-sugar crop of Vermont will amount to about three millions of dollars in value, or as much money as the Louisiana rice crop has brought until within a very few years.

Of course, the delightful flavor of the sugar and syrup made from genuine maple sap accounts for the fact of its bringing three or more times the price of cane sugar per pound. It accentuates the fact, however, that there is a large demand for genuine cane syrup and cane molasses in the United States, and a demand that could be doubled or tripled were the consumers made thoroughly satisfied as to the pedigree of the stuff sold to them. Glucose skillfully made, and practically neutral in flavor or transparent in color, has been the foundation material from which any quantity of maple syrup or cane syrup could be fictitiously derived. Just as orris root is the flavoring element in the manufacture of low-grade raspberry syrups, so hickory bark and other materials create the maple flavor which for years has disguised the glucose products, and apparently made them acceptable wherever they were offered for sale.

Whenever sold in competition with pure goods, of course the adulterated goods undersold them; and the uncertainty attaching to all liquid sweets led many dealers into the purchase of the imitation article as being really more satisfactory to their trade at the prices at which it is offered than would be the genuine article. The assurances that the consumers will now have under the pure-food laws, if they take sufficient care in their purchases, will seemingly warrant them in buying as genuine such maple sugar and molasses as will be offered to them.

While Vermont is the largest maple-sugar producer in the country, there are also other sections that are large producers; and on the basis of 15 cents per pound it would now seem that the maple-sugar crop of the United States will reach a total value of five or six millions of dollars. We are inclined, however, to doubt to some extent the maintenance of the 15 to 20 cents value per pound for the entire crop; but we shall sincerely hope that such prices will be maintained, in order to induce the maple-sugar makers to supply consumers with the genuine article.

THE OUTLOOK FOR THE SYRUP AND HONEY TRADE.

UNLESS all signs fail, the market for honey this fall will be higher than it has been for some time, for very good reasons. The maple-syrup market was in fairly good shape, and the price is very high. The syrup market also seems to be in a bad way, but for very different reasons. Hitherto glucose and molasses (or cane syrup) were blended and sold as "corn syrup," and the glucose people have flattered themselves this would be continued for a long time to come. It is evident the Department of Agriculture at Washington regards both products as detrimental to the health of the persons who eat them. No action has yet been taken by the Department to declare them so, but it is evident it is only a question of time when both will be barred.

The experience of the Corn Products Co., in New York, Pennsylvania, and other States, goes to show what is coming when the national pure-food law is actively put in force. It is evident that the federal authorities are not going to be more lenient than the individual States have been. The people have, however, been reading up on this matter, and a great many are refusing to buy these syrups, law or no law. It is evident, also, that the glucose trust is preparing to give up the struggle, and some of their products are said to be entirely withdrawn from certain States.

The cane-planters in Louisiana realize that the days of common molasses are numbered; and the *Louisiana Planter*, the leading paper of the cane-sugar industry, thinks it would be advisable to go back to the old open-kettle process, and to feed the present-day molasses to mules and cattle.

It is perfectly clear from this that the days of cheap syrup are over, and in its place a much superior product will appear in due time. A sugar organ, *The Federal Reporter*, says, "The demand for molasses has been somewhat curtailed by the agitation regarding the national pure-food law," and that is undoubtedly true.

It is evident from this that honey will have less competition than it has had for some time; for, with the exception of maple syrup, of which there is a small supply, it is the only syrup which completely complies with all the requirements of the national pure-food law.

MISBRANDING; HONEY-DRIPS.

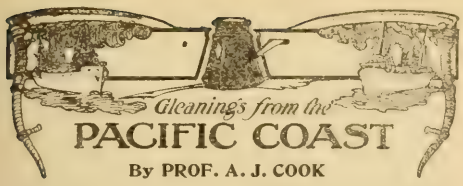
A SHORT time ago a company was selling what it called a "cereal coffee." The United States Department of Agriculture, so we are told, ruled that such a branding was contrary to the provisions of the national pure-food law; that the word "coffee" forming a part of the label could not be used to designate a certain drink unless it contained a fair percentage of coffee, and it contained *no* coffee.

Another case, somewhat similar to this, has come up recently, in which the manufacturers of rye flour desired to know if they could use the name "rye flour" to designate a product largely rye flour, but containing a small percentage of wheat flour, which could be worked more easily than the pure article.

The Department ruled that such name could not be used unless it were qualified by adopting the name "rye-flour compound," "rye-flour blend," or "rye-flour mixture;" and then only when the two ingredients can be regarded as like substances. "It is further held that the use of an ingredient in small quantity, simply for the purpose of naming it in the list of ingredients, would be contrary to the intent of the law, and therefore that the ingredients must be used in quantities which would justify the appearance of their names upon the label. The statement made of the constituents used should be of a character to indicate plainly that the article is a compound, mixture, or blend. It is evident from the above explanation that the naming of a mixture of this kind 'rye flour' would be plainly a violation the law and the regulations made thereunder."

More recently a case has come up that bears more directly on the honey business. It is this:

A correspondent in the South refers us to a food preparation having a beautiful label in colors bearing the words "Honey-drips." Just below these words appears this: "Cane syrup, 15 per cent; corn syrup, 85 per cent." Note that honey is not mentioned as an ingredient. The label shows a beautiful sprig of apple-blossom; and the inference is that these honey-drips come directly from these blossoms. Now the question comes up right here, "Can this article be named *honey-drips* without violating the provisions of the law, even if the percentages of glucose and cane syrup are given on the label?" Apparently not; for honey does not enter into the composition of the article in even a small quantity. To simmer the whole thing down in a nutshell, Uncle Sam apparently does not propose to allow anybody to use the word *honey* to designate an article that contains no honey whatever. It must be largely honey; and if any other ingredient was used with it, it would have to use the word "honey-compound" or "honey-blend" or "honey-mixture." Our dear uncle has ruled rightly.



PEAR-BLIGHT.

It has just been my pleasure to visit the great pear-growing sections of northern California. As is well known, these orchard counties (and they number nearly all of the northern counties of our great State) have reaped great profits from the pear industry. Until quite lately, nearly all the orchards have been very healthy. If we may except the codling moth, scarcely any evil menaced the success of the pear-grower, especially if there were bees hard by to perform the work of cross-pollination. True, the pear-orchards near Fresno were wiped out by this same pear-blight some years ago; but for the most part the pear was a sure winner, and the luscious Bartlett was so melting and delicious that it had an almost unlimited sale at very high prices.

A few years ago, as our readers know, the blight broke out in many of the orchards. It is a curious fact that it seemed like the grip a few years ago—it attacked the orchards in nearly all the pear-growing regions, hardly an orchard escaping. This is a bacterial or germ disease, and we now know the specific germ that does the fell mischief. It works and does its poisonous work in the juices of the tree, and must be transferred from one tree to another in a liquid or semi-liquid medium. It works on other rosaceous trees like the apple, wild crab, etc., and even on the loquat, which, though of the same family, seems quite different from the apple and the pear. It seems that the germs of the disease must be carried in a liquid. The disease is carried then when the trees are in bloom, in the nectar, and at any time, probably, in the resin of the buds and in the gum. I think the people have become convinced that they would have the disease, and that it would spread just the same were there no bees, as there are enough other insects to do the evil work.

UNITED EFFORT.

We have just had, the past two years, a splendid example of how the people ought to work, and what excellent results will be gained when State and government act in fullest unison. Prof. Ralph E. Smith, working for the State, and Prof. Milton D. Waite, working for the Department of Agriculture, have been working with the orchardists in fullest accord, battling this pear-scourge. They have gone far enough to show that the blight can be overcome if the fruit-growers will only act with the energy that the importance of the matter demands. As is well known, the leaves wilt and become discolored, as if the twigs were broken. Thus it is easy to see when a tree is struck with the disease. Again, the bark hardens and becomes close to the wood, and dry. The wood is also discolored. The work is both winter and summer work. In summer all twigs that show wilt are at once cut off much below the wilt to be sure to get all the germs. After the knife or clippers are used to cut the twig they are dipped in some disinfectant before they are used again. This pruning can not be too closely looked after. It pays to get a man, if the orchard is a large one, especially to watch and prune. In fall and winter the trunk and main roots are gouged out with a chisel; and if the suggestive stain is seen, then it is known that the whole tree is affected, and all the tree is dug up and burned. It is not a long chore to inspect a tree, and it will pay well to be very thorough. In case the work is done as it should be, the orchard will not likely lose many trees. I find that those that have been the most careful are the most hopeful. One man who has taken hold of the matter with great energy told me that he would not have any fear of complete success if he could only get his neighbors to act with the same vim that he is showing. The trouble is that, a single tree omitted or undiscovered, will, when it blossoms out, become a center of infection for a large area. The fact that many will let their orchards go will cause the loss of the same, and the effect will be to raise the price of pears; and so very likely the man that works hardest to keep the enemy at bay will be really a gainer, and get more in addition for his crop than the fighting has cost him.

I was much pleased to find that the fruit-growers are well aware of the great good that the bees do in pollinating the bloom. Nearly all of the leading fruit-men know and openly recognize the fact that they owe a great deal to the bees, and could not meet the best success without them. Some of the fruit-men have even hired bee-men to bring their apiaries into the orchards.

LOSS BY FLOODS.

There have been some very serious floods along the Sacramento River. Many of the tracts are called "reservations," and are leveed at the general expense of those protected. Several of these reservations are flooded, and in many cases whole apiaries in the flooded regions are ruined. The water was never so high before. I had 75 acres, half in asparagus and the rest in alfalfa. It is now all several feet under water. Of course, the crop will be ruined this year, and it will cost much to repair the levees; but the land will be enriched, and it is so immensely productive that we can afford to lose an occasional crop, and yet be ahead. Of course, if it could have been foreseen, the bees could have been carried to higher land, and saved.

HONEY FROM THE ORANGE.

To-day is warm, and the bees are making merry on the orange-bloom. We can not ex-

pect much honey generally from the orange, as the bees have not bred up much as yet, and so are not strong enough to get any considerable stores from this orange-bloom. There are, however, two points of gain in this orange honey. It is a very fine grade, none better, and it comes in a time when it will do much good in stimulating the bees to work. For the past few days the whole air has been perfumed by the orange-bloom, and we may easily imagine what a gain the bee-keeper would receive were the bees strong in numbers, and had we many warm days in which they could gather. We have had many cold days, though for a whole week the bees were out in full force every day.

WEALTH OF BLOOM.

We have had the finest winter rains in Southern California that I have ever known. We now have had 25.25 inches, and we may well believe that we shall yet have some more. As a result, the flowers are splendid. One can not describe the beauty that hangs over field and roadside at this time. The phacelia, so much prized in Germany, and which is native here, is out in all its glory, and the bees are just swarming on it. So of many other wild flowers. The sages are growing rapidly, and promise great things.

THE DOOLITTLE SYSTEM OF HONEY PRODUCTION.

So many good and profitable articles have appeared in GLEANINGS the past year that it hardly seems fair to commend freely one and not even mention others of equal merit; yet there has been one series of articles that have especially interested me that calls for our attention at this time. I suppose one reason why they have been of so much interest to me is that I have probably given the subject of swarm control more thought and study than any other one thing connected with bee-keeping I refer to the articles by G. M. Doolittle, entitled, "A Year's Work in an Out-apiary."

I was much pleased recently to learn that these articles are soon to be placed in book form for the convenience of bee-keepers. It is not that I believe that every one will succeed as well as Mr. Doolittle has done, but I believe the principles he lays down are sound and solid, and well worthy the careful study of every person interested in keeping bees for profit or pleasure.

Mr. Doolittle seems to work with one end in view from early spring till the maples crimson; viz., to secure the largest possible crop of honey, and then leave his hives in the best condition for the next year's work. And may it not be well for us who are interested in the same object to review at this season some of the rules or maxims that he lays down for securing a large crop of honey?

In the first place, he recognizes the fact that, to secure a large yield of honey, each hive must have a great army of workers of proper age for outdoor labor just when the flowers yielding the most honey come into bloom. To secure this great army of workers after a colony has been well wintered and nicely tucked up in spring, there is, perhaps, no better way, where there is a short flow of honey from natural sources, as is almost always the case in our northern climate, than to feed daily, as Mr. Alexander and some others do; but as Doolittle is writing of an out-apiary where daily feeding is impractical he does the next best thing—keeps each hive stocked with an abundance of honey in the comb. After one has noticed how much more rapidly a colony with ample stores will build up in spring than one equally good at the start, but with insufficient stores, he is prepared to appreciate this method.

Later, another problem presents itself. How shall the rapidly increasing number of bees be kept contented, and not swarm, until it has reached its highest point of efficiency, so to speak, and the "honey harvest" is at hand? He solves this as easily and skillfully as other problems. At just the right time he doubles the hive capacity, and, instead of ten combs, the hive now has twenty with an abundance of room for storing any surplus from fruit-bloom, or if, as is often the case, there is little or none, there is in these extra combs enough old honey to keep up brood-rearing at a rapid pace during the time from apple-bloom till clover opens—the most critical time in the whole season. We all know that a very large hive is practically a non-swarmer early in the season: although it may not be of much value later.

Again, as the season advances the swarming instinct is almost sure to assert itself, and the colony seems to lose its ambition for some days previous to the day of swarming, and honey-gathering moves slowly. Mr. Doolittle forestalls this condition by quietly removing most of the brood and half the combs, giving abundance of room in empty sections with some baits, so that the colony is not only not discouraged, but is stimulated to the utmost to make good the loss of their brood and honey by this unexpected robbery. And it would seem as though the bees in this way are satisfied to work on to the close of the season without even making an attempt to swarm. Had this little *coup d'etat* of the master been delayed until the swarming fever was high, less satisfactory results would have been secured as more time would have been required before the colony would be satisfied and contented. Had not brood-rearing been rapidly pushed forward during the early spring, the colony would have been too weak in numbers to secure the best re-

sults, although swarming might have been prevented.

Now, while these methods are, I believe, sound to the core, and could be carried out in detail where the seasons are very similar to those in Mr. Doolittle's locality, yet in other places, where conditions are different, the details must vary to suit the ever varying conditions with which the bee-keeper is surrounded. For instance, he secures a large amount of partly filled combs of honey for spring feeding from buckwheat, as well as many new combs drawn out or built entirely new, while here I have known but one or two seasons in forty years when any new combs would be built by the bees, or even old ones filled partly full at this season. Even the basswood has failed for several years past to give us any considerable amount of honey. The season for honey is very short—from two to six weeks on clover. The average is not more than three or four, and much of this time only a moderate flow.

The necessity for strong colonies is quite as great as with Mr. Doolittle, or even more so. We have few combs of honey with which to feed and build them up as he does. We might feed sugar syrup heavily in the autumn; but should there happen to be a good flow of early honey, and we shook bees on to these combs with sugar syrup, they would be likely to carry more or less of it up into the surplus combs, thus injuring its flavor and our reputation at the same time.

During the past season I had some section honey injured from old honey in brood-combs on to which swarms had been shaken. We might buy cheap honey from the South to feed, but the danger from disease and inferior quality still would make it impracticable.

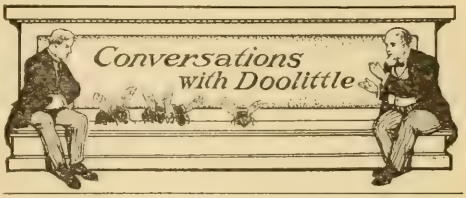
A better way would be to use our weaker stocks for filling a sufficient number of combs to lay by for spring feeding.

While the storing of his surplus combs in the open is a success with him, I fear it would be wholly impracticable in many places, notwithstanding the bee keeper had given away two or three per cent of his crop to his neighbors, although in some communities it might be entirely satisfactory.

Last season I tried to run a number of colonies on the Doolittle system. I followed his directions, I think accurately, except that I used eight-frame hives instead of ten, as he does, and, as nearly as I remember, about one-third prepared to swarm after their brood was removed. I attributed my lack of success to the small brood-chamber I used. If so, this shows how careful we should be in following all the directions of any given system before we are able to judge accurately of its value.

I shall try again another season, following his directions to the letter so far as I am able, and I wish many other bee-keepers would do the same until we have fully mastered this perplexing problem.

It seems to me that if others can make it work as well as Mr. Doolittle does, it is the most practical method of swarm control that has yet been published. Yet other methods before us should not be overlooked, as they too may bring success or lead in that direction.



FEEDING BACK.

"I have 21 colonies of bees now, but expect to increase somewhat as I can care for them. I wish to work two-thirds of my colonies for comb honey, and the other third for extracted. The extracted honey I wish to feed back to the comb-honey colonies, as comb honey sells the best here. I thought that, by extracting from one-third of them and feeding it back to the rest, I could produce more and better comb honey than in the usual way. My trouble is this: The white clover shuts off so quick that I can't get more than half of my sections finished up, and I have to take them off partly filled or leave them on to be finished off with buckwheat, which spoils the looks and sale of the sections for white honey. Hence I wish to feed back the white honey I extract, to finish up those partly filled with clover honey; and I want you to tell what is the most practical feeder to use in connection with this work."

"I do not know that it makes very much difference as to the feeder used, friend R., only something which will hold enough so the feeding can go on rapidly."

"Where should the feeder be used—on top of the sections or bottom of the hives?"

"I have tried both ways, and I did not see that it made much difference, though I rather preferred the bottom feeder."

"Well, tell me how you did it."

"I used a common four-quart milk-pan for a feeder, using a float of very thin wood with a lot of holes bored through it. Over this float was thrown a piece of cheese-cloth, which allowed the bees to go on top of the feed, with no danger of drowning. If this feeder was put on top of the sections, a few pieces of sections were set up against the side of the pan, so that the bees could run up on them; or the cheese-cloth was cut large enough so that the corners hung down and touched the sections which the pan rested on."

"How did you keep the outside bees from this feed?"

"By setting an empty super over the sections, and putting the cover to the hive over this empty super."

"Why did you use such pans?"

"Simply because we had plenty of them at our house. They are no better than any dish that will hold three or four quarts. Any old thing which can be spared from the house that will hold the feed is as good as these

pans, and, in my opinion, just as good as to buy or make feeders especially for this purpose."

"How did you fill these feeders the second time when the bees were in them?"

"I took off the cover, and with the smoker I drove the bees off one edge of the cheese-cloth, when that edge was raised up, the feed poured in at that side, and the float would be raised by the poured-in feed, together with the cheese-cloth and bees which were on it, till the amount I wanted in the pan was given, when the side I had raised was put back where it belonged and the cover put on again."

"When you fed at the bottom, how did you do that?"

"I took the back cleat off the bottom-board of the hive, and this same cleat off another bottom-board, when this last was put up, back to back, and level with the bottom-board of the hive the colony stood on, when an empty super was set on this last-prepared bottom-board, and a cover on top of that. This left an entrance the whole width of the hive under the back of the same, and into this empty super, into which the bees could come for the feed as soon as the pan of feed was placed therein. As I said before, this seemed the most natural way for the bees to take and carry the feed; but so far as I could see there was very little difference in the results, and very little difference in regard to the amount of labor that had to be performed."

"Did you feed the honey as it came from the extractor?"

"No. The honey must be thinned to about the consistency of nectar as it comes from the fields to secure the best results. If the feed is too thick the bees will gorge themselves till they become sluggish, and the work goes on slowly. With thin feed the bees carry and evaporate it very nearly the same as they do nectar from the fields, though you are to do the feeding at night, so as to insure against robbing."

"Would feeding back work with your plan of swarm control as given in your serial in last year's GLEANINGS?"

"Just as well as with other colonies, though if you work your bees as there given (and more fully given now the serial is published in book form, through additions thereto), you should have very few unfinished sections at the end of the clover harvest; and I doubt about feeding back being a paying operation except to finish up unfinished sections. I did not have enough unfinished sections left over from last year to give me the needed baits for this year's use with the same number of colonies so worked last season."

"In your opinion, which are the best bees for comb honey?"

"All things considered, I believe a good grade of hybrids the best."

"What kind of cross do you mean by a good grade of hybrids?"

"I mean the first cross between the best Italians and the common black or German bee."

"But are not such very cross?"

"Yes, the larger part of them are. But you did not ask any thing about their temper, but which were the *best* bees for comb honey. And adding a little to the best part I will say that years of experience at the out-apiary leads me to believe that, the crosser the bees with such a grade of hybrids, the better work they do in the sections, and the more of it."

"But you would not advocate the purchase of hybrids, would you?"

"No. You can not build up in that way, for the tendency is to grow worse. I would use the best Italian queen I could get for the mother, and then let her daughters mate with whatever drones on the black side they happened to, were I working wholly for comb honey, regardless of careful breeding for the improvement of stock. Stock improvement can not be brought about by breeding from hybrids, even though I have to admit that a good grade of hybrids seems to give the better yield of section honey."

"I have a strain of Italian-Carniolan hybrids, and one of leather-colored Italians which have done well for me, both in quantity and in capping of their section honey, though the latter do not cap quite as white as the other. Now, how would it do to raise queens from the former and drones from the latter, so as to produce a strain of bees that would give the largest yield with the whitest capping?"

"That would be all right, if—"

"What do you put that *if* in for?"

"That *if* is about your being able to mate queens that way. If you could control the mating of queens as you can that of poultry, then you could make progress. But with A, B, C, and D raising thousands of drones to where you would raise a score of your dark Italian drones, and all those drones flying with your score, what chance do you think your Italian-Carniolan virgin queens would have in mating one of the drones you want them to?"

"That is an *if*, sure enough. How would it do to raise some early queens from the above colonies, and introduce them into my other colonies at the beginning of the white-honey flow, according to Mr. Alexander, and thus stop swarming? If this plan would work, wouldn't it be easier to stop swarming this way than by your plan?"

"Yes, possibly, *if*—"

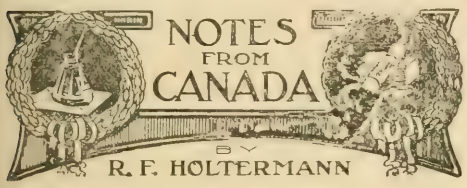
"That *if* again. What about it now?"

"There are two *ifs* in the way now. The first is, *if* your early queens would be good queens, which is very doubtful; for really good queens can not be reared in your locality much before the clover flow begins, to say nothing about having them fertilized, introduced, and laying at that time, nor the spoiling of colonies in raising them thus early. Then the second *if* lies in the fact that a young queen introduced as soon as the old one is taken away does not materially lessen the swarming problem. If a colony raises its own queen at this time of the year, then such a young laying queen is a sure preventive of swarming, but not where a young queen is introduced in such a way that there

is no practical break in brood-rearing. This is a fact known by many of our best bee-keepers who have carefully tried this plan."

"Wouldn't it be better for feeding back to extract the honey before it was sealed over than to allow the bees to seal it, uncap, and then thin for feeding?"

"It would, if you were sure it would not sour before you had a chance to finish feeding it. As soon as it began to sour it would be spoiled for feeding to finish up sections. There are lots of things to be taken into consideration when thinking of leaving many of the old beaten paths."



THE HEDDON HIVE.

On page 535 Dr. Miller, referring to the Heddon hive, writes, "A curious thing about the Heddon hive is that more seems to be said in its favor in Australia and Canada than in this country." Without discussing the merits or demerits of the Heddon hive, let me whisper to Dr. Miller that, aside from the apiary of F. J. Miller, London, Ont., I have not seen in my travels a Heddon hive for years. Doubtless there are more, but I do not know of ten men in Canada who have adopted the Heddon-hive system. I am quite sure that not two per cent of the hives in Canada are Heddon hives. I have no doubt that the Heddon hive has its advantages; but whether it has more advantages than other hives is a question which I have not been able to answer to myself in the affirmative.

BEE-KEEPING AT THE ONTARIO AGRICULTURAL COLLEGE.

The Ontario Agricultural College Report for 1906 has just come to hand. The report of the lecturer on apiculture is found on page 211. He states, "In producing comb honey one of the chief labors of a colony is the making of wax. To manufacture this, a high temperature is required, and cool weather quickly affects the work in the supers." The experiment man relates how he packed ten colonies "as if for winter. Comb-honey supers were placed upon the brood-chambers and covered up with six inches of shavings." Later he states, "The honey-flow this year was so scanty that little difference could be discerned between the two lots of colonies; but what there was, favored the protected hives." How many of us would find it practical to have to unpack 6 inches of shavings from our supers, and from the sides in addition, every time we would manipulate the hive? We probably find that, when the weather is so cool that the bees are affected in the super, the flowers do not secrete nectar. This is where the foundation of the trouble lies. When the blossoms secrete, the bees soon get back to the supers.

But a still more astonishing experiment and result is obtained in a wintering experiment. "In September last year sixteen colonies were prepared for winter as follows: The hives were eight-frame Langstroths, contracted to seven frames and fed until the combs were full, except where a few square inches of comb were occupied with brood. Inverted queen-excluders were placed over the combs, and on top of them well-propolized quilts. Four hives were then placed together, side by side, as closely as possible, first putting a double thickness of cotton batting between the hives, so that no air could get between them. The covers of this row of hives were removed and a layer of cotton batting placed on top of them, and then upon that a sheet of mineral wool, and on top of this another row of hives treated exactly like the first. Then a third row and a fourth. But there was neither cotton batting nor mineral wool on top of the last row. Twelve inches of shavings was placed on top of the pile of hives, and on all sides except in front, which was left exposed to the weather. The shavings were kept in place and protected from the weather by inch sheeting, and on the roof by tar felt besides. The entrances of all but the bottom row were contracted to two inches in order that the bottom-board, which was the cover of the hive beneath it, might not become cold. The contracted entrances were cleared of dead bees by means of a bent wire twice during the winter.

"The object aimed at was to pack the hives in the cheapest manner possible, to utilize the animal heat from the hives, and to make the bees fly during the winter.

"The hives were protected by a high woods on the northwest, and the hive entrances faced the southeast. The winter was abnormally mild, and the sun, warming up the face of the hives which had no protection, caused the bees to fly a great deal—perhaps too much. The hives were opened and examined the first of May. There did not seem to be any difference between the interior and exterior ones, so far as the condition of the stores and combs went, there being no mold on them. All the hives showed evidences of winter laying, and two of the interior colonies were dead from starvation from this cause. This, however, occurred to a greater or less extent in those wintered in the ordinary chaff hives, and was attributed to the very mild winter."

It would be interesting to know how the bees were placed in their position without returning to the old stand upon their first flight, and how the same difficulty was overcome when unpacking. When the first examination of a colony is made May 1, it would be highly interesting to know what are the symptoms of winter laying. There is one thing, however, about this experiment—it would appear from it that an eight-frame Langstroth hive can no longer be depended

on to hold enough honey for winter stores, for, after taking one comb out and feeding the bees "until the combs were full, except where a few square inches of comb were occupied with brood," two starved. Beat this if you dare in the United States.

The item under the head of "What the Government of Belgium is doing for Apiculture," page 240, may well arrest our attention—so small a country, 258 bee societies, and subsidies from the state, to the extent of 21,780 francs—over $5000 per annum.

OVERSTOCKING.

At the risk of returning to a somewhat threadbare subject, let me say that I believe that the danger from overstocking is much magnified. Bee-keeping being my sole means of livelihood, in order not to have my eggs all in one basket I scatter the bees. Localities not very far apart may vary as to nectar, owing to seasons, etc. I have had two apiaries five miles apart vary 50 per cent in the honey crop.

MORE THAN ONE QUEEN IN A HIVE.

When I was with D. A. Jones, Beeton, in 1880, he repeatedly tried having two or more queens in a hive separated with queen-excluding metal. For a time these queens would go on in their compartments and then be missing. I am afraid this would be the case with several queens in a hive. I also doubt if several queens in a hive will prevent swarming; but then, I may not know any thing about it. How is it that, if two swarms unite, having laying queens, the bees will accept either queen; but when both are left with the united swarm one queen will be destroyed?

SMALL ENTRANCES.

Prof. Cook favors small entrances because the bees have these in a bee-tree. To be logical he must also favor irregularly built crooked combs, as these are also found in a bee-tree. Small entrances and limited storage room tend to much swarming, and in this way bees perpetuate themselves in nature. But we are after surplus honey. If we follow nature as suggested in the small entrance, we should not keep bees at all in this country, as our bee is not even a native of it.

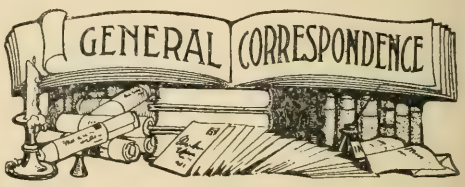
THE SEASON.

Soft maple in the woods in the country has at this date, April 30, not yet come into bloom —fully three weeks later than is generally the case, and the latest I can remember its coming in. Unless stimulative feeding has been practiced, there is a very limited amount of brood in the hive.

TWO OF MORE LAYING QUEENS IN ONE HIVE.

I have now the permission of F. A. Lockhart, Lake George, N. Y., with whom I have had a good deal of business dealing, to tell publicly that he has been practicing having several laying queens in one hive for five years. He told me of this privately some time ago. He writes, "You are the only party I ever told any thing about managing bees by using two or more queens in a hive. This new system for building up strong colonies in the spring, and for rearing large prolific queens and mating the same from the parent hive, is a dandy."

I have profited immensely by visits among New York State bee-keepers, and I am grateful to them for many hints, and have respected their confidences.



PROFITS IN BEE-KEEPING.

Modern Methods Reduce the Cost of Production.

BY E. W. ALEXANDER.

In your footnote following my article in the Feb. 15th issue of GLEANINGS on "Bee-keeping as a Business," you think some of your subscribers may take issue with my statement as to the net profit in the work—namely, $5.00 per colony, spring count, clear of all expenses. Well, as to that I am sure a very large per cent will question that statement, and I will admit that perhaps not ten per cent of the honey-producers of the United States are making that amount per colony. I will also admit that, during the thirty years of my comb-honey experience, I did not make $2.00 per colony clear of expenses from the many colonies I had then. Neither did I make $3.00 per colony clear of expenses in producing extracted honey during the first several years I was engaged in that business. But during the last few years there have been great changes made in producing honey. First, our bees are now bred from much better honey-gathering strains than formerly.

Then some have studied out and perfected certain methods in caring for their weak colonies in early spring, so we now have no more losses in that way, and we have certain ways of making increase whereby not a bit of brood is lost—not even an egg. There has also been great improvement in extracting and curing the honey, which has much to do with selling it readily at a good price; and a few of us have dearly learned the folly of all that out-apiary expense, such as keeping several horses, paying dear rent for a place to set the bees, and losing a large part of the working force from each out-yard in absconding swarms.

It is only a few years since it cost me 4 cents per lb., cash out, to produce extracted

honey. How different now, with these improved methods put into practice!

According to our books, during the past three seasons we have produced 181,237 lbs. of honey. Now, when all expenses were deducted, such as hired help, including board, barrels for honey, sugar fed in the spring to stimulate early breeding, interest, and taxes on $5000 capital invested, our own labor, including delivering on the cars at this station, we find the actual cost to have been a fraction less than one cent per pound.

Now, when honey has been and can be produced at one cent per pound, mostly with hired help, it is not far out of the way to state that bees will pay $5.00 per colony, clear of all expenses. But in order to do so you must learn how to reduce expenses to their lowest possible minimum, and produce honey in the largest possible quantities that a certain number of colonies can be made to do.

The fact that thousands of bee-keepers are not making $2.00 per colony is no disparagement to the business. The same can be said of hundreds of farmers in this section, who are not making net $100 per year from their farms. But there is no reason why each could not be made to pay well if better methods were adopted.

No, my friends, I don't care to modify my statement in the least, that about $5.00 per colony, spring count, clear of all expenses, is a moderate estimate of the profits from the business. There are those that are doing even better than that, as well as hundreds who are making but little.

A few have seen fit to criticise our methods in securing these results, and I do hope that they will give the readers of GLEANINGS much better methods than any I have been able to give, so we can all produce honey still cheaper. If so, I shall be one of the first to take of my hat and thank them all for their very valuable information.

Delanson, N. Y.

[There is one class of writers who can write well, but who, somehow, are not able to practice what they preach. Surely, Mr. Alexander is not one of that kind—nay, rather, he is one who "does things." We venture to say that there are not many in our ranks who can make such a showing.

Speaking about dispensing with outyards leads us to say this is possible in a locality like Mr. Alexander's; but we doubt if bee-keeping can be carried on on a large scale in most localities—at least not profitably—without scattering the bees in several out-yards. Alexander's apiary is on a hill overlooking hundreds of acres of heavy bee-forage which his bees can plainly see for miles, for there is nothing to obstruct the flight or vision; hence they will fly further than ordinarily.—ED.]

A SEASON'S WORK WITH SECTIONAL HIVES.

Swarm Control and Comb-honey Production; Harmony with Nature's Plan.

BY J. E. HAND.

In a former article we mentioned certain hive manipulations as being necessary in order to prevent the brood-chamber from becoming crowded with honey and brood, which are the prime causes that bring about swarming. This brings us down to the sectional hive. As that hive is the only one that can solve the problem of the rational hiving of swarms so that work in the sections is not in the least interfered with by the issuing of a swarm of bees, but goes right on with even more vigor than before, even so we must look to the sectional hive as the only means of swarm control in the production of comb honey where the brood and bees are to be kept together, with no desire to swarm, right through the honey-flow, be it

FIG. 1.—J. E. HAND'S SECTIONAL HIVE; BROOD SECTIONS AND SUPERS ALL ALIKE AND INTERCHANGEABLE.

long or short, fast or slow. To the fact that the principles embodied in the construction of the sectional hive are the result of a careful study of the natural instincts of the bee is due the reason why it is destined to solve the problems of perfect swarm control and successful comb-honey production that have for so many years baffled the skill of the users of the full-depth fixed-brood-chamber hive.

Although it is claimed that the large full-depth hives will prevent swarming, yet bees in such hives continue to swarm the same as of old. This theory is as destitute of any proof for its support to-day as it was twenty years ago; and yet it has been harped on for so long that it has come to be accepted as a matter of fact, while in reality nothing in

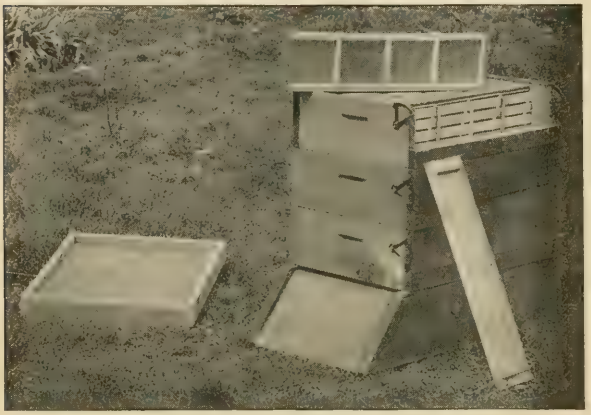


FIG. 2.—SIDE OF UPPER SECTION DETACHED TO SHOW CONSTRUCTION.

the world could be further from the truth. If these articles are the means of wiping out this venerable fallacy, and establishing in its place a better precedent, we shall feel that our labors have not been in vain. The principles of the sectional hive are in perfect harmony with the nature of the bee; and by the manipulations for which it is especially adapted it enables the apiarist to turn the instincts of the bees to his own account in solving the problems of successful apiculture. This will be clearly demonstrated by actual work in the apiary further along in these articles.

PROPER CONSTRUCTION OF SECTIONAL HIVES.

Improperly constructed hives, and failing to separate the system of manipulation by hives from the old method of handling brood-frames singly, have led many to condemn these hives. If I were to use some of the hives that are called sectional, with thumb-screws and wedges, etc., and didn't know any better than to handle these little brood-frames, I'd be tempted to brand the whole system as a delusion and a snare. The illustration will show a properly constructed sectional hive. The brood-sections and section supers are alike and interchangeable. The brood-frames will fit one as well as the other, as will also the wide frames for sections. We use the $4\frac{1}{4}$ plain section and fence separator.

The brood sections contain eight closed-end standing frames, and the section supers hold six wide frames and 24 sections. All frames stand on metal supports nailed to the bottom of the ends of hives.

There is no bee-space between the ends of frames and hives, and frames should drop into hives easily without binding in the least. To facilitate getting out frames these hives and supers are provided with a movable side except $1\frac{1}{4}$ inches at the bottom. This piece holds the hive perfectly rigid when the movable piece is removed.

This movable side is clamped on to the side of the hive by a pair of Van Deusen clamps. Where it is clamped on a strip across at each end on the inside engages the uprights to frames, compressing them up against a pair of super-springs which are made fast to the other side of the hive.

The tension on the springs allows for swelling and shrinking, and the frames are always tightly compressed together. Another essential feature that we have added to this hive is the narrow top and bottom bars to the brood-frames. To facilitate the clearing of the brood-chamber of bees, and also to enable the operator to have a clear view of the surface of the brood-combs from the bottom of the hives, the bottom-bars are $\frac{1}{2}\times\frac{1}{4}$ inch, and the top-bars are $\frac{5}{8}\times\frac{3}{16}$.

A FEW DONT'S.

Don't think that any old thing is good enough for a sectional hive, and then condemn the whole system because your hives were not properly constructed.

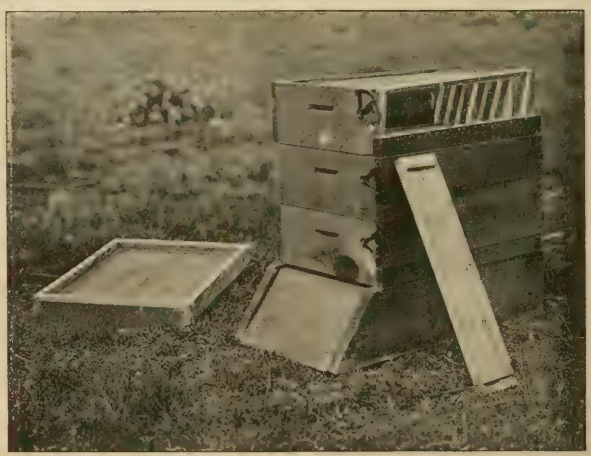


FIG. 3.—UPPER SECTION FILLED WITH BROOD-FRAMES.

It should be understood that the sides of the sections are made removable—not to permit of more easy handling of combs, for Mr. Hand never manipulates combs singly—but to facilitate the work of putting in and taking out the frames or sections and fences.

Don't handle brood-frames singly. It is a waste of time that should be put to a better use.

Don't use brood-frames with inch-wide top and bottom bars in sectional hives.

Don't think that these brood-frames would be better if they were a little deeper. They are $4\frac{1}{8}\times17\frac{5}{8}$, and the limit of shallow frames has not yet been reached.

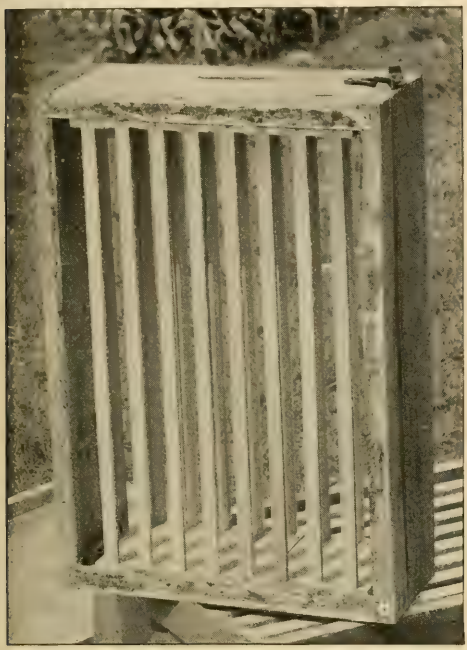


FIG. 4.—LOOKING THROUGH A SECTION FROM THE BOTTOM, SHOWING THE VERY NARROW BOTTOM-BARS AND TOP-BARS.

Don't think that a ten-frame hive would be better for swarm control than an eight-frame one, as it is far more desirable to have the additional room in the form of another eight-frame brood-section, thus giving a brood-chamber of the capacity of twelve L. frames, and fifteen inches deep. While two ten-frame brood-sections would not be big enough, three would be too big for one queen, and, besides, the ten-frame super is too wide to get the best work done in the outside sections.

Don't think that you can improve this hive. We have been working on that line for twenty years.

LOCATION OF OUR APIARY.

To give the reader something of an idea of the apiary in which our season's work is to be conducted we will give a short description of it.

It is situated in an apple-orchard of large branching trees that afford an excellent shade for a part of the hives as well as for the apiarist. The ground is high, and gently sloping to the north and west. The hives are in rows running north and south, and are in groups of four—two facing east and two facing west, with a three-foot alley between backs of hives, and a ten-foot alley between fronts, and six feet between groups. It will be seen that we have four hives to manipulate, without moving more than three feet either way. Another advantage in having hives in pairs close together is that, if one is removed, the returning bees will quickly enter the other hives instead of buzzing about the old stand for several days.

SPRING MANAGEMENT OF BEES.

I am aware that, on this subject as on many others, I am compelled to take grounds directly opposite those taken by some of our best authorities. After much experimenting along the lines of spring feeding to stimulate early brood-rearing, if I were asked when is the best time to feed bees to stimulate early brood-rearing I would unhesitatingly say during September. In very many locations there is not enough honey being gathered during this month to keep up brood-rearing; hence the queen will often stop laying, and, no matter how many bees your hives may have contained during June and July, if this condition of things is allowed to continue long you will have a colony of mostly old bees to go into winter quarters, which means a weak colony to build up in the spring. No amount of spring feeding can ever place such a colony at the beginning of clover bloom in anywhere nearly as good condition as it would have been if the queen had been kept laying during September, thus giving us a strong force of young bees to go into winter quarters instead of a lot of old ones that would die off before young ones could be raised to take their places in early spring.

This is improperly called "spring dwindling." Spring feeding excites the bees, after enticing them to leave the hive during unchangeable weather, only to be caught by a sudden cold wave and chilled. Spring feeding is indeed a two-edged sword, cutting both ways, and therefore is a dangerous weapon in the hands of the unskilled.

All the stimulant that is needed at this time is a vigorous queen, plenty of bees that

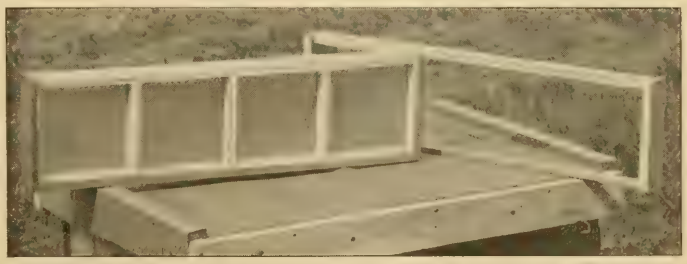


FIG. 5.—A WIDE FRAME FOR THE SECTIONS AND A REGULAR BROOD-FRAME.

were hatched out during September and October, and plenty of honey to last until fruit-bloom. As this is the exact condition of our bees at this time we will not loosen a single cover or remove the winter packing until it is time to clip our queens. Spring tinkering of bees more often results in harm to the colony than otherwise; however, we would not hesitate to feed a colony of bees at any time if they were short of stores.

If we wish to note the condition of a colony in early spring we always tip the hive up on end and look up into the combs. This tells us all that we wish to know at this time.

Breaking the sealing of the cover in early spring allows a great deal of heat to escape from the cluster at a time when it is needed to keep the brood warm.

Birmingham, Ohio.

FIG. 6.—MR. HAND'S APIARY OF SECTIONAL HIVES IN AN APPLE-ORCHARD; THIS PLAN ALLOWS A THREE-FOOT ALLEY BETWEEN THE BACKS OF THE HIVES.

BEES OF NORTHERN AFRICA.

Why there are Two Yellow Races So Widely Separated; International Exchange of Ideas.

BY C. P. DADANT.

I am in receipt of a letter from the treasurer of the Association of Algerian Bee-keepers, Mr. Bernard, of Kouba, Algeria, who calls my attention to a short article in GLEANINGS for February 15, p. 240, concerning the bees of Northern Africa. In this article mention is made of the fact that the bees of Egypt and of Senegal are yellow, while those of Tunisia, Tripoli, Algeria, and Morocco are black. The suggestion is made that our common bees of Europe must be descended from those of Northern Africa; and Mr. Morrison, the author of the article, says that the fact that these two races of yellow bees of Africa are separated by three thousand miles of black bees is a conundrum worth studying.

Mr. Bernard suggests that the yellow bees of Egypt could easily spread westward south of the desert until they reached the western shores of Africa. But the desert was an insuperable barrier to their spreading in a northerly direction to the northern limits of Africa. On the other hand, the bees of Algeria could reach Europe through the Strait of Gibraltar.

The same may be said concerning the bees of Italy. A glance at a physical map of Europe will show that Italy is separated from the rest of Europe by the highest and most uninterrupted chain of mountains on the continent, almost uniformly snow-capped. So in Africa, the heat and drouth of the desert, and, in Europe, the cold and snows, have acted as limits to confine the races which have slowly drifted apart, in appearance as well as in other qualities.

I desire to take advantage of this opportunity to congratulate the bee-keepers generally upon the increase of international exchanges in bee literature. It is only a few years since the apiarists of one country were almost totally ignorant of what was done in other countries in the same line. Mr. Samuel Wagner and Mr. Langstroth were the

first to bring to our notice the European discoveries. Then, for years afterward, only a dozen men or so, such as Grimm, Muth, Benton, etc., read regularly the foreign bee publications. Now not only our bee journals give us daily mention of European questions, but our own papers are noticed in Europe, and not a month passes without some quotations being made from nearly every bee publication of America. The increase in international information is becoming very common, and will certainly prove of benefit to all.

Hamilton, Ill., April 12.

COMB HONEY.

How to Keep it from Becoming Water-soaked; Carbon Bisulphide to Kill Moths.

BY DR. C. C. MILLER.

A correspondent desires me to talk in GLEANINGS about keeping comb honey, and writes:

> I can keep mice out by a mouse-tight room. I can keep ants out by putting the honey on tables the legs of which stand in tin cans with water in them. But here is the rub: How can I keep it from "sweating" and keep it from moth? I put it upstairs on the south side of my house, out of the supers, on tables, and it would drip some even then. If I leave it in supers it would cure rather less; but I could treat it with bisulphide of carbon, which would be rather difficult if out of section-holders. And still another difficulty: This is over living and sleeping rooms. I should hate to put bisulphide of carbon upstairs and go to sleep under it, for I might go out of the bee business rather suddenly. Of course, I might get rid of some of the trouble by building a honey-house; but there are hundreds, like myself, who haven't bees enough to warrant building one.
>
> Information along this line would be very instructive to me and lots of others.

Years ago I had no little trouble with worms (begging Prof. Cook's pardon for using the short name for the larvæ of the bee-moth) in sections. No matter how free from them the sections appeared to be when taken from the hives, in the course of a week or two the work of the little miscreants would appear. It seems difficult to understand how a moth could get through the crowd of bees and be allowed to deposit her eggs in the sections while on the hive, but somehow they did it; for if a lot of sections were sealed hermetically immediately upon their being taken from the hives the worms would appear in due time all the same, showing clearly that the eggs were there while the sections were still occupied by the bees.

Of course, nothing could be directly done to prevent the laying of the eggs, so I resorted to after-treatment. The first appearance of any thing wrong would be little heaps of fine white powder, in each of which was a worm so small as almost to escape observation. These beginnings were generally on the comb built next to the wood. If a cell contained pollen, that was a favorite starting-place; also the body of a dead bee. Don't ask me how a dead bee could be left in the hive, or how a moth could lay an egg on it, either before or after its death. I don't know. I only know that, in the rare cases in which a dead bee was found on the bottom-bar of a section, a worm was sure to appear there in due time.

I treated them to the fumes of sulphur. A very little of the fumes will kill these very young larvæ, and ten times as much will scarcely affect one three-fourths of an inch long. Sulphur does not affect the eggs. Freezing kills them; but, of course, I could not wait for freezing weather. About two weeks after the honey was taken off, the first fumigation occurred, with perhaps ¼ pound of sulphur for each 100 cubic feet of space. Too heavy sulphuring greens the sections. That left some eggs which would hatch in the next two weeks, when they were fumed again. The two treatments were enough. There were plenty of cracks in the room where moths might have entered, but they never did that I knew.

Instead of sulphur I suppose I should now prefer bisulphide of carbon. It hardly seems that it ought to be dangerous to sleep in a room beneath; for if you operated in the morning you could air thoroughly before night, and with your sleeping-room windows wide open you ought to be pretty safe. At any rate, the smell ought to warn you of any danger. An important advantage of the bisulphide is that it kills both eggs and larvæ, requiring only one treatment.

I said I had trouble years ago. I never pay any attention to worms nowadays, so seldom does any trouble occur that it isn't worth minding. I don't know what should make the difference unless it be that formerly I had black bees, and now there is more or less Italian blood in all of them. Italian blood is perhaps the best vermifuge.

I don't know of any drug that's good for watery honey. Honey under certain conditions seems to have a liking for moisture; and the greener the honey, the greater seems the liking. Likewise the longer honey is on the hive the less likely it is to become watery. I have seen sections in which the air-space under the cappings was entirely filled by the thinned honey, making the sections look watery and dark, while other sections right beside them showed no appearance of being affected. The first has been filled in a flush of honey, and taken from the hive just as soon as sealed, while the others were left on till the bees began to darken the cappings of some of the sections. So one thing to look out for is not to be in too much of a rush to take off sections, especially when bees are storing very rapidly.

A damp cellar is one of the worst places for honey. Another bad place is a room opening off from a kitchen, the room being colder than the kitchen. The steamy air from the kitchen gives out its moisture in the cooler room, and the honey grabs for it. Yet the honey will be all right in the kitchen itself, in spite of the steam, for the greater heat keeps drying it out.

Plainly, then, we want the honey in a place where things will dry; and as heat is a great drier, the hotter the place the better, so long as it does not melt the comb. An attic close up to the roof, where, under the summer sun, it gets "hot as election," is a fine place. I have known sections which had endured the summer's roasting in such a place, to go through the freezing of the following winter without being affected, when most sections would have granulated and cracked with the freezing.

Put honey in a room warmer than the surrounding air, and with at least a little chance for ventilation; and instead of fearing that it will become watery you may count on its improving. That's about the whole story. I don't understand why your south upstairs is not all right, and can only guess that, for some reason, it is not warm enough. The remedy is to raise the temperature — if no other way, by an oil-stove.

If you have sections over the faces of which honey has been dripping, put them over a strong colony for an hour or two, and the bees will make a perfect job of cleaning the outside. Then put them in a warm place, and you may count on the honey improving if it is thin; but if the air-spaces under the capping have been filled, you can never make it right again. Prevention is better than cure.

Marengo, Ill.

[We have had quite a little experience with carbon bisulphide for fumigating honey, and can indorse all that Dr. Miller says. There would be no danger in sleeping below the honey-room if one were reasonably careful to close the cracks under the door, etc.

For the most effective work, the main point is to have plenty of bisulphide for the size of the room. It is often an advantage to use a large tight box for the honey, with the liquid in a shallow dish on top, so that the amount of air will be smaller and the gas correspondingly stronger.—ED.]

CANDY FOR FEEDING.

The Somerford Method of Making Increase.

BY EDWARD FLYNN.

I lost several colonies wintered outdoors in single-walled hives. I fed syrup in the fall, and candy this spring. When I first started making candy two years ago I found it very difficult to make it just right, and am not sure that I have succeeded yet. After putting on a super, I place a slab of candy on top of the frames (they are flush with the top of the hive), with a couple of ½-inch-square sticks supporting it. In a day or two the candy sinks down, and cements the sticks and frames in a concrete-like solid mass — very hard. Is this right? It is very hard to get the candy off the frames again. I may mention that I nail a cleat half way up on the inside of the super, cut a half-inch board to fit inside on those cleats, and put packing on top. I also tack a piece of enamel cloth on the outside of the hive, where it meets the super to retain the heat, so I don't think they got chilled. Nearly all I fed with candy died; those I did not feed are all right.

I have a lot of hives with good clean comb on hand, and wish to increase this summer to make up for winter losses.

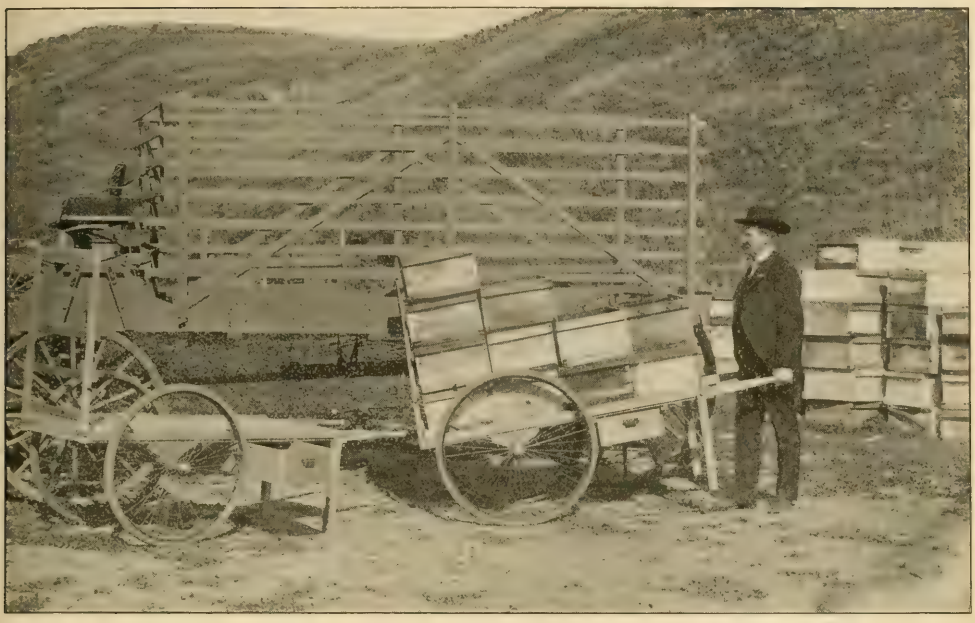
I have been reading up the Somerford method of increase in the A B C, and intend to try it; but there are some parts of it I want explained. Mr. Somerford says: "To begin with, remove the queen or cage her." Now, right here I want to know where I shall remove her to. I want to put her back again in the old hive after I divide. If I cage her what sort of a cage shall I put her in—a Benton introducing-cage? How much candy will she and her attendants consume during the ten days she will be away from the hive? or will she require any attendants at all? Lastly, where should the cage be kept—in the old hive or where? I shall divide only one hive. I won't risk any more till I see if I make a success of it. Mr. Somerford says, "Put in one good frame of honey, using it as a division-board. I have no frames of honey available, as I have only six hives left altogether, and three of these are not Langstroth, the size of the one I am going to divide (that is the worst of having different-sized hives). Would an ordinary division-board and a quantity of syrup sufficient to last four or five days, placed in the bottom of the hive, do as well as the frame of honey?

Epworth, B. C., Canada, March 30.

[It takes a little experience to make the candy and have it just right. As explained in a previous issue, the sugar and water should be cooked to a "hard crack;" that is to say, when the boiling has been going on long enough so the finger, when first dipped in the water, and then immediately into the hot syrup, and back again into the water, will form a film that will crack when the finger is bent, then the cooking has progressed long enough. But be careful in making this syrup to see that it does not burn. It should then be poured into shallow wooden butter-dishes; and if the candy has been made right it will not run down between the frames. But, to prevent the possibility of it, turn the butter-dish of candy right side up. For experiments on candy-feeding you are referred to pages 95 and 82 of our Jan. 15th issue.

When Mr. Somerford speaks about caging the queen he means putting her in any kind of queen-cage, placing the cage on top of the cluster of bees, or between the frames if it does not bulge them too far apart. The ordinary cage will hold candy sufficient for a week or ten days. When he speaks about removing the queen he means putting her into another hive by introducing.

A division-board and a frame of candy or a pan of syrup would answer in the place of a frame of honey.—ED.]



MERCER'S PNEUMATIC-TIRED CART ARRANGED FOR CARRYING HIVES.

EXTRACTING-COMBS.

Pneumatic-tired Carts for Carrying them to the Honey-house.

BY L. E. MERCER.

On page 1574 of the Christmas issue of GLEANINGS for 1906 are two pictures of Mr. Alexander's extracting-house, and the man with that heavy box of honey. It makes my back ache to look at that picture. I don't think I could keep a man on my bee-ranch more than one day if he had to pack the honey that way. Well do I remember one summer about 23 years ago, when I carried about 20 tons of honey in the tin bucket such as used to be advertised in GLEANINGS for that purpose. It makes me tired to think about it now. But the next year we used a sort of cart and box that held ten combs, and shoved them into the house on a set of rollers, and out on another set; but we soon discarded that for something better, and now we use the rubber-tired carts that you see in the photos I am sending. When the larger picture was taken I was loading the wagon with supers for an out-apiary. The rack on the back of the cart is removed when we go to extracting, and we place on the cart a box with a tin bottom. This holds 40 L. combs, as seen in the smaller view. We have 12 such carts, two for each apiary. The box is not taken off the cart. One is unloaded while the other is loaded, and we always go out with a full set of empty combs to replace the full ones that are taken off the hives.

Ventura, Cal.

[Mr. Mercer is one of the most extensive

A PNEUMATIC-TIRED CART FITTED WITH A TIN-LINED BOX FOR CARRYING EXTRACTING-COMBS.

bee-keepers on the Pacific coast; but the cart he shows here, while just the thing for him, would not answer in Alexander's apiary, which is located on a stony rough side hill. Localities and conditions make what would be practicable in one locality an utter failure in another. The cart here shown would be a great labor-saver in most localities.—ED.]

A PROPOLIZED SKELETON OF A SQUIRREL FOUND IN A BEE-TREE.

BY C. A. PHILLIPS.

Last July the writer was hunting squirrels, and after chasing one up a tree he was surprised to see it enter a hole leading to a hollow part inhabited by bees. In October he cut the tree to get the honey, and found the carcass of the squirrel, devoid of flesh, and completely propolized. The front foot was directly over the nose as if the squirrel were scratching the bees off its nose at the time of death.

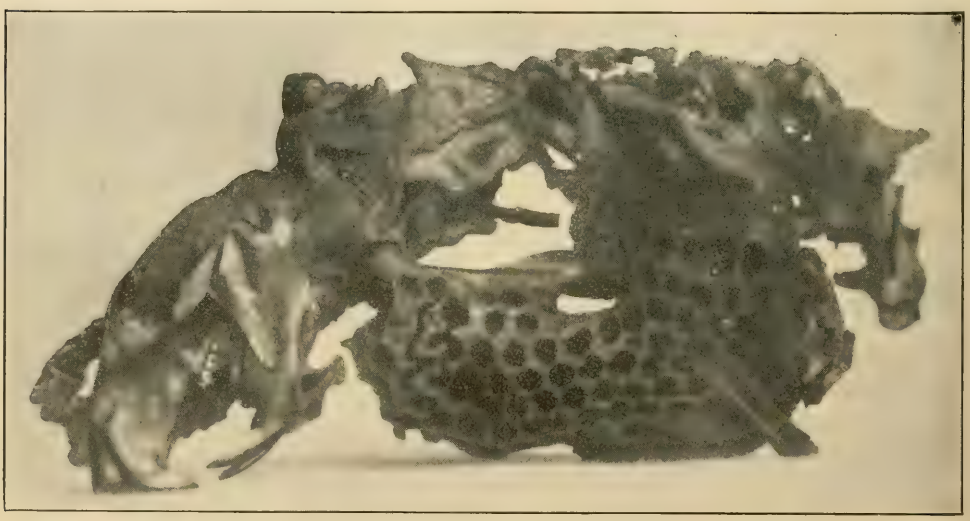
The engraving shows this, and also the pecan shell at the base of the neck. The lower part shows some comb containing a few sealed cells of honey. We think this is really a freak. It shows how bees can embalm an object of this kind.

Rushville, Ill., Oct. 20.

[This is indeed a very interesting exhibit. We only wish we knew the life-history of the squirrel so neatly embalmed; but, not knowing the circumstances, such history can be pretty accurately surmised.

It is well known that a squirrel, unless seeking to get away from a hunter, would not take the chance of rushing into the flight-hole of a colony of bees in a tree. This squirrel had probably been shot at, previously, and on this occasion took a long chance with the bees as against the hunter. It is very plain that it might better have submitted to the "tender mercies" of the man behind the gun.

It would be interesting to know exactly what took place after this squirrel was stung to death. Did its body decompose or shrivel up? Or if the former, did the bees carry away the decayed tissue? Of course the hard bony portions of the animal they could not remove. To remove the odor of the carcass they did the only thing they could do—cover it with wax and bee-glue—that is, embalm it.—ED.]



A SQUIRREL EMBALMED WITH PROPOLIS BY BEES IN A BEE-TREE.

MORE THAN ONE LAYING QUEEN IN A HIVE.

When the Condition is Possible; Some Possibilities.

BY A. K. FERRIS.

On page 473, April 1, I noticed something which greatly interested me because it was along a line on which I have carried on a large number of experiments; and the reason, perhaps, above all others, was the fact that it came from the pen of E. W. Alexander, the man whom I consider as entitled to the first place among bee-keepers. In his article I noticed something which will be largely misunderstood; and for his sake, more than any other, I do not wish bee-keepers to get a wrong impression of one who is trying to benefit the apicultural fraternity.

Mr. Alexander, with his almost continuous honey-flow, can place as many queens in one hive as he chooses, and this I found I could do also, so long as there is some sort of honey-flow or a prospect of one; but when you get into a locality where the flow drops from

a heavy one to nothing, all in one day, as I did, he will find that all except one and in most cases all the queens will be killed.

To illustrate: In running on the two-queen system, and in using excluders to keep the queens below, I found very frequently, when brood was raised above the excluder, that they would build queen-cells during the flow. Oftentimes these escaped my notice, and in due time I would have laying queens both above and below the excluder.

My experience perfectly coincides with Mr. Alexander's in the fact that such colonies, with more than one laying queen, never make any attempt at swarming; in fact, they act as though they did not know how to work fast enough. They roll in the honey as long as there is a flow, with a vim seen only in such colonies; but when the honey-flow drops off about July 25 to 28 we generally find all queens dead in such hives in three days. In fact, at such a time any thing from a two-frame nucleus to a two-frame hive or more is liable to have its queen dead at the entrance, within three days from the close of the flow. Nor is it poor ones that receive such treatment, for I find it to be my very best and most prolific queens that go. It is almost impossible to get such a colony to receive a queen of any description for about ten days, and in some cases I have to wait even longer. This may seem like a very peculiar condition, but such is the case over a large portion of Southern Wisconsin.

Where the white-clover flow ceases on account of excessive heat, and there is no other honey-producing plant, such a condition will exist. Where the flow is continuous many things can be accomplished that can not be where there is not.

I am glad Mr. Alexander has given his experience along this line, and there are many places where the bee-keeper of careful habits can keep a number of laying queens in one hive, and it does not matter much whether they are separated or not; but what I am now and have been working on is a system where we can multiply laying queens in each hive at the right time without the fuss and bother usually entailed in getting them, and still not have them all destroyed by a cessation of the flow. I am satisfied that I have this; and after another season's trial I shall be prepared to give it to the public. I do not believe in being too hasty in putting out new things, for we get enough criticism from those "bungling" bee-keepers any way, without needlessly exposing ourselves to the fire of the rank and file, who know nothing of the real facts, and simply reason it out from things they supposed were facts, which we find, upon careful experiment, to be entirely wrong.

Hines, Wis.

MORE THAN ONE LAYING QUEEN IN A HIVE.

About two months after my bees deserted their hives and doubled up at the time referred to in my former article, I once found two fertile queens working together. It could hardly have been a case of superseding, as my bees were weak, and I think there were no drones flying then. The next spring I sent for an Italian queen, probably the first brought to that county, and took her in her cage to a queenless colony that I had prepared for her. I was then green and awkward at handling queens, and she flew away, and so I lost her. Some two weeks after, while examining a hive about ten steps from the one to which I intended to introduce the queen, to my surprise and delight I found my yellow-banded queen, and I think it was on the next comb that I also found the old black queen.

During that summer I had a nucleus standing near a strong colony of hybrids. At about the time the young Italian queen should take her wedding flight she disappeared. Some time after I found two Italian queens in that strong colony. The one being extra large and well marked, like the lost virgin, I concluded that this was she.

I should be very much pleased to have Mr. Alexander tell us how to introduce several queens to a colony, as I think that knowledge would be a benefit to me.

Lander, Wy. I. W. BECKWITH.

TWO LAYING QUEENS IN ONE COLONY.

Last spring I had two breeding queens Nos. 1 and 2. No. 1 was very weak in bees; No. 2 medium; both were very good layers, and nice big prolific queens. I used No. 1 the most for breeding young ones, hence did not get that colony strong; but No. 2 was full of bees early in the summer before I expected. Every now and then I had it open to take eggs out. Finally I noticed it had started queen-cells. I did not know the cause, as honey was coming in too slowly to expect it to swarm. Later I found virgins and the old laying queen in the same hive, so I took out the virgins. After a while I again found nice cells, so I commenced to cut out cells to give to nuclei—how many, I can't say. Then during haying and grain-harvesting time I was so busy that I could open no hives. No. 2, I think, was not opened till the latter part of September, then, to my surprise, I found nothing like a queen—no eggs nor brood, and the colony weak. Now, No. 1 I had opened very often in order to take out eggs, etc., until about the last part of June. Remember, this was kept weak by taking eggs; but still I also cut out two ripe cells, if I mistake not, about the 26th of June, and then, as nearly as I can say, I did not have it open for about two months. Then when I looked through that colony I found two laying queens. Both looked nice and big. I let both go until Nov. 19, then I took the young one out; but before I caught her I had the hive open perhaps 20 minutes, just to see what the queens would do before my eyes; and let me tell you, friends, that said queens were so proud of each other (so it seemed) that they crawled on top of each other, over and over again. It seemed they were kissing each other. I only wished the hive were packed

full of bees or that it were spring instead of Nov. 19. D. E. BEST.
Best's, Pa.

HAS WORKED THE PLURALITY-QUEEN SYSTEM FOR YEARS.

I notice the article in May 1st GLEANINGS about a plurality of queens in a hive, etc. This system is not new to me. I have been using this wonderful system for the past five years with success and satisfaction for building up colonies in the spring rapidly and rearing and mating the very finest queens. The system is a model one. You have seen for years that we have been advertising queens for early orders.

Now, it is a very easy matter to winter a lot of small colonies, but quite another thing to care for them after taking them from the cellar on account of swarming out, spring dwindling, robbers, etc. With the new system these troubles do not bother us; with a queen-excluding zinc over a strong colony and the small colonies in a hive above with division-boards between each little colony, all will be well; and when we need a queen for a customer, all we do is to remove one of the queens, withdraw the division-board, and shove the frames up next to the other small colony, and all goes well, after removing all the queens but one. That is left to build up to a strong colony, etc. Very likely I could tell a few things about this system that would surprise some of our old "vets."

Lake George, N. Y. F. A. LOCKHART.

[We are glad to know you have made a success of this. We are all eager for you (or Mr. Holtermann, see page 764). to tell us more about both schemes. If you make them work, and no doubt you do, you surely can enlighten some of the "old vets." —ED.]

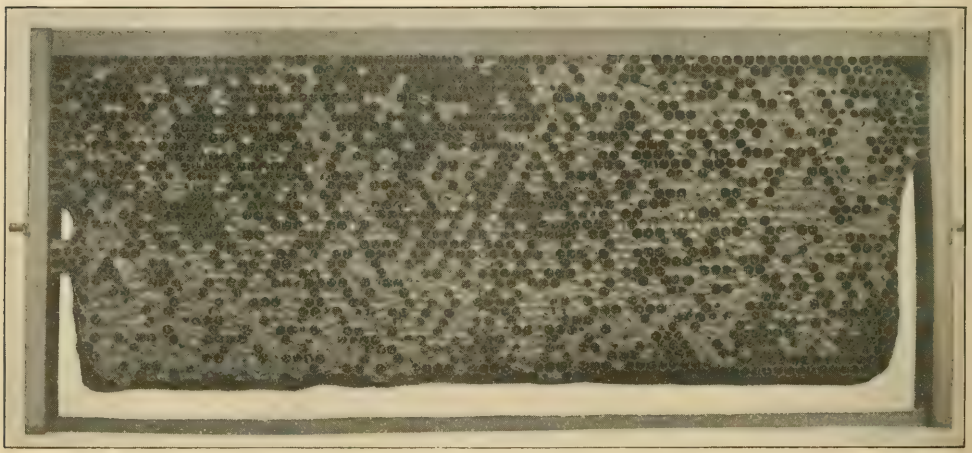
AMERICAN FOUL BROOD.

A Characteristic Sample of the Disease.

BY L. SCHAFER.

When I was preparing my bees for winter I noticed something wrong with the brood. The photograph shows the condition of the combs. I think it is foul brood. The larvæ are brown in color, of a ropy consistency, and all run together. The smell is like that of a glue-pot. I fixed them up the best I could, and if I have any left in the spring I shall have to treat them. Notice the outline of a cross or anchor cross in the center. I should like to know what and where the disease comes from. All my old stock has it. There are lots of bee-keepers around here, but I never heard of foul brood being present.

Marion, S. D.



AMERICAN FOUL BROOD IN AN ADVANCED STAGE.

This sample shows the irregular appearance of the brood, the perforated cappings, and in some parts a faint view of the diseased larvæ in the cells.

[The described symptoms and the photograph indicate a typical case of American foul brood in an advanced stage; in fact, the view here shown is about as good a sample of a comb affected by the disease as we have ever seen.

In this connection it is proper to state that the user of this frame should have inverted it for a few days during the comb-building season. In order to get the bees to build the comb clear up against the bottom-bar, which, for the time being, is on top, the Danzenbaker or any other reversible frame should *always* be so treated. This will make a comb much stronger in the frame, and at the same time shut out all hiding-places for the queen. A non-reversible frame will be quite liable to have a space of $\frac{1}{4}$ inch between the combs and bottom-bar. This can be rectified only by the use of perpendicular supports and full sheets of foundation.—ED.]

IN MEMORY OF JULIUS HOFFMAN, INVENTOR OF THE HOFFMAN FRAME.

His Place in Apicultural History.

BY E. R. ROOT.

As stated in our last issue, Mr. Julius Hoffman died on May 3d last, after a lingering illness of nervous prostration. His daughter wrote us that the last journal he ever read was GLEANINGS, a fact which we appreciate more than we can express.

In order to give his place in apicultural history it will be necessary to go back a little. The present editor took charge of this journal late in 1885. He was then fresh from college, and all enthusiasm. The correspondence that developed seemed to indicate that we had fallen into a rut of using beveled edges on hives and frames that were too movable — so movable, in fact, that they would not hold in position when the hives were even carried across the yard by hand. Through this correspondence we learned that there were bee-keepers in Central New York who were working on radically different lines — indeed, were making a success of handling bees in large numbers on closed-end and semi-closed-end frames — a feat that seemed practically impossible to the western bee-keepers. Up until that time only a comparatively small number in Central New York were using these "awful bee-smashers" as they were then termed. The advocates and users of the swinging unspaced Langstroth frame did not see how any intelligent successful bee-keeper, at least, could possibly handle bees on "fixed frames;" indeed, the President of the North American Bee-keepers' Association facetiously remarked to us, "Fixed frames! well, I should say they were fixed. Why, they are glued fast in the hive where no sane man can get them out. They are no good. Better let 'em alone, Ernest."

We did not share the opinion of the speaker; indeed, we believed there was a great deal of merit in automatically spaced frames. To discover, if possible, if they could be handled rapidly and not kill bees was the object of an extended bicycle-trip over the hills of York State among the followers of father Quinby who were still using the closed-end frames.

It will not be necessary, for the purpose of this write-up, to give our complete itinerary, any more than to state that we saw that closed-end frames could be handled by Mr. P. H. Elwood and others just as rapidly as the open-end Langstroth, and that there need be no bee-killing, or at least very little of it; but, unfortunately, this frame with entire closed ends could not be made to fit the hives already in use.

In the mean time Mr. Elwood informed us that Mr. Julius Hoffman, of Canajoharie, N. Y., was using a hanging frame with semi-closed ends that could be used satisfactorily in any Langstroth hive having rabbets to support the top-bars projecting beyond the end-bars of a frame. Naturally we called on that gentleman. He very kindly showed us the frame that he was using. He made no claims to having made any particular invention—modestly acknowledged that he had borrowed some ideas of Dzierzon, his old teacher, and Berlepsch; in fact, he told us how he began using the Berlepsch frame as described and illustrated on page 534 of our May 15th issue for 1905; but as it was adapted for use in the German side-opening hives he was not long in discovering that he would have to use a hive of the top-opening type. In doing so he was compelled to modify materially the frame to such an extent that there was very little left of the Berlepsch.

JULIUS HOFFMAN.

It was this frame as Mr. Hoffman used it that the writer saw in use at his apiaries, and he had at the time something like 700 colonies on them. He was a very successful bee-keeper, made money at keeping bees, and on the occasion of our visit he showed how he could save time by picking up the frames in twos and threes; how, in fact, he could handle a brood-nest split up in halves or thirds. As to killing bees and the frames being glued fast, he proved that neither charge was sustained when rightly handled. So impressed were we with the fact that more colonies could be handled on them in a given time that we adopted them in our yards.

How they were subsequently adopted by thousands of others is a matter of history.

We found Mr. Hoffman to be a man exceptionally modest, claiming no particular distinction as an inventor, but insisting that he had made only a modification of Berlepsch's frame in order that he might use it in a top-opening hive. He never thought of communicating his invention to any bee-journal, much less of patenting it; but Mr. J. H. Nellis, then editor of the *Bee-keepers' Exchange*, seeing the successful and rapid manner in which Mr. Hoffman handled bees on this particular frame, began its manufacture and endeavored to popularize it as early as the early '80's.

Shortly after, Mr. Nellis went out of business, and but little seems to have been known of the frame until we began to write up its merits in 1890 and 1891; and even since that time Mr. Hoffman has written only two or three articles, and then only on special request that he explain how he came to invent the frame, which he did in an article in May 15th GLEANINGS, page 533, 1905, and subsequently in another article by him June 1, p. 593, of the same year.

Mr. Hoffman was born in Silesia, Prussia, October 25, 1838, and would have been 69 in October of this year had he lived. While he was not able to span the great length of life of his great teacher, Dr. Dzierzon, yet it can not be said that he lived for naught to the bee-keeping world, for practically all the apicultural literature on this side of the Atlantic at least, and all bee-supply catalogs, have his name scattered all through. He was known, not for his voluminous writings, for to our certain knowledge all the articles he ever wrote could be counted upon the fingers of one hand. He was made famous for an invention which he never felt was worthy of the name of invention, so modest was he of his attainments. During his many years as a bee-keeper, however, he made a comfortable living, and even away back in 1890 was reputed to be well off.

Mr. Hoffman left a large circle of friends, for he was loved and honored by all who knew him. He is survived by his widow; his son Julius, of Brooklyn; three daughters, Miss Hattie, who lives with her mother; Mrs. Augustus Offermann, of Brooklyn, and Mrs. Louis Bierbauer, Jr., of Canajoharie.

COMB AND EXTRACTED HONEY FROM THE SAME SUPER.

The Construction of the Super; Why the Bees Enter them Readily; the Control of Swarming in Colonies Run for Comb Honey.

BY E. D. TOWNSEND.

[This article and the one to follow in the next issue are of special value, and we hope that comb-honey men, at least, will give them a careful reading. It should, perhaps, be understood that Mr. Townsend has been working on this system for about two years, and a customer of his in the East said that his 4 x 5 comb honey in plain sections was about as fine as any thing that he could secure in the country; in fact, he took it off his hands about as fast as he could produce it, and sold it at prices considerably in excess of the ordinary comb honey produced by bee-keepers generally. How to produce this fine honey, and at the same time control swarming to a great extent, is explained in these articles.

From some experiments we made in years back we feel satisfied that the plan he here proposes is most excellent, and we see no reason why most bee-keepers using a tall s ction could not put this scheme into effect this season. It is possibly true that those who use the shallower supers—those for 4¼ x 4¼ square sections—could use the same principle. We will now let Mr. Townsend explain the system in detail.—ED.]

As the sectional hive is now having its innings, I thought it a good time to describe my hive and system that we are using for producing both comb and extracted honey from the same super.

The hive is of the ten-frame Heddon pattern 5⅞ inches deep, the inside length being 16⅛ inches. The frames are 16 inches long by 5⅛ deep, and have closed ends. A flat tin is nailed on the bottom of each end, projecting in ¼ inch, for the closed-end frames to rest on. The supers are the same as the hive-body. Each section of the hive is of the capacity of five Langstroth frames. The hive is used one, two, or three sections high; thus one can have a hive of five, ten, or fifteen Langstroth-frame capacity without moving a frame. We never handle brood-frames in normal colonies in the production of either comb or extracted honey.

The inside furniture of the super consists of 6 plain slats, ⅞×1⅜×16, for the 24 4×5×1⅜ plain sections to rest on, two combs with center bars, as shown in the engraving, and seven L fence separators, built for four rows of sections. This completes the super, except two little pieces ¼ inch thick and 5 inches long. Two of these are nailed to one side of each super, one in each corner, to hold the frames away from that side of the hive.

Super springs in the opposite corners hold the frame on that side about the same distance away. Arranged this way, the space in a super 14⅛ inches wide is all used to good advantage.

An eight-frame super could be used with a comb on each outside, the same as the ten-frame; but there would be room for only 20 sections instead of 24. It might be necessary to buy a certain width of section to make things come out even.

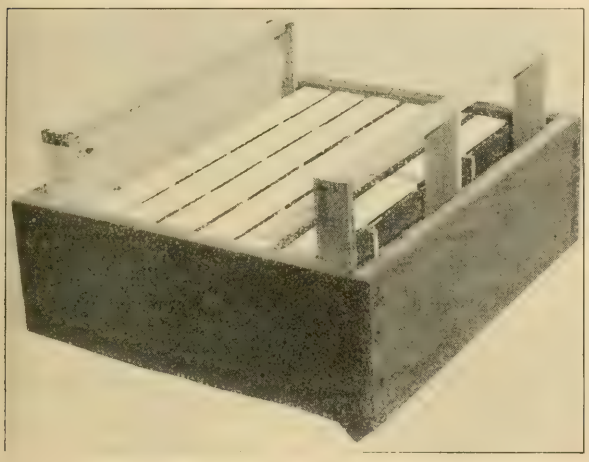
The Danzenbaker super would be especially adapted to this "comb and extracted honey from the same super" system, for a ⅞-inch wide top and bottom bar in the two outside section-holders, with a center-bar in these frames to get the compression in the middle of the super (see engraving), and the two ¼-inch pieces, would be all the changes necessary. This would then make one of the best supers on the market.

All our shallow brood and super frames are made with the double-groove-and-wedge top bars for fastening the foundation. By making the top-bar ⅞ inch thick, the double groove and wedge can be used.

The center bar holds the center of the super up square and even; and with this short

super we have found it necessary to use but two super-springs—one at each end. Those who have always depended on "bait" sections to entice the bees into the super, and have placed it in the center of the super, will likely think bees will be slow to enter the super when these combs are given at the sides. Usually, however, only one small section is used for a bait comb. Bait sections in an ordinary super can hardly be compared with the full-drawn comb at both sides of the super. The latter bring about the condition found more nearly in an extracted-honey super than in a comb-honey super, and so the bees enter the super much more readily than they would on a comb-honey super with the bait section only.

With the "bait" section the bees begin in the center of the super, or in that part of the super where the bait is placed; then their work extends gradually away from this central location. Many times the progress is so slow toward the outside of the super that the central sections, or those first begun, will be finished and sealed over before the outside ones are hardly commenced. The consequence is, that these central sections will be travel-stained long before the outside ones are ready to come off. Here we see the advantage of the section-holder super over the super in which the sections have to be handled separately; for with a super that is finished so unevenly as the one bait-section super usually is, it is necessary to "shift" the sections from the outside to the center to get the super finished up more nearly at the same time. But this is work, and work costs money.



E. D. TOWNSEND'S SUPER FOR PRODUCING BOTH COMB AND EXTRACTED HONEY; ONE EXTRACTING-FRAME ON EACH SIDE.

With the super arranged as I have described above, with a good big comb on both sides, every thing is different. The bees rush up just as if it were an extracted-honey super, which it is, to a certain extent. With the ten-frame-width super the bees commence at one side on the comb over that part of the hive that the bees are occupying most. Of course, this is true with the "bait" section super; but in that case the bees commence in the center and then work toward the side of the hive most occupied with bees. But with the full comb at each side of the super the bees commence on one of the combs; and, when this is part full, on the row of sections next the comb. At about this stage they begin to work the comb on the other side of the super; and when it is nearly full the beauty of the system begins to show itself, for then the bees begin to work clear across the super. My! how things do boom for a few days! With every section being drawn out at the same time, this means fancy honey, and lots of it, if the season is favorable.

Last summer these combs seemed to start the bees to work with such a vim that about two-thirds of the colonies forgot to swarm; this, in connection with the management previous to the honey-flow, that I will describe later on, seems to get the bees in (and keep them in) that condition so essential for the best results in the production of honey, whether comb or extracted.

What I mean by "condition" is this: We may have two colonies of bees of the same strength, with the same amount of brood and the same amount of stores — in fact, two colonies that are so nearly alike at the approach of the honey season that you can not tell one from the other; yet one of these two may show up at the end of the honey season with 25 lbs. of surplus and the other with 75 lbs.

You can not lay this difference to the queen, for they had the same number of bees at the commencement of the season, nor can it be laid to the strain of bees, for I have had the conditions change, so that the colony that did the poorest one season did the best the next.

The fact of the case, in my estimation, is that the 25-lb. colony was out of condition, and I will try to tell you how to keep them in this desirable condition clear through the season.

HOW TO KEEP THE COLONIES IN PROPER CONDITION TO PREVENT SWARMING.

The system is as follows: In November the bees are put into clamps with from 25 to 30 lbs. of honey for their winter and spring stores. As soon as the frost is out of the ground in spring, usually the first of April in Kalkaska Co., where our comb-honey yard is, they are dug out and wrapped in building-paper for spring protection. There is nothing more done to them until about the 20th or the 25th of May. When the indications are there will be fairly good weather, the most of the freezing nights being over, we remove the paper from all the strong and medium colonies, and give them comb room of some kind. Those with very pro

lific queens are given one section of a hive, additional, at the bottom. Many times the queen does not use it, but it gives them additional clustering-room, and once in a while a queen will use it. The moderately strong colonies, not needing additional room for brood-rearing, are given an extracting-super on top, first putting on a queen-excluder, as we do not want any brood raised in our nice white combs that we use with our comb-honey system.

The weak swarms are put on one set of combs to be united at the approach of the honey season. We get the bodies to give to the strong colonies, mentioned above, in this way, by taking them from weak colonies and from colonies that did not live through the winter. The majority of the dead colonies are those that went into winter quarters queenless, or that, for some reason or other, were not in a normal condition when put into winter quarters. Many of these came out with their hives heavy with honey. All such are distributed according to the amount of honey they contain; that is, the heaviest are given to those colonies having the least honey. This plan not only keeps the bees in good condition, and free from the swarming fever, but gives them an additional amount of honey just at the time when they would be most likely to need it.

Those familiar with this location will remember that May 20th or 25th is two or three weeks previous to our main honey-flow in June. This period is the critical time; for, should we allow our bees to feel just a little bit crowded for clustering room during this period, we should be quite likely to have those crowded colonies in the same condition as the one I mentioned that produced the 25 lbs. of honey.

This management, in connection with the two drawn combs at the outside of our super, will keep down swarming and produce a larger per cent of fancy comb honey than any other system we ever tried.

Remus, Mich.

To be continued.

WAX-RENDERING.

Steam and Hot-water Presses for Further Treating the Refuse from the Solar Extractor.

BY R. C. AIKIN.

In the first two articles we discussed solar extractors. We will now take up the treatment of the refuse from the solar in steam and hot water presses. I have mentioned pressing out wax between boards many years ago, using my own weight as the power. I also experimented years ago with twisting the slumgum in a bag, thus obtaining pressure. A few years ago, when the new steam-machines came out and were highly spoken of, I read eagerly what was said, but always with a keen sense of disappointment. They gave little but what I had gone over years before. Then the machines were so little and puttering, altogether I could not get much interested in them.

Next came out the Root-German press with screw pressure. This machine embodied exactly the principles I had used over 20 years before, but with the screw-pressure feature added. I soon possessed one of these machines, and have put hundreds of pounds of wax through it—have the machine yet, but it was always a source of worriment to me because of its inconvenience in getting into to "paw over the slumgum," and also because it was so frail I was always in fear of bursting it. It did break occasionally, and finally broke so badly it was past repairing when I bought new insides for it. Let me say right here to the Root Co. that their Root-German press is not the machine we are looking for and must have. Reasons will appear later.

In the mean time the Rauchfuss Brothers, of Denver, were pressing out wax from slumgum such as most of us were burning, and seemed to think it paid. Some others were following suit. In my neighboring town of Longmont, Mr. J. B. Adams was using a big lard-press (I think he was at it before the Rauchfuss Brothers), cooking the combs, etc., in a big tank and dipping it out to press in the open. I took a lot of slumgum to his place and worked it with his press. It seemed fully as effective as the Root machine, and much more rapid, but I did not like pressing away from the water or steam. Apple pomace can be worked in the cold; but wax (that hardens so quickly) is not a suitable article to handle except under great heat. I was thoroughly convinced several years ago that it should be pressed while immersed in hot water.

THE HERSHISER IDEA.

The plan of washing out the wax, as so nicely illustrated by our Buffalo friend, is the very idea I have been studying on for some eight or ten years, but I did not expect to get it accomplished the way he goes at it, nor do I think his machine is by any means perfection, though I believe it to be the best out. I must say that I have not perfected any plan or machine, but it can be done. There is a way that will leave the Hershiser mill as far behind as the old wash-boiler and bag method is behind his invention. Mr. H., nevertheless, is worthy of honor and fame for the stride he has made.

As above stated I did for several years use a Root-German machine, but all the time with disgust, because, to make a 50-pound run of wax from slumgum from the solar that still held half its wax, was a "whalin' big day's work." I used to run the thing from 5 A.M. to 10 P.M., and would average about 50 pounds of wax. I think my best run was 70 pounds; from 30 to 40 was the usual run. Lots of men get their $5 to $10 a day, and not work half so long or hard. I object to having to do such work simply for *wages*.

I then bought a big cheese-press screw, second-hand—paid 75 cents for it; remodeled it and built a press for myself. I could have used a bench-screw, but wanted some-

thing that would do business, and I got it in my new home-made press, using the cheese-press screw. I believe it is a two-inch one. For this press I fitted up a tank so that the screw works right in the tank, and the pressure is all done under boiling water. The stuff to be pressed is put into bags (burlap bran-bags), and thoroughly cooked, and then put into the hoop and pressed, and it is a good hard squeeze too.

While the bags are cooking in the big vat made for this purpose they are stirred and punched and twisted, and much wax comes out and may be skimmed off; but when the bag goes under the press, the golden streams that come from it show how futile have been the punchings and twistings so far as getting out the wax is concerned. I turn the screw rather tight, then wait a little and turn it some more, at short intervals screwing down a little more for several times, keeping the pressure on probably from ten to fifteen minutes. I next release and shove the hoop from under the press and lift the follower and stir and paw over the cheese until it is again thoroughly saturated with water, when it is again put through the same process under the screw. If I happen to get the cheese a little too large I give more time and pawing; but I try to have a cheese that, when fairly well pressed, will not be over one to 1¼ inches thick. I have repeatedly made tests to find out how much wax was gotten from the second pressing, and found it to be sufficient to make me several dollars a day, so I rarely let a cheese get through without giving it a second watering and squeezing. If I have gotten a very large cheese it gets a third dose usually.

One week ago I pressed from combs mainly—a small portion was solar slumgum—just about 200 pounds of wax. The slumgum left from this I put through the mill two or three days later to test it. It took me almost a full day, and yielded seven or eight pounds of wax—mighty poor pay for that kind of work. I had before made some tests in a small way to determine if my machine and method were getting about all the wax. They were not so conclusive as this one, and I now think I can get so nearly all that it is as effective as any machine out. In reality I am using the Hershiser idea of washing out the wax, and that is what I have contended for many years we must do.

As for the speed of this machine of mine, I can get out just about twice as much wax, time for time, as with the Root-German, and I think it is much more effective in getting all the wax. And lest you may think I did not work the Root machine well I will set you right there by telling you that I pawed over as often as with my press, and poured into the cheese boiling water from a tea-kettle, then put on all the pressure the thing would stand, and also gave as much time. With my machine I run from 100 to 150 pounds a day. If I remember aright I once made one run of 170.

But, of course, every bee-keeper can not have such a plant as I have for the work. Under ordinary conditions, hiring builders and buying all material new, such an outfit can not be put up for $100, counting in my solar. It is too expensive for any but an extensive bee-keeper or some one who does work for others as well as for himself. I can take the combs, etc., of bee-keepers and run them, making wages for myself, and yet turn over to the owners as much wax as they ordinarily get. One man brought me his solar slumgum which he thought was just about clean of wax, and he had worked it well too; but I took from it almost as much wax as his first run. He afterward told me he thought I was talking through my hat when I said I could get the wax from it.

But I am not yet satisfied by any means. My machine is too slow. It can be improved, and I know it. We must have a machine that will put the stuff through several times as fast, and enable one having a plant to work the neighbors' stuff and return them more wax than they can get with the small machines, and still leave the operator a good margin. I have faith it can and will be done in the near future. I think I can see how it is possible with expensive machinery, but for a small outfit I have nothing but very vague ideas.

CLARIFYING, AND THE COLOR OF WAX.

Wax run from the solar is almost invariably yellow unless burned or scorched with too much heat. Yet I have a few times had it come dark from the solar, and could not account for it. Just last week, when pressing out a lot of wax, I had on hand some 25 or 30 pounds of nice yellow pieces that came from the solar. These I wanted to remelt and cake as they were not as clear of sediment and honey as I wished. I put them into a copper boiler that I use constantly for such purposes, and put in clear fresh water from our city system. It is the purest of snow water from the mountains. After this wax had cooled it was very much darkened, and yet the water left under the cake was almost clear. This is not the only experience of the kind I have had, and I can not explain it. I hope somebody can give me light on the subject.

Here is another experience that has been many times repeated. When I am making a big run of wax with the press, of course I always start the run, filling the tanks with perfectly clear water from the water system, as it is soft snow water. The continued use of this water melting combs containing honey, pollen, and all the filth and dirt that will be found in a lot of old combs, many as black as a pot, makes the water almost a syrup by night or by the second day's run, yet the last run of wax from this dirty mix seems to be yellower than the first. Somebody will say it is the pollen that gives color; but I do not believe that. The only explanation I can give is that, as the water gets more and more honey in it, its specific gravity becomes greater, and this heavy syrupy water saturating the foreign matter that goes with the wax, such as is found on the bottom of wax cakes, makes it so heavy it settles quickly

out of the wax. But this does not explain why nice yellow wax melted in clear water comes out dark, so as yet I must give up the problem but hope to make some experiments. I certainly have been surprised at the yellow wax I obtain from the dirtiest filthy mass of both water and combs. I feel I must know why. I have sometimes salted water to make it more dense to precipitate the dark matter that colors wax sometimes, but am not positive that it was a success because I did not make comparative tests.

When pressing I have been in the habit of dumping the wax and water, obtained by skimming from the tanks, into a double tank where I could keep it warm and liquid all day to be dipped off for caking in the evening, letting it stand over night to cool. This plan enables me to accumulate enough wax that, at the close of the day, when I dip all except the last half-inch or so, is pure wax; thus if I have made a hundred-pound run I have but one little batch of it just at the last that has the settlings in it.

My present machinery has seen quite a little service, and is somewhat out of repair—especially the cooking apparatus, which was very cheaply constructed, so I am just about to rebuild and make some changes which I feel to be improvements. I will go on using the same screw press, but I do not think the coming mill will use the screw at all. If used it will be in a different way from present methods. I expect to continue studying the problem, and I feel that there must be some device perfected that will do rapid and effective wax-rendering. I know it can be done, but the perfecting of the machinery is where the rub comes in. I believe Mr. Hershiser to be on the right track, but his mill is too tedious. A rapid alternating between the squeeze and release is what we want. I have known for years that long-continued pressure was not what we were after. There must be pressure, or some means of either breaking up the cocoons or in some way liberating the wax from their pockets; then enough water run through to wash it out will soon complete the work. Who will perfect the apparatus and give it to us at a reasonable cost?

Loveland, Col.

[The solution of the wax-press question probably is that, for the extensive bee-keeper, and one who can, therefore, afford the expense, the hot-water system is the best. That is, the combination of a powerful screw applying pressure upon the refuse immersed in boiling hot water will probably be the most satisfactory outfit for the man who renders enough wax to warrant the expense. But for the smaller producer it would seem that the inexpensive unheated press is still the best outfit. Such a press, however, is not suitable for pressing great quantities of refuse at a time. The secret of its great capacity lies in the fact that it will handle small lots of refuse, one after another, so rapidly. By constantly adding fresh lots of boiling-hot melted comb, the press, followers, etc., are kept steaming hot, with the result that the wax runs out before it has a chance to chill. On the other hand, if too much melted comb is dipped into the press it takes a much longer time relatively to get the wax out, and chilling is the sure result. It is important to keep the press hot. If you had tried pressing but a small quantity at a time in Mr. Adams' cheese-press you probably would have done just as rapid and much more thorough work.

It seems probable that all wax contains traces of acid, for the reason that, when it is kept above the melting-point for any great length of time in metal vessels, it takes on a color in some way characteristic of that metal. For instance, many of the salts obtained by treating copper with acid are blue or green. If wax is kept melted too long in a copper vessel the tell-tale green color appears. If the temperature is raised considerably, wax of a brilliant green color is the result. The experiments recorded in the following letter from F. A. Salisbury will help to solve some of these questions.—ED.]

DISCOLORATION OF WAX.

The Effect of Different Metals Used in the Construction of Melting-Vessels.

BY F. A. SALISBURY.

We have recently been conducting some experiments to show the effect of metals on melted wax. We used small dishes made of each kind of metal, and put some wax, about the size of a good-sized walnut, in each dish and placed it about 2½ inches above a gas-jet. The frame was adjusted so the wax would be kept at a temperature of about 180 degrees. It was left over the jet in each instance 24 hours continuously.

The samples show just what metal is the best in which to melt wax, as all are different in color. It will be safe to conclude that any metal changes the color more or less. Of all tried, copper was the very worst. Next came zinc; then clean iron; next, tin; next, rusty iron; and, lastly, common black iron. I had always supposed that copper would be the best metal in which to melt wax; but the sample plainly shows that it ought not to be used — at least, no one would want to chew the sample. Zinc should not be used, as the color is very dark. I should say tin or black iron would be the most practical, all things considered.

The dishes were made of sheet metal in each instance. Almost all the colors of the rainbow can be had from one sample by using different metals. Does this not explain why cakes of wax as they come from different parties are of different colors?

RENDERING WAX IN A WOODEN PRESS.

I have never taken the slumgum from the wooden press and remelted it, as I did not think it was necessary. However, there may have been quite a little wax left in it. I can't say. I once made up ten barrels of old comb that was packed in with a pounder

and shipped to us from the eastern part of the State; and from the ten barrels I got 500 lbs. of wax. This was over 20 years ago, and was made up on a press from an idea that I got about 25 years ago from Wm. Cary, of Massachusetts.

I should like to add to your directions for using the Hatch press, as given in Jan. 15th GLEANINGS, the following: On p. 102, at top of second column, you say, "push the boiler to the edge of the stove. The best work will be done with the old combs kept boiling all the time. There will be no danger about the wax burning so long as there is water in the boiler. When ready to dip into the press, stir the mush thoroughly so that the part that was floating on top would be stirred under." You probably noticed that, if this was left on top for a time, a thin film of wax would cover all. By stirring and keeping boiling, this will be kept from so doing, and will work better in pressing.

Syracuse, N. Y.

[These experiments are very interesting, for they bring out facts that are of practical interest to all producers of and dealers in wax. It seems now to be pretty well proven that all wax has a slightly acid reaction, and so, when it is kept for any length of time at a high temperature, in contact with a metal, a chemical action seems to set in between the acid in the wax and the metal. This would account for the great discoloration, especially of the wax melted in the copper dish, for this sample was a brilliant bluish green, with not a trace of the former yellow color. Most of the salts of copper are either blue or green in color, so it would be highly probable that the color of the sample from the copper dish could be accounted for by the presence of acid. The wax from the zinc dish was very dark—a deep brown instead of the original lemon yellow. The samples from the other dishes were also darker than the original, although not so dark as those from the copper and the zinc.

It is thus shown quite conclusively that copper and zinc had better not be used in connection with wax. The other metals are not so objectionable, and we think it would be perfectly safe to use black iron or tin. In our opinion, the wax from the tin dish had a better color than any of the rest that was heated. If, instead of 24 hours, the wax had been kept melted but one hour in the metal dishes, there would probably not have been any discoloration, even to that melted in copper, unless the temperature had been kept pretty high. But since there is always some danger of overheating, it would be better in the end to use iron or tin.

The wax passes through the Hatch press so quickly that there is no discoloration—at least we always obtain the brightest yellow wax. We have tried an unheated press, constructed entirely of wood, side by side with one made of tin, and in rendering the same batch of melted comb the wax from the two presses showed no difference in color. Steam and hot-water presses, however, because of the greater and longer continued heat, are sure to discolor the wax more or less, and for this reason it would be desirable to have them constructed of wood. But as this is clearly impracticable, tin or black iron is the best material.

Our readers will remember that Mr. Sailsbury is an enthusiast of the unheated press for rendering wax. In the May 15th issue of GLEANINGS for 1903 he described his press and gave his method of rendering. It was this article which first attracted our attention to the fact that the unheated press yields wax that needs no refining.

If Mr. Salisbury will take some of the refuse from his press, and run it through a second time, we believe he will find enough wax to warrant the extra time and labor. After the two treatments, there should not be more than 2 per cent of the wax wasted; but, if desired, the refuse can be run through a third time, and the percentage of loss reduced to less than 1 per cent; and the strange thing about it is, that even three treatments can be given in almost the same time that it would take to extract the wax in a hot-water press costing considerably more, and yielding a slightly darker-colored wax besides.

Yes, it is better to have the melted combs very hot up to the time of pressing. In our directions for operating the Hatch press we advise the removal of the boiler to the edge of the stove—not to stop the comb from boiling, but to keep it from boiling too hard. When the wax boils up on the hot dry side of the boiler it is quite apt to become darkened. A boiler full of melted combs requires less attention if kept on the edge of the stove so that it boils but slowly.—ED.]

LABOR SONG.

BY EUGENE SECOR.

When June is rich with odors rare,
And birds their loves declare
From copse and wood and orchard-top
As if they'd never stop,
I love to sit as day declines,
And longer grow the lines,
And hear the winging home of bees
Circling above the trees.

The nectar-laden bees
Home-coming through the trees
Wing this refrain: Toil is not in vain,
For work is king of ease.

They bring the scent of clover-blooms
And other choice perfumes;
They hide them in the waxen bells
Where royal favor dwells,
And labor sweetens all the day
With peace for such as they
Who are content to push the load
Along life's hilly road.

The happy toiling bees,
Home-coming through the trees.
Bring back this truth: Forget, forsooth,
That work is better than ease.

Forest City, Ia.

CARNIOLAN BEES; THEIR POINTS OF SUPERIORITY; RECORD-BOOKS.

I bought a tested Carniolan queen in May, 1904; and as there are no Carniolans here but mine I have tried their many curious ways, and find that you can not deal with them or manipulate them along the same lines of either blacks or Italians. I have the red-clover Italians, the imported Italians, the Carniolans, and the pure blacks, and this is how I grade them by their honey-gathering qualities:

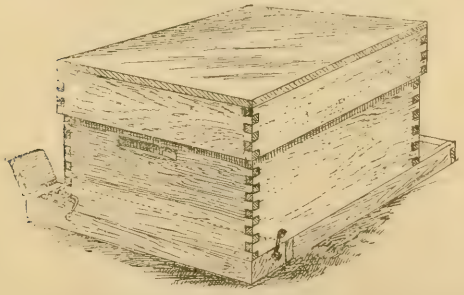
Carnio-Italian cross, 1. Red-clover Italian, 2. Carniolan (Mr. Weber's) 3. Red-clover cross and imported and improved cross, 4. All sorts of crosses from these above, 5. Pure blacks, 6.

My Carnio-Italian colonies are the strongest in bees. I kept a record of my bees during 1905, and will never try to keep bees again without my book of record of my various manipulations of my bees as well as any others I may care for.

Harms, Tenn. J. A. BEARDEN.

SOME EXPERIENCE WITH DIFFERENT FEEDERS; HOW TO HOLD THE ALEXANDER FEEDER IN PLACE.

My first feeder was of the Doolittle division-board type. It is good in feeding weak colonies, but is a nuisance in getting in and out, and my Danzenbaker pattern at first was useless because the oil-cloth brood-chamber covering fitted so closely as to keep the bees out of the feeder. Two or three half-inch holes in the sides just below the top



TWO HOOKS AND EYES TO HOLD ALEXANDER FEEDER IN POSITION.

gave proper access to the syrup, and cured that defect nicely.

Mr. Boardman's entrance feeder (I have the quart size) has its good points; but my bees do not seem to use it in cold weather nor at night. It puzzled me mightily in exchanging a full for an empty jar to avoid crushing bees beneath it; and I found it necessary to drive a staple to support the jar away from the feeder floor.

The Miller feeder is very good—at least *now* I think it is; but I didn't when I first tried to use it.

Just at present the Alexander (or improved Simplicity) feeder seems to be in vogue. But why aren't some brass hooks and eyes included? Two would answer for those to use who have their hives on stands or bricks. Comparatively few, I fancy, are so situated as not to require some form of fastener in applying the feeder. An amateur would appreciate, also, a bit of wire screening to prevent the bees coming out while he is putting the feed in; but I suppose that is too much to expect. C. G. DICKSON.

Kensington, Md.

[The scheme of attaching an Alexander feeder to the hive by means of hooks is very simple and practicable.—ED.]

THE ALEXANDER METHOD OF BUILDING UP WEAK COLONIES; PROVIDING AN ENTRANCE FOR WEAK COLONIES AT FIRST.

I was much interested in your symposium on Alexander's building up weak colonies as given in GLEANINGS for March 15. I have had some experience along these lines, both pro and con.

An hour or two before I put the weak colony over the strong one, I take a double-screened frame to the hive I have selected. I quietly take off the cover, put on the screen, and put the cover on over them At dusk I bring the weak colony, take the cover off the other colony, and set the weak one on the screen. At the end of the screen a piece is cut out of the end cleat, and the upper wire is pressed down ⅛ inch for entrance to the weak colony, which I leave on two days. By this time the bees get the same scent, when I take off the double screen, put on the queen-excluder, close the outside entrance to the weak colony, and all is peace between the two colonies. At first I was afraid that having outside entrances, one over the other, the bees might enter the wrong opening and get killed; but no trouble ensued.

Alpine, Cal. E. P. ST. JOHN.

[Dr. Miller and others report favorably on the use of the wire cloth.—ED.]

PRONUNCIATION OF PROPOLIS; BEE-STING POISON, AND ITS RELATION TO RHEUMATISM.

Let a new member of your large family interject a few remarks anent the discussion of the word "propolis." I am inclined to take the Century Dictionary for my authority, which gives the pronunciation of *prop-o-lis*. Were it a Latin word, so that we could put the accent on the penultimate syllable, pro-*po*-lis, it would be vastly more euphonic; but as it is Greek in its derivation, I suppose we shall have to *prop*.

Another matter. I am getting ready during this winter for my first invasion of the bee-field; and seeing a mention lately that queens sometimes fight through the perforat-

ed zinc I at once got things ready to make a screen with two sheets of zinc ½ inch apart so that they can not fight, for the reason that I do not care to have my first efforts spoiled by a pair of combative girl bees.

Coming to something that I know something about, theoretically at any rate, I wish to allude to a question I saw in GLEANINGS, the writer of which asked if bee-stings would cause rheumatism, and the party goes on to state that he was stung, and (therefore?) had rheumatism.

The friend neglected to state if he had ever had the trouble before being stung, which leaves the supposition that he never had. From my personal observation, I will state that on a person affected with the "rheumatic diathesis," that is, one in whom the uric acid is already in the blood in excess, a bee-sting could very easily cause an attack of rheumatism by causing the uric acid to crystallize, just as it would from any sudden shock, as cold or severe mental shock. I am somewhat inclined to be troubled with rheumatism—no one can expect to be entirely exempt—and in my case it took the form of uticaria, or hives. While a greenhorn with bees, I am quite indifferent to their stings, and got a matter of a few dozen stings stuck into me. I must mention that what our mothers use to call "hives" is almost certainly due to the same specific poison—uric acid—which causes rheumatism. In the spring I have to clip my first queen. I'd sooner go over again my first experience in roping a steer. A. F. BONNEY, M. D.

Buck Grove, Iowa.

SWEET CLOVER; THE RESULTS OF SOME EXPERIMENTS IN GROWING IT ON LOOSE AND HARD SOIL.

I notice on p. 1048, of last year, that some one thinks sweet clover will grow on cultivated ground the same as anywhere else. Last spring I purchased 75 lbs. of white unhulled sweet-clover seed, prepared my ground (about five acres) and sowed early in spring. It came up nicely, and it seemed as if there would be a fine stand; but as the summer went by, the clover gradually disappeared; and by fall there was scarcely a stalk to be found. I think that, on account of the ground being loose, it perished; for during the time there was very little rain.

During a very wet spring and summer it might do all right on loose ground; but in a dry time I think it would be a complete failure.

I now have several hives of bees, and I wanted the clover for my bees, and also while it was for bees it was for my ground also. As a soiler it has no equal. The roots penetrate very deeply; and as it is a biennial it dies every two years and leaves the roots to decay in the ground, making it very fertile. During the same year I sowed some on hard clay ground, where nothing else would grow, and, to my surprise, have a good stand.

I find that, as soon as it takes on poor clay soil, it soon makes it fertile, and other grass soon crowds it out, as the young plants can easily be smothered out.

As a forage-plant it is very good. My horses and cows are very fond of it in the spring. I sowed a small patch a few years ago for my bees, thinking nothing would eat it; but my cow kept it close to the ground, and not a stalk was allowed to bloom.

Bedford, Ky. E. S. HUDSON.

ROBBER-FLIES; THE HARM THEY ARE ABLE TO DO; BEE-MARTINS NOT NECESSARILY A NUISANCE AROUND AN APIARY.

I am sending you, in a small cage, one of the worst enemies there is in this country to the virgin queens. In fact, they are so numerous from the first of August until frost that it is next to impossible for a virgin queen to get back to her nucleus when she takes her wedding-trip. On an average I can probably get three out of twenty mated. Please give us a sketch or half-tone of the gentleman, and name him. This insect seizes the bee or queen, preferably on the wing, while near the ground, and inflicts a death-blow with the sharp beak. If you catch this insect by the tail it will also pierce you, and the pain is more severe than the pain from a honey-bee. W. T. CRAWFORD.

Hineston, La.

[The above question was sent to Prof. H. A. Surface for answer. His reply is below:]

The fly which was sent to you by Mr. W. T. Crawford was received and numbered (7651) in our collection, and identified by us as a robber-fly, scientific name *Erax maculatus*. This is one of the predaceous flies that feed upon various kinds of insects, and is known to be destructive to the bee. You will remember that, in a publication of the U. S. Biological Survey, Washington, D. C., the food of the king-bird, or bee-martin, was carefully considered from the examination of hundreds of stomachs of this particular bird. Results showed the remarkable fact that there were many more of these robber flies in the stomachs of these king-birds than there were of the bee. In fact, only one bird in a hundred was found to have eaten worker bees, although several had eaten drones. The fact that this fly is taken extensively by this bird, and that it is also an enemy of the bee, shows that the king-bird is of considerable value around the apiary, notwithstanding his reputation. I must acknowledge that I never knew the depredations of the robber fly to be so serious as indicated in the letter by Mr. Crawford, in which he says that not more than three out of twenty of his newly mated queens returned to the hives, because the others are destroyed by this pest.

Harrisburg, Pa. H. A. SURFACE,
Economic Zoologist.

UNFINISHED SECTIONS.

I should like to know what to do with last year's unfilled sections. N. H. KEIZER.

La Crosse, Wis

[Last year's unfinished sections may be used as baits in comb-honey supers to a very good advantage. If you have a large number we would advise you to cut out the combs and sell them for chunk honey.—ED.]

OUR HOMES

by A. I. ROOT

Cast thy bread upon the waters; for thou shalt find it after many days.—ECC. 11:1.

And he took his staff in his hand, and chose him five smooth stones out of the brook, and put them in the shepherd's bag which he had, even in a scrip; and his sling was in his hand; and he drew near to the Philistine.—I. SAM. 17:40.

God is our strength.—PSALM 46:1.

God works through humanity. When he answers our prayers it generally comes about by moving the hearts of some of our fellowmen to come to our relief; in fact, the promise in the first text, that the bread cast upon the waters shall come to us after many days, bears largely on our readiness and willingness to respond to God's call or to the prompting influences of the Holy Spirit. Not only is it our duty to cast our bread on the waters to the right and left, but there is a responsibility laid on us each and all, to be ready to assist God and to spring with alacrity, so that those who have cast their bread upon the waters, perhaps before we came into the world, may find their reward in the services that we may render in response to the promptings of the Holy Spirit.

The little story I am about to tell you today may seem at first very commonplace, and perhaps very selfish. You may be tempted to wonder why I have so much to say about my own family matters. But they are not only of interest to me, as recollection goes back, but may prove a helpful lesson to humanity of the present age. Be patient, friends, for I believe this Home paper has been prompted by the Holy Spirit and that it may give hope and courage to many a dear brother and sister who are feeling helpless and hopeless under the burdens that God seems to have imposed on them.

One of the first things I can recollect, as memory goes back to my early childhood, is the advent of a little sister in our humble home. I remember objecting because the mother's care promised to be given largely to another instead of her weak invalid boy of three or four years old. One of the good women, however, cheered me up by telling me the little blue-eyed sister would be my companion and a comfort to me, and perhaps she would make me some pants to wear like papa's when we both got older; and that blue-eyed sister did indeed come to be a companion and a devoted friend all through the years of childhood. As I was odd and somewhat different from other children, various differences arose; but this youngest sister, as soon as she was old enough, always stood by me and defended me. Much has been said about the unselfish devotion of the wife and mother. Now I think, as memory goes back, that the loving sister has not always had due credit. This sister always had something nice saved up for me when I returned after any absence. If somebody distributed presents among the family of seven (there were seven of us finally—three boys and four girls), Sarah always gave me a part of her portion, and sometimes *all* of it, saying she did not care particularly for it; but I found out afterward she *did* care, perhaps as much as I did; and all through her pure gentle life she seemed to find it more blessed to give than to receive. When I was criticised or punished, this sister seemed to feel the infliction just as much as I did, and perhaps more. What troubles me just now, as memory goes back, is that I can not recall a single instance where I made any adequate return for this unselfish devotion all through childhood, and until I had a home of my own. She, dear gentle loving sister, cast her bread upon the waters thus freely without any hope or thought of finding it after many days. I am afraid I did not even *thank* the dear child for her persistent, unselfish devotion to my poor self. May God forgive me; and if you, dear reader, can look back as I do and remember a like extended service, God grant that this may be a reminder, and that you may at once make haste to let that sister know the promise holds good, even if it should be "after many days" that the bread returns to the lavish giver.

I can not remember that this sister and I ever had the smallest particle of difference unless it was when I became old enough to think of the sister of somebody else. When I was away at school my father moved on to a farm near Medina. Well, in this new locality the sister found a friend among the schoolgirls, and they became very intimate. In one of her letters to me she said she had found the best girl in the whole wide world for me for a wife. You see the dear child, to cap the climax of all her loving service, had considered my companion for life. She not only wrote to me about this dear schoolgirl friend, but I think she told the friend something of her absent brother—the brother whom she, in her girlish devotion, imagined to be all that was good and noble and true. When I arrived home, of course we two were introduced. I do not know but my sister Sarah feared her plans would not work, and that I might not think as she did about her new-found friend. Well, I am ashamed to tell you that her plans not only worked well but *too* well. Of course, she had not planned (poor child!) to be left out in the cold; but she was striving to do both of us a great service; and I fear that, to be honest, I shall have to confess that I almost forgot the existence of my own kind sister in giving all my attention, time, and thought to this sister of somebody else. I remember taking a new book—in fact, I had been taking every thing else—over to this "best girl" of mine. When my own sister remonstrated a little because she had not yet finished the book, I took offense, and I fear I spoke unkindly to her, almost for the first time in my life. I wonder

how many other men and boys there are in this world of ours who are as selfish and indifferent toward the devoted sister as I was then. If there are many such, may God have mercy on us. I was not a professing Christian at the time. I was not asking the Savior day by day to lead me and help me to see and correct my own grievous sins. As memory goes back I think to myself, what would I give if I could live some of those days over again? We have some old pictures of the children of our humble home; for photography was invented at just about the time I write; and as I look upon the old faded picture of that sister, and see again the unsuspecting innocence of that childish face—the face of one who knew so little of the evil and wrong that are going on in this world of ours—I am reminded that perhaps some of us are more indebted than we shall ever know to this unselfish devotion of some sister, either younger or older than ourselves.

I will now explain, dear friends, what it is that has prompted me to go back to what happened about fifty years ago. I have just paid that sister a visit at her home in Northern Michigan. She has a beautiful home of her own, and has spent her life, as you might expect, in untiring devotion in bringing up a good-sized family in wisdom's ways. God has rewarded her; but just now when the gray hairs are beginning to add an additional charm to that sweet and gentle face, the *great white plague* has laid its grasp upon her. Pneumonia set in some time last fall, and kept her prostrated during the winter; and when spring came she did not rally as her friends expected and hoped she would. There was a doctor in the family, and of course he has done every thing that could be done to save the loved mother. I begged that she be taken to our Florida home last winter; but there was no time when she was able to take a long trip, and we are now planning to try the sea-breezes of that southern climate. The problem that confronts us is to get her up to that point where she can take the trip by next winter. The task before myself and her large circle of relatives is not one that we alone have to face. Tuberculosis is taking off more people than any other one disease; and it is one that constantly threatens people of mature or advanced age. Our greatest and best physicians are bending their energies to the task of telling the world what can be done. Let me illustrate it in this way:

Suppose some fierce wild beast were pursuing one of your own family, say a wife or mother or sister, and that all agreed this wild beast can not be killed. The doctors nearly all agree to that. He may be diverted off in some other direction, as people sometimes throw down their clothing to gain a little advantage in time over some ravening wolf. It is a cruel, relentless, unsparing wild beast that is pursuing and running down some of the ablest men and women of our land. Like Goliah of old we are *all* afraid of him. Our ablest physicians tell us there is but little use in giving the patient medicine. In fact, most of the remedies may weaken the patient and defeat our purpose of trying to build him up. What shall we do? What did the people do in Goliah's time? Well, to tell the truth they did comparatively nothing. They let this giant come out day by day and challenge not only their best and ablest men, but whole armies.

Finally David, the shepherd boy, came on the scene. He disdained their artillery of war just as the great white plague laughs in derision at our doctors with all their array of drugs and medicines. David slew the giant, and the weapon with which he did it was a sling, and a pebble from the brook. God called David, and David not only listened, but obeyed the call with a glad and boyish alacrity. He was ready and willing to respond to the call. I am sure, dear friends, that God in a like manner is calling us. He will deliver his children from *all* the giants that stand across our way if we only put our trust in him and go forward. We are making headway against the giant Intemperance, and may God be praised for that.

In a like manner we are going to make headway against this other giant, the great White Plague. You may think my figure a little preposterous when I suggest that God has called my poor self to do what I can to slay the giant. Where is a sling such as David used? Well, I think it is the good robust health he has given me now when I am toward 70 years of age. Do you want to know where I shall find the "five smooth stones"? Why, bless your heart, I have been holding them up to your gaze for months past. I did not exactly recognize them myself nor comprehend how God wished me to use them; but it begins to be plain now. Up in the cabin in the woods, all alone, I knelt down and asked God to make it plain to me *why* he called me away from home and friends, and why he has seen fit to bless me with such happiness and joy. When I was down at our cottage on the island during the past winter I knelt in the same way and asked him to make it plain to me how I could be of benefit to my fellow-men in responding to these calls.

Last Sunday evening it was my privilege to speak to a houseful of young people in that little church over among the hills near the cabin in the woods. I said in my talk, "Dear friends, my greatest desire in life now is to be where God wants me to be most. And I firmly believe that he wants me here to-night more than he wants me anywhere else in the great wide world; and, furthermore, that he has sent me as a messenger to deliver a message to you. I am on "the King's business"—

> An ambassador to be
> Of realms beyond the sea;
> I am here on business for my King.*

*We are planning to give you the entire hymn, "The King's Business," words and music, here in GLEANINGS, and then you can all sing it; and if it gives you inspiration, and faith in God, and joy and happiness, as you sing it about your daily task, in the way it has lifted me up from care and worry, I shall be glad. The above little stanza is taken from this hymn.

And I feel convinced that I have a message to-day of great importance to the readers of GLEANINGS. The possibilities God has placed in my hand to fight this giant are flowers grown in the open air; chickens in the open air, of course; bees always in the open air, and all similar industries. Sometimes my conscience has troubled me for deserting business where I might be of such great help, and spending my time in fussing with flowers, chickens, bees, etc.; but I have been so blest in the work—such great thrills of happiness have come—that I could not doubt it was God's hand. When I talked with the physician I have mentioned, Dr. McClarty, of Manistee, Mich., I said, "Doctor, I think I know my sister, her disposition, and tastes, better than anybody else. She has always been fond of flowers and gardening. I know she would like bees and chickens. She may not have much strength; but if she could be persuaded to use that little strength out in the open air, in something she is deeply interested in, I think she would gain an appetite and pick up quicker in that way than any other."

His reply was something as follows:

"Mr. Root, what you suggest is the *very best thing in the world.* Furthermore" (and he laid his hand on my knee to add emphasis), "what you say is not only the *best* thing in the world, but it is almost the *only* thing."

Now, this physician is well up with the times. He knows about all the new discoveries and inventions that have been made for the cure of tuberculosis. He is not only well read, but he has traveled; and if ever a doctor was unbiased, this one is. He, like myself, is bound to leave no stone unturned to save that mother and sister. God helping me, this gentle, kind, and loving sister of mine who has all her life cast her bread on the waters so unsparingly, shall yet, God helping her, find at least some of it before she dies. God called me off into the woods, perhaps to save my own health and build me up for the work he has for me to do, just as he called Moses (begging your pardon again, dear reader, for so much assumption), just as he is calling *all* of us. There never will be in this world of ours too many who honestly believe they are called of God, as was Moses and David and Joseph, and thousands of others. The call may include dropping business, perhaps going down to prison, or off into the wilderness. The question is, "Are we ready to go? Are we ready to *quit* laying up treasures on earth and devote our time and money toward helping afflicted humanity, and thus lay up treasures in heaven?" Visions of that afflicted sister follow me day and night.

Some of you may say it is not *all* of us who have time and money to spare But, dear friends, it is not often that it is time and money that are needed. There is scarcely one of you who lives more simply (and I may add as cheaply) as I do when off alone in the cabin in the woods. During the past week my *menu* was a big loaf of nice bread well baked, so that the crumbs would drop off all over the table-cloth when the loaf was cut; a frame of honey made by the Caucasian bees; a quart of milk that I got from one of the neighbors, and some nice butter. Bread and butter and "milk and honey," no cooking, almost no dishes to wash—and yet I never enjoyed my daily food more than I did then, and my health was perfect. The open doorway to health, and escape from all of these ills, is plain simple food—not big dinners and lots of servants. If we were to live something more as did John the Baptist in this land of our that can easily be made to be "a land flowing with milk and honey," the expense is very small, and there is very little hired help needed.

Now in closing let me touch on one other point that is as important (or more so) as the food we eat. In crossing Lake Erie I occupied an upper berth in a little stateroom. When I retired, about 9 o'clock, I opened the transom over the door and pushed down the blinds so the May breezes could come in freely. Nothing but a sheet and a thin cotton coverlid was over me. Some time in the night the occupant of the berth below complained of a lack of covering. I told him to put his heavy overcoat on the bed; but he did not seem to want to do this, but called in the steward. This official was quite an important personage, with his fine uniform, brass buttons, glossy cuffs and collars—a man who had charge of the sleeping-apartments of one of our finest lake steamers worth toward a quarter of a million of dollars This steward shut the transom over the door and raised the glass sash so as to make the room tight, and then started out. I had just rubbed my eyes open, and caught on, as he was about to leave Said I, "My dear sir, I can not consent to sleep in this little room if you shut the windows up like that."

He turned to me in surprise and said, "Why, you are surely not *too warm* when this man here complains of being cold?"

The man who could not sleep with such covering as I had, was a big stout young fellow, weighing toward 200. I weigh only 126, but yet I was quite comfortable and happy. Well, now, this steward, this great official of that great steamer, could not comprehend that anybody should want a window for any other reason than that he was too warm and wanted to be cooled off. Do you see the point? We are a nation of consumptive people just because we sleep, so many of us, in rooms as tight as a bottle with the cork pushed down in securely. This sister of mine says the windows are always open in her bedroom; but, dear friends, this is not enough. If you are strong and well it may do. When I was in feeble health I tested the matter thoroughly. One who is ailing, especially in troubles with the lungs, should be exceedingly careful not to breathe the same air twice —especially the air that other people use. I had inflammation of the lungs when I was a child. I had an attack afterward, almost every winter. The doctors expected me to die all through childhood; but my good mother would not let me die. Now I have

gotten all over it, and it is largely by avoiding any sort of closed room. Sleeping out on the porch is much better than any room; but out in the open air with just enough protection to keep off storms is better still. If I take my afternoon nap in the cabin in the woods, even with the windows open, there is likely to be a bad taste in my mouth when I awake. If I sleep in a hammock under the little clumps of maples on the summit of the hill, overlooking the bay, when I awake my breath is as pure and clean as the air outdoors, and my spirits are exuberant accordingly.

Lack of faith, not only on the part of the patient, but lack of faith in the relatives and attendants, has much to do with it. Open air and something to occupy the mind and muscles are what is needed. The relatives must insist on this. There is too much disposition to give up, and say that "even the doctors say there is no help." I am well aware that a great deal is being done by keeping the patient in a cold climate or off in the open air up in the mountains, and that may be all right; but with my habits and disposition I greatly prefer a location in winter where I can be out in the open air from morning till night, and at work at some occupation I love, without being cumbered with an overcoat, mittens, etc. One in fair health should be able to keep warm in the open air at a temperature of 40 degrees, with ordinary clothing. Where the wind is too strong I would have some sort of windbreak. Cloth-covered frames are coming to the front in protecting poultry from storms and cold winds. It is much better than glass sashes; and cloth-covered cold-frames to keep off the winds that are too severe, are, I am sure, just what consumptive patients need. And then they need to be kept busy at work—busy, *busy*, BUSY. Just as soon as the patient gets tired, let him lie down in a hammock, warmly covered up with woollen blankets. Get along without artificial heat if possible.

As for diet, just now I do not know of any thing better than bread and butter, "milk and honey," and eggs. Dr. Miller has arrived at the point where he can use raw eggs. That would obviate the necessity of lighting a fire to do the cooking—"uncooked food." I suppose we shall have to consider the patient somewhat in regard to this matter of dieting. Let him take that which nature calls for—no stimulants, no medicine. Let milk and eggs be the "stimulant," and bread and honey the diet. It has been intimated that honey in the comb is more wholesome than when extracted. I confess I have a great liking for a little beeswax along with my honey. God will certainly guide us, and enable us to defy the "*giant*" afflicting our loved ones, if we only *let* him guide.

God is our strength.

THE Tustin pure-food bill has been passed by the Senate of Pennsylvania, going through on its final reading without a dissenting vote. Next!

Temperance.

THE BATTLE FOR THE RIGHT.

There are so many good things now coming our way in the line of temperance that I should like to fill my own department with them. Kansas is making a fierce kick to clean out the brewers, bag and baggage; and if they do not get out with a rush their possessions will be speedily confiscated. Other States, especially in the South, are following thick and fast. Express companies—at least two of them—have declared they will no more deliver liquors in dry territory. Respectable periodicals are refusing to advertise for them any more, and the war is on. Are you helping? A printed slip was just put in my hand that hails from Newcomerstown, Ohio. What do you think of it?

SERIOUS QUESTIONS FOR VOTERS.

Do we want saloons? If so, why?
Who of us want them, and for what?
Is time spent in them which could be better spent elsewhere?
Is money spent in them which would do more good spent otherwise?
Is there likely to be gambling in them?
Is any money *worse than wasted* in them?
Do any fathers set bad examples there for their boys?
Do our boys get good habits there that will make them good men, or habits that may make them good-for-nothing men?
Are our wives, mothers, and sisters made happier by having loafing and drinking places to tempt their husbands, sons, and brothers to waste their time and spend their money in drinking and loafing instead of being at home with their families?
Is the saloon a good place to educate the young men who are to be the husbands of our daughters?
If no money were spent in saloons, would there not be more good trade and fewer bad debts in business, and more comfort in homes?
Would anybody be hurt by having these places shut up? If so, who? And how would they be hurt?
Would some men be better off to-day if they had never been in a saloon?
Would some women and children be better fed and better clothed?
Would some homes be happier?
Would anybody who is dead be alive to-day?
Would saloon-keepers themselves, and their families, be better, happier, or more useful in some other business?
Do saloon-keepers want to do us good or to get our money?
Do you like the dictation of the saloons in politics?
Let us think of these questions, and vote as we think is *right*, not as those who only want our money wish us to vote.

A SAMPLE OF THE "LIQUOR LIES."

Of course the liquor-men, and especially the brewers, as the following shows, are putting up a big fight for their lives. It makes one think of that passage, "Why do the heathen rage, and the people imagine a vain thing?" Just look at the following string of falsehoods which I clip from the Cleveland *Leader* of May 14:

Official figures recently compiled in St. Louis, where Sunday closing was forced by Governor Folk, show that crime of the worst sort has increased there under the Sunday-closing law. Why? Because men who want to drink buy bottles of red liquor on Saturday nights and spend the time on Sundays loading up for trouble for themselves and others. When the city was open Sunday these men went to pleasure-resorts or halls with their wives and sweethearts, drank beer, remained sober, and kept away from crime. It is the same old story of shutting off the sale of light drinks like beer, which produce practically no drunkenness, and forcing drinking men to turn to the hip-pocket

practice if they desire stimulants. Which, oh which, is the best? T. Q. SALOMON.

Cleveland, May 6.

Well, what do you think of the above? I at once wrote to the editor of the *Leader* that, if they were going to give place to such a string of falsehoods, without any footnote or protest, I would at once give my patronage to some other daily paper, even although I had taken the *Leader* the greater part of my life. If all the friends of temperance would give the editors of their home papers to understand that they will not tolerate a periodical in their homes that is evidently in sympathy with the liquor trust, there would soon be more periodicals out and out for temperance, law, and truth.

HE MAKETH THE WRATH OF MAN TO PRAISE HIM.

The liquor periodicals are, it would seem, unwittingly doing us a tremendous service just now. The Cincinnati *Herald and Presbyter* wisely suggests:

An army never knows how well it is succeeding until it knows how badly it is frightening the enemy. Bonfort's *Wine and Spirit Circular*, Louisville, Ky., is one of the ablest and most widely read and quoted liquor-organs of the United States. In a recent number it devotes a large part of its space to an editorial concerning the Anti-saloon League and the constant headway being made by the league against the liquor-traffic throughout a large part of the country. It says:

With more than half of the geographical limits of this great country under laws prohibiting the sale of alcoholic beverages; with Tennessee passing through her legislature a bill that almost amounts to State prohibition; with the West Virginia legislature passing a measure to submit the prohibition of the manufacture and sale of wines and spirits to a vote of the people; with Texas providing that express companies transporting wines and spirits shall take out a $5000 license; with the Illinois legislature considering a county-unit local-option measure, and Indiana a $1000 license for the few saloons that the Remonstrance law will leave in that State; with Kentucky almost a dry State, and probably facing a prohibitory amendment, and with an organization opposing us and sworn to our destruction, that lacks nothing in the way of money or brains, enthusiasm or persistent untiring work, what (may we ask?) is the wine and spirit trade doing to arrest the current of events or to alter in any way the radical conclusions which are being forced upon the people in every State, county, and precinct!

If there is one thing that seems sett ed beyond question, it is that the retail liquor-trade of this country must either mend its ways materially or be prohibited in all places save the business or tenderloin precincts of our larger cities.

May the Lord be praised that all the above is true, and that the enemy of righteousness recognizes it.

The suggestion that the retail liquor-trade "mend its ways materially" will strike most people as a sensible idea. Certainly there is room for it.

Here, again, we have the following:

"'The results of temperance agitation in the United States have been well summed up by National Superintendent Baker of the Anti-saloon League in the following words: "Thirty-three millions of the people of the United States live in territory where the saloon is legally prohibited, and during the past twelve months two and a half millions of our people have abolished saloons from the territory in which they live. Kentucky, in the past six months, has driven the saloons from twenty-six counties by a majority vote in these counties, of upward of twenty-two thousand, freeing a population of one hundred and fifty thousand from the immediate presence of the saloon. Tennessee has extended the Adams law to the entire State, which means that, within a short time, the saloons will exist in only three or four cities. Alabama has just passed a county local-option law, which, it is predicted, will abolish the saloons from all but three of the counties within the next two years."

'Since these words were uttered, Colorado's new local-option law has been signed by Governor Buchtel, and the outlook is more optimistic than ever.'"

While I rejoice to see what the Department of Agriculture is doing for the farmer in the way of sending out bulletins free of charge, I do not rejoice to see one on hop-growing, with a report of the beer industry in the back part of it. See the following:

BEER INDUSTRY.

The three principal beer-producing countries are Germany, the United Kingdom, and the United States. It is only within the last two years that the beer production of the United States has exceeded that of the United Kingdom. This rapid increase in the United States is due both to the rapid increase in the population and to increased consumption per capita. In the year beginning July 1, 1905, the beer production was nearly 55,000,000 barrels.

If the increase in the United States is as great in the future as it has been in the past, the production of the United States will soon equal that of Germany. This would indicate that there will be an increased demand for hops at home.

Well, I have been through this whole bulletin of 34 pages quite thoroughly; and although it is sent out this year, 1907, I can not find a single line in recognition of the general war that is being waged against beer and breweries throughout our land at the present time. I am sure that thousands of good honest hearts will join with me when I say it is a burning shame and an insult to our Christianity to see a bulletin sent out from the head of our nation, placing the manufacture of beer on an equal footing with other agricultural lines, and totally ignoring the awful wreck and ruin that follow the beer trade wherever it is introduced. What is the matter with the scientific authorities at the head of our nation? Have they, like Rip Van Winkle, been asleep while something like half of our people and half of our territory have been emancipated from the thralldom of the liquor-traffic?

The *New York Weekly Witness* says: "For revenue England has for a century poisoned and demoralized China with opium, and now India with alcohol. And by tobacco, in the form of cigarettes principally, it is rapidly sapping out the young life of Great Britain." Do our rulers reckon that the revenue of our country is a greater asset than our young manhood? Do they forget that righteousness alone exalteth a nation?

THE GAMBLER AND HIS OCCUPATION.

Of all the occupations that men pursue, the occupation of the professional gambler is probably the only one that has not a single redeeming feature. There are many pursuits of life that are comparatively offensive that are, nevertheless, necessary to public comfort.

The occupation of the gambler, however, contributes nothing. Nothing grows under his touch; not a blade of grass nor a tree nor a flower yields its beauty or its fragrance as a result of his profession. The deadly Upas tree sheds about it no more fatal poison than the influence the gambler exerts. Not a dollar that he earns is honestly earned. When he has passed his career the only truthful epitaph that can be written on his tombstone is that the world would have been better if he had never been born.—*Judge Freeman's charge to the Lincoln Co. (New Mexico) Grand Jury in 1893.*

CATCHING THEM ON "THE FLY."

By the way, I am just starting in the bee business, and have been reading your nice little magazine for some time past. The swarming bees all fly to the West in this country; and as I live on the west bank of the Mississippi a great many colonies cross the river and land in the trees on our bluff. That is the way I expect to get my start in the bee business.

Burlington, Iowa. J. W. MURPHY.

Paint without Oil

Remarkable Discovery that Cuts Down the Cost of Paint Seventy-five Per Cent.

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powdrpaint.

THE DISCOVERER OF POWDRPAINT.

It comes in the form of a dry powder, and all that is required is cold water to make a paint storm-proof, fire-proof, and as durable as oil paint. It adheres to any surface, wood, stone, or brick; spreads and looks like oil paint, and costs about one-fourth what you have heretofore had to pay for paint.

Write to Mr. A. L. Rice, 615 North St., Adams, N. Y., and he will send you a free trial of his new discovery, also color-card and full information showing you how you can save a good many dollars. Write to-day.

Try it Two Years

Our Guarantee that this Buggy will stay right for that time is backed by a cash bond of $25,000. Your money back if it is not all we claim for it.

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With your Money in Your Pocket

"Anderton" Top Buggy.

Write today for our plan and 140-page, illustrated catalog. The "Anderton" line includes Buggies, Surreys, Stanhopes, Driving Wagons, Pony Vehicles Carts, Harness, etc.

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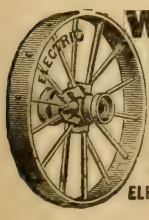

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Don't break your back and kill your horses with a high wheel wagon. For comfort's sake get an

Electric Handy Wagon.

It will save you time and money. A set of Electric Steel Wheels will make your old wagon new at small cost. Write for catalogue. It is free.

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The demand for this special edition is great, and you should therefore send to-day before the supply is exhausted.

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LARGE ILLUSTRATED CATALOG FREE. WRITE FOR IT TO-DAY.

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MYERS

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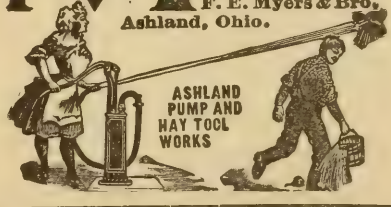

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Great variety in the Deming line, 20 styles **Hand, Bucket, Knapsack, Barrel and Gasoline Engine Sprayers.** All right working. Every style the result of long experience. Don't buy till you send for free catalogue and all particulars.

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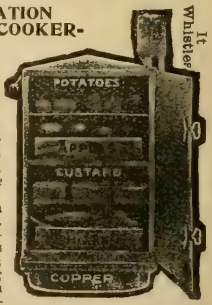

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Booklets free.

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George E. Hilton - - Fremont, Michigan

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IT will cost you only one cent for a postal card to get our **delivered prices on Dovetailed Hives, Sections, Section-holders, Separators, Brood-frames, Foundation, Smokers, Extractors, Shipping-cases, etc.** It may mean a saving to you of many dollars. It is the natural advantage we have over others that enables us to make you the Best Price. There are no better goods than ours, and we GUARANTEE SATISFACTION or REFUND your MONEY.

We MANUFACTURE and keep in stock all standard Bee-goods, and can ship promptly.

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SELF CLEANING
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The Bingham Smokers and Honey-knives have been the standard in America and every European country 29 yrs. There is no *smoker* so *old*, so *new*, so *perfect*. Accept thanks for 30 yrs. liberal patronage.

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Smoke Engine	4-inch	$1 25	$3 45	25
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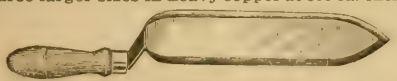
Little Wonder	2 "	50	1 35	15

Three larger sizes in heavy copper at 50c ea. extra.



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We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

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Dittmer's . . . . . Comb Foundation

Why do thousands of bee-keepers prefer it to other makes? . Because the bees like it best, and accept it more readily.

Dittmer's Process . . . . . is Dittmer's

It stands on its OWN NAME and its OWN FOUNDATION —to which alone it owes its reputation and merits. . . We are now ready to make prices for next season for

Working Wax for Cash

and for full line of supplies. WHOLESALE and RETAIL. Free catalog and samples.

Gus Dittmer, Augusta, Wis.

JOBBERS FOR
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. . . for . . .

ROOT'S GOODS.

TRY THE DANZ.
COMB-HONEY HIVE

The Danzenbaker hives I got last season have given splendid satisfaction; in fact, I have kept my bees outside this winter, which is seldom attempted in Manitoba, and up to date they have come through in splendid shape. I think the hive did it.
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Send for catalog. Best shipping facilities in the State.

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one of the best shipping centers in the whole country. Then look at the time you will save; for I get out goods with the utmost promptness, and our many railway and steamboat lines do the rest. No matter where you live, "*If You Want Best Goods Quickest, Send to Peirce.*"

Catalog free.

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of best quality (JOHN DOLL & SON'S MAKE). Extra low prices quoted on all supplies. Let me figure on your order. I can save you money. BERRY BASKETS AND BOXES in stock. Send for 32-page catalog free. **W. D. SOPER, Jackson, Mich.**

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Prices of Queens before July.	1	6	12
Select queens	$1 00	$5 00	$ 9 00
Tested queens	1 50	8 00	15 00
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Breeders	4 00		
Golden five-band breeders	6 00		
Two-comb nuclei, no queen	2 50	14 00	25 00
Full colonies on eight frames	6 00	30 00	

ADD the price of whatever grade of queen is wanted, with nuclei or colonies; nuclei ready about May 10; can furnish bees on Danzenbaker or L. frames; pure mating and safe arrival guaranteed. We employ 400 to 500 swarms in queen-rearing, and expect to keep 500 to 1000 queens on hand ready to mail. Our Northern-bred bees are hardy, yet gentle; they will give you results. :: :: :: :: Address all orders to

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Quick Shipment, Honest Goods, Low Freight

Our sections are manufactured from young basswood timber.
Hives are almost clear lumber—they are beauties.
Shipping-cases made strong and substantial, nice, smooth, and perfect.
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For fourteen years we have been furnishing every thing the Eastern bee-keeper needs. Our office and warerooms are at the same old stand—105 Park Place, New York. Full colonies Italian bees in new hives, $9.00. Catalog free.

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Three-band and Golden Italians.

We warrant our bees free from disease of any kind, and guarantee safe arrival of all queens. We want your orders and will fill them promptly on and after June 1st, at 75 cts. untested, and $1.25 for tested of either strain. A postal will bring you a circular. Send your orders to

MENNIE & FENTON,
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CARNIOLANS and BANATS

OUR SPECIALTIES.

CARNIOLANS.

THIS is our 22nd year in breeding this race of bees, and, by careful selection, we claim to have the finest *Line-Bred* Carniolans to be had. They are very gentle, hardy, prolific, great honey-gatherers, and builders of white combs. We have wintered 500 queens for early orders. One untested queen, $1.00; six for $5.00; 12 for $9.00. Tested, $1.50; best breeder, $3.00; best imported, $5.00. Golden and leather Italians same price. One L-frame nucleus, $1.00; two, $1.75; three, $2.50. Add price of queen wanted to nucleus. No foul brood here. Bees and queens guaranteed to arrive in good condition.

BANAT BEES, from Hungary.

THIS wonderful new race of bees takes the lead over all others, all points considered. Are great honey-gatherers and builders of very white combs; gather very little propolis; do not breed out of season and use up their honey when none is to be had; are very gentle and quiet on combs; are not inclined to swarm, even with their hives boiling over with bees, but keep right at work while other races are swarming. We consider this race of bees a model one for producing fancy comb honey. Have wintered a choice lot of queens for early orders. One untested queen, $2.00; tested, $5.00; best breeding and imported, $8.00.

F. A. LOCKHART & COMPANY, LAKE GEORGE, NEW YORK.

Queens that Please are not always "just for looks." Hear what one of my queens has done, and that before April 15 of the present season. "*Dear Sir:*—The queen I purchased of you last fall has already given me over 200 lbs. of honey this season. I think that is good for so early in the season. Have your bees done as well? M. A. SALAZER, Falfurrias, Texas." I breed the Leather or Red-clover stock of Italians; also the Holy Land and Carniolan races in separate yards. Of the Red-clover stock I can safely say there are none better. I have a few left of those extra-fine breeding queens. If you are going to requeen your apiaries, one of these breeders will be of untold value. Remember, I place a guarantee behind every Laws queen. Price of queens, each, $1.00; six for $5.00. Breeding queens, $3.00 to $10.00. Circulars free. **W. H. LAWS, Beeville, Bee County, Texas.**

Save Your Queenless Colonies

Introduce a vigorous tested queen. We can furnish them by return mail from our fine Strain of Three-band Italians; queens reared last fall and winter in four-frame nuclei. Choice tested queens by return mail, $1.00 each. Untested queens ready to mail March 15, 75c; $8.00 per dozen. No disease, and satisfaction guaranteed.

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Same Old Place

is where you get the best of queens; untested, $1.00; $4.25 per 6; $8.00 per dozen. Tested, $1.50; best breeders, $5. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy-Lands, Italians.

The JENNIE ATCHLEY CO.,
Box 18, Beeville, Bee Co., Tex

Italian Queens

Fine young prolific three and five banded Italian queens by return mail. Untested, only 60 cts.; tested, 75 cts.; extra fine queen, $1.00. Full colonies in eight-frame new hive with queen, $4.75. Three-frame nuclei, with queen, $2.75.

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To all apiarists, that *Dr Luigi Simoni* in Leghorn has succeeded to the old established business formerly conducted by Bianconcini in Bologna. *Luigi Simoni*
LIVORNO (LEGHORN)
(ITALY).

Red-clover Italian Queens Exclusively.
Warranted purely mated, 75 cts.; three for $2.00.
F. M. MAYBERRY, LEDERACHVILLE, PA.

Moore's Long Tongue and Golden

Queens

Fine select untested queens, $1; 6, $5; 12, $9. Tested, $1.50; 6, $8. Breeders, $3.50. Safe arrival gar'd.

W. H. RAILS, - ORANGE, CAL.

Better than an Island

This place is just as good as an island for breeding queens, for there are no other bees within five miles, and so pure mating is guaranteed. It is better than an island when you order queens, for the fastest trains stop here, and hence queens are not away from the colony long enough to impair their usefulness. Safe introduction is guaranteed if you follow my special directions. I consider the Banat Caucasian bees the best and gentlest in the world. Banat Caucasian bees are bred here; other races in outyards. Queen-breeders should secure their breeding-queens from this pure stock. Order now. Banat Caucasian queen, $3.00. Caucasian queen, $1.50. Golden Italian, 75c. Tested queens, one year old, double these prices.

Dale Collins, Ph.D., Emporium, Pa.

Yellow from Tip to Tip!

My Adel bees and queens are very handsome. Every queen a breeder, and guaranteed to produce golden queens and beautiful bees; non-swarmers, very gentle, and hustlers for honey. Each queen, $1.00. Catalog ready. **H. ALLEY, Wenham, Mass.**

ITALIAN -:- QUEENS

Golden and three-banded red-clover stock; Untested. 60 cts. each, or $7.00 per doz. Select untested, 75 cts. each, or six for $4.00. Safe arrival. No disease of any kind. **W. J. FOREHAND, Fort Deposit, Ala.**

Red-clover and Caucasian Queens

Ready now. My red-clover strain do good work on both red and white clover. Untested, 75c; tested, $1. Dovetailed Hives, $1 each; and all kinds of supplies. Give me your bill. Plenty fine queens ready. Circ'l'r.

G ROUTZAHN, . BIGLERVILLE, PA.

GOLDEN QUEENS

Balance of season at 70 cts. each, three for $2, or six for $3.50. Goldens only. Safe arrival, perfect satisfaction.

R. O. COX, Rt. 4, Greenville, Ala

3-BANDED ITALIAN BEES.

The best all-round bees on earth. My stock is composed of selections from my own strain of 3-banded Italians that were awarded diploma at the Pan-American Exposition, and The A. I. Root Co. clover stock.

Tested queens, $1.50; select tested queens, $2.00; fair breeding queens, $3.00; extra select breeders, $5.00—ready to go promptly. Untested 1907 queens, $1.00; select untested queens, $1.25—ready early in March. Yours for a prosperous 1907.

W. O. VICTOR,

Queen Specialist, HONDO, TEXAS.

Westwood Red-clover Queens.

No better hustlers flying; will get honey where other bees fail. Try them and be convinced. Nuclei a specialty. Also full colonies of ten frames each. Safe arrival guaranteed. Price list sent on application.

HENRY SHAFFER, 2860 Harrison Ave., Station L, Cincinnati, Ohio.

DOOLITTLE & CLARK

Have a fine lot of Italian Breeding-queens ready for immediate delivery. They are also booking orders for 1907 queens.

	1	*3*	*12*
Untested	$1 00	$2 50	$ 9 00
Tested	1 50	4 00	14 00
Tested last year's rearing.	2 50	....	....
Select breeding	5 00	....	....
Extra select breeding	10 00	....	....

BORODINO, ONONDAGA CO., NEW YORK.

Italian Queens

Golden, Three-banded, or Leather-colored. Write for circular to-day. . Prices right. . Queens all right.

Robt. B. McCain, Rt. 1, Oswego, Ill.

Golden Italian Queens

Ready for points where weather permits reception. Untested. $1.00; dozen, $9.00—after March, $8 00; selects, 25 cts. extra; tested, $1.50; select, $2.00; breeders, $3.00 up. Circular free; 17 years' experience.

J. B CASE, Port Orange, Fla.

QUEENS! and NUCLEI!

Circulars free. D. J. BLOCHER, Pearl City, Ill.

Caucasian and Long-Tongue Italian Queens.

1905, '06 Queen-breeder in Apiary of Dept. of Agriculture, Washington, D C.

	Before June 15.			After June 15.		
Both Races.	1	6	12	1	6	12
UNTESTED,	$ .75	$4.25	$8.00	$ .60	$3 35	$6 50
SELECT "	1.00	5.50	10.00	.75	4 00	7.50
TESTED	1.50			1.25		

Satisfaction Guaranteed. Descriptive Cir. free.

LESLIE MARTIN,

Birdcroft Apiaries, Lebanon, Tenn.

QUEENS of MOORE'S STRAIN OF ITALIANS

Produce workers that fill the supers, and are not inclined to swarm. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Mr. W. Z. Hutchinson, editor of the *Bee-keepers' Review*, Flint, Mich., says: "As workers, I have never seen them equaled. They seem possessed of a steady, quiet determination that enables them to lay up surplus ahead of others. Easier bees to handle I have never seen."

My queens are all bred from my best long-tongued three-banded red-clover stock (no other race bred in my apiaries), and the cells are built in strong colonies well supplied with young bees.

PRICES: Untested queens, $1 each; six, $5; doz., $9. Select, untested, $1.25 each; six, $6; doz., $11.

Safe arrival and satisfaction guaranteed.

Descriptive circular free. Address

J. P. Moore, Queen-breeder, Rt. 1, Morgan, Ky.

ROSE LAWN QUEENS.

Highest quality, line-bred for gentleness and honey-production. We are shipping Golden and Red-clover Queens on receipt of order, and expect to continue to do so through the season. Select, untested, $1; six, $5; dozen, $9. Abhasian, Caucasian, and Banats from imported breeders, July 1st. Catalog on request.

Rose Lawn Apiaries, College View, Neb.

Taylor's Strain of Italians is the Best

Long tongues and goldens are the best of honey-gatherers; 18 years a specialty, breeding for the best honey-gatherers. Untested, 75 cts. each, or $8.00 a dozen; tested, $1.00 each, or $10.00 a dozen; select tested, $1.50 each. Breeders, the very best from $3.00 to $5.00 each. Carniolans same price as Italians. Try them. We sell nuclei and full colonies. Bees in separate yards. Safe arrival guaranteed. Send all orders to

J. W. TAYLOR & SON, Beeville, Bee Co., Texas.

A BARGAIN

200 strong 2-frame nuclei, each nucleus containing a fine young Italian queen of this season's rearing—price $2 00 each. Fine tested queens, this season's rearing, $1.00. Nothing but tested queens will be sent out for the present; will begin shipping queens and nuclei about June 25; safe arrival guaranteed.

L. H. ROBEY, Worthington, West Va.

QUEENS THAT IT PAYS TO BUY.

Try one of my famous $100 red-clover breeder's daughters. Also golden queens same price. After May 1st—Untested, 50c, 13 for $6; select, untested, 75c, 13 for $9; tested, $1.00. Nuclei, $1.00 per frame, without queen.

H. A. ROSS, 1709 Upper 2d St., EVANSVILLE, IND.

ITALIAN QUEENS and BEES

I can supply select untested Queens at 75 cts. each; $7.50 per dozen. Orders for early delivery will receive careful attention.

David S. Hurst, Box 102, Letohatchee, Ala.

ITALIAN QUEENS

Golden or dark. Untested, $1.00; tested, $1.50.
C. D. BENTON, . . . AKIN, N. Y.

Queens from 65 Cents Up!

Bred from Root's Imported Italians. Write for prices, stating wants. . .

C. M. Church, Arnold, Pa.

ITALIAN QUEENS Bred from the best stock this country can produce. Bright golden and 3-banded queens; ready May 20th. I am now booking orders, which will be filed and filled in rotation. After May 20th, all orders will receive prompt attention. Untested queens, 60 cts.; six for $3.35., or $6.50 per doz. Tested, $1.00. or six for $5.50. Two-frame nuclei (Danzenbaker or Hoffman frame), with young queen, after June 1st, $2.00.

Geo. W. Barnes, Box 340, Norwalk, O.

Classified Advertisements.

Notices will be inserted in these classified columns at 20 cents per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Help Wanted.

WANTED.—An apiarist accustomed to large apiaries. State age, experience, and wages.
DR. GEO. D. MITCHELL & CO., Ogden, Utah.

WANTED.—Young man to help with bees at once. Write age, lowest wages, and experience.
E. F. ATWATER, Box 37, Meridian, Idaho.

WANTED.—Married man to work in bees, and on farm part of time. Good house, on main road, with fruit and fuel furnished. Can get work all the time. D. H. COGGSHALL, West Groton, Tompkins Co., N. Y.

For Sale.

FOR SALE.—Opaline honey-jars, all kinds; send for price list. HAROLD E. SHORE, Germantown, Pa.

FOR SALE.—Fine job-printing outfit.
C. A. STEBBINS, Broad Creek, Va.

FOR SALE.—Good Smith Premier typewriter. Will take beeswax or good offer. Box 95, Medina, Ohio.

FOR SALE.—A complete steam laundry outfit cheap. Start one in your own town, Box 202, Medina, O.

FOR SALE.—Ten extracting combs in L. supers, $1.75 in 5 lots. Other new and used supplies
J. E. THOMPSON, Carpentersville, Ill.

FOR SALE.—Double-barrel, hammerless, 12-gauge, single-trigger shotgun. Gun is in A1 condition, and must go. Make an offer. Box 311, Medina, Ohio.

FOR SALE.—1000 second-hand bee-hives in good condition. L. hives, 40 cts.; Heddon, 30 cts.; Chaff, 50 cts. H. & W. J. MANLEY, R. F. D. No. 3, Sandusky, Mich.

FOR SALE.—Alexander wire bee-veil, guaranteed to protect the face from any stings, 75c each, or 3 for $2 00 post paid. FRANK ALEXANDER, Delanson, N. Y.

FOR SALE.—A quantity of Hilton chaff and other hives in the flat, cheap to close out. In quantities to suit. A. G. WOODMAN CO., Grand Rapids, Mich.

FOUND.—After thirty years' experimenting, a comb-frame that is practical and bids defiance to propolis. All about them; write the inventor.
D. S. HALL, So. Cabot, Vt.

FOR SALE.—One two and a half H. P. engine and boiler in good working order. Used not over 150 days. Cost $150. Will sell for $75. J. W. UTTER,
Amity, Orange Co., N. Y.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1907 send your name and address to FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE.—Two frames Italian bees with queen, $2. E. M. COLLYER. 75 Broadway, Ossining, N. Y.

FOR SALE.—A quantity of second-hand chaff hives, consisting of 10-frame Quinbys and 13-frame Gallups; no inside furniture; only $1.00 each.
E. D. TOWNSEND, Remus, Mich.

FOR SALE.—Best Wisconsin sections, per 1000, $4.00; No. 2, $3.40; plain, 25 cts. less. Discounts on Danz. hives and other Root's goods; also berry-boxes. Italian bees for sale. H. S. DUBY, St. Anne, Ill.

FOR SALE.—One-piece sections, of all the standard sizes, 1000, $4.00; No. 2, $3.50; plain, 25 cts. less. These sections are strictly first-class. Also other supplies very cheap. JAS. E. MORGAN,
Dansville, Ingham Co., Mich.

FOR SALE.—Bee-keepers' supplies (Lengst & Koenig's make). Central Michigan bee-keepers will do well by ordering their supplies of me. Send for free catalog. Beeswax taken in exchange for supplies.
EARL E. BABION, Chesaning, Mich.

FOR SALE.—25 8-frame bodies with covers and bottoms, full sheets foundation on cross-wiring; 50 8-frame supers, plain, 4¼×1½ sections, drawn comb, used one season only; 25 8-frame hive-bodies complete, with drawn combs, F. O. B. Chicago. R. F. WUTZKE,
3559 N. 40th Ave., Chicago, Ill.

FOR SALE.—Angora and Persian cats, and kittens from imported ancestors. Persian white—some with amber and some with blue eyes. Any woman can have a nice income, with little trouble and expense, raising them. Kittens three to six months old, $6 to $10. Stamp for written reply. MRS. J. F. SKEES,
Marion, Ohio.

FOR SALE.—Seven-room house with cellar—two-story; stone-basement barn, 36x48; three acres of good land with plenty of fruit-trees and grapevines, located on Canada St., Munnsville, Madison Co., N. Y., in the Stockbridge Valley—a very desirable location for a bee-keeper, with plenty of basswood timber, clover, buckwheat, etc. Several years ago my brother kept a large stock of bees here and was very successful; located on the O. & W. R. R., nine miles south of the city of Oneida. Price $1800, with $800 cash, and balance on long time at 6 per cent if desired. Any further information will be given by
R. H. WOOLVER, Munnsville, N. Y.

FOR SALE.—The following foundation-mills. Wish to dispose of them at once. Write for sample if interested, and fuller information will be given about any mill.

Mill No. 1—14-in., old-style high frame, in perfect order, price $15.00.

Mill No. 2—6-in., old-style high frame; has had a pin run through the rolls, otherwise is in good order; price $8.00.

Mill No. 3—12-in. new style, large rolls, used but very little, in perfect order: price $25.00.

Mill No. 4—12-in. blank rolls, used but little, in perfect order; price $20.00.

Mill No. 5—6-in. mill, new style, in perfect order, used but little; price $12.00.
W. W. BLISS, Duarte, Cal.

FOR SALE.—On account of age I wish to sell my ranch of 163 acres, 8 miles back from the Pacific coast, at Del Mar. It is nearly all fenced and cross-fenced; 100 acres under cultivation, the rest pasture; is as near frostless as any place in Southern California; small house 500 feet above sea-level, giving a fine view of the Pacific Ocean; stable, well, and other improvements; Lusardi P. O., with tri-weekly mail service at my house. Besides home consumption I have sold $1000 produce yearly, and am not able to cultivate more than half the tillable land any year. Through exceptional opportunity I know it is the best bee location within a radius of more than 20 miles. At all times from January to November there is something more or less plentiful for bees. In May and June I get a surplus of white honey from sage, than which none is finer, five or six weeks longer, a surplus of darker honey from other sources. My honey-house and bee-yard are the most convenient and easiest worked I know of. I am not anxious to sell the apiary, because it is profitable, and I can and *like* to handle bees; but if it will promote the sale of the land, which I can't handle, for I am in my 68th year, I would sell part or all the apiary. For further particulars address
A. J. BURNS, Lusardi, San Diego Co., Cal.

Bees and Queens.

FOR SALE or rent, 145 colonies of bees near Lovelocks, Nevada. H. VOGELER, Fruitvale, Calif.

FOR SALE.—Queens from bees that gather honey; also full colonies of bees. HAROLD HORNOR, Jenkintown, Pa.

FOR SALE.—25 colonies of Italian and hybrid bees in 8-frame L. hives—Hoffman frames. H. M. WEST, North Kingsville, O.

FOR SALE.—Italian queens, hustlers. Untested, 65 cts.; tested, $1.00. Select tested, $2.00. Breeders, $3.00 each. MRS. J. W. BACON, Waterloo, N. Y.

FOR SALE.—Bees, queens, and bee-keepers' supplies (Root's goods), at factory prices. F. W. VAN DEMARK, Mehan, Okla.

FOR SALE.—Mechanic Falls, Me., branch of The A. I. Root Co. will ship full colonies, nuclei, and queens of same grade direct from Mechanic Falls, Me., at regular catalog prices. Safe arrival and satisfaction guaranteed.

FOR SALE.—60 hives of Carniolan bees for sale at once; all in fine condition, and very hardy; all wintered on summer stands last winter and did not lose a hive. All in first-class eclectic hives, well painted, with 40 one and one-half pound section boxes on each hive. No bee disease has ever been in my yard. Cause of selling: have sold my place. WILLIAM REYNOLDS, Idlewild Ave., Cornwall on Hudson, Orange Co., N. Y.

Poultry Offers.

FOR SALE.—Barred Plymouth Rock eggs, 75c per setting of 15. H. J. AVERY, Katonah, N. Y.

FOR SALE.—Mated homer pigeons. Inquire North Wilcox, Northside Farm, Royal Oak, Mich.

FOR SALE.—Homers for squab-breeding; mated birds. MISSOURI SQUAB CO., St. Louis, Mo.

FOR SALE.—R. C. Brown Leghorn eggs, 18 for $1.00; 50, $2.50; 100, $4.00. White Holland turkey eggs, $3.00 for 12. ELLA THARP, Box 6, Mt. Sterling, Ia.

FOR SALE.—Eggs for hatching, from prize-winning W. Wyandottes; Duston strain; best layers, fine large birds, pure white—scoring 90 and above at Michigan shows. 15 eggs, $2.00. Discount on large orders. WESLEY C. RICHARDS, "Brookside Farm," R. F. D. 2, Carleton, Mich.

FOR SALE.—Eggs for hatching from my celebrated strain of S. C. Brown Leghorns; line bred for winter layers; greatest layers on record; farm range; fertility guaranteed; $1.00 per 15. Incubator eggs at reduced prices. Prompt shipment. J. E. HAND, Rt. 1, Birmingham, Ohio.

Wants and Exchange.

WANTED.—Feathers. What have you to sell? Mail samples. BANGOR MATTRESS CO., Bangor, Me.

WANTED.—Bees. State what kind, on what frames, and price. H. H. JEPSON, 182 Friend St., Boston, Mass.

WANTED—to exchange for bees or hives, best pit games in the world, Allen Remylhead's; also peacocks. State kind of bees. M. L. PEACOCK, Shaw, Miss.

WANTED.—Bees. 50 pounds or more in bulk package or on combs Send best offers with definite condition at once to C. W. BARNUM, Kincardine, Ont.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price. OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange Barnes' foot-power circular and scroll saw, Union Hill Ballard rifle, 38; and Hunter bicycle, for queens and hives. BEE, box 44, Sunman, Ripley Co., Ind.

WANTED.—To sell drawn combs (extracting combs) standard size, from healthy bees. Going out of business. Write for prices. D. S. JENKINS, Las Animas, Colo.

WANTED.—Names of parties interested in the "Mills" pasteboard honey-package. Orders being taken for the coming season. Prices will depend on number of orders received. Send 10 cents for particulars and sample. HOWARD C. MILLS, Camillus, N. Y.

WANTED.—Western bee-keepers, notice! Two carloads of Root's bee-supplies. Write us for prices, stating goods wanted. Would also like to quote distant bee-keepers delivered prices. SUPERIOR HONEY CO., Ogden, Utah.

Honey and Wax Wanted.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of. HILDRETH & SEGELKEN, 265-267 Greenwich St., New York.

Honey and Wax For Sale.

FOR SALE.—California extracted honey, all grades; case or car load lots. RAYMOND E. FAIRCHILD, Redlands, Cal.

FOR SALE.—800 pounds of pure beeswax for sale. Refuse from wax-extractors wanted. Will pay cash. W. L. COGGSHALL, Groton, N. Y.

Bee-keepers' Directory.

QUEENS.—Clover stock. Experience and methods count. Write me. H. G. LARUE, LaRue, Ohio.

ITALIAN queens bred for honey, untested, $1.00 each. GEO. H. PLACE, 816 No. 49th St., Omaha, Neb.

Extra honey queens and choice mountain honey. Francis J. Colahan, Bernardo, San Diego Co., Cal.

QUEENS.—Pure Gold, Red-clover, Caucasian, Banat. ROSE LAWN APIARIES, College View, Lincoln, Neb.

ITALIAN QUEENS.—Golden and leather, 60c each; worth $1.00. G. W. BARNES, Box 340, Norwalk, O.

Bee-keepers' supplies, Italian queens. Send for a free catalog. ARTHUR RATTRAY, Almont, Mich.

ITALIAN BEES and queens—Red-clover strain imp'd mothers. A. W. YATES, 3 Chapman St., Hartford, Ct.

ITALIAN BEES, queens, and Root's bee supplies. E. SCOGGIN, Carlsbad, N. M.

I club a high-grade Italian queen with GLEANINGS, new or renewal. W. T. CRAWFORD, Hineston, La.

WANTED.—500 colonies of bees in Texas, Arizona, or California. N. E. MILLER, Box 373, Logan, Utah.

ITALIAN BEES and queens—red-clover and golden strains. E. A. SIMMONS, Greenville, Ala.

ITALIAN bees and queens bred for honey; price list free. B. F. YANCEY & SON, Angleton, Tex.

FINEST Golden and red-clover queens, Caucasian and Carniolan. DANIEL WURTH & GRANT, Pitkin, Ark.

ITALIAN AND CAUCASIAN bees and queens of best quality; price list free. A. E. TITOFF, Ioamosa, Cal.

MAPLEWOOD APIARY.—Choice comb honey, Italian bees and queens. GEO. H. REA, Reynoldsville, Pa. R. 2.

ROOT'S SUPPLIES at factory prices; wholesale and retail. ANTON G. ANDERSON, Holden, Mo.

ITALIAN BEES, queens, and bee supplies.
H. H. JEPSON, 182 Friend St., Boston, Mass.

ITALIAN BEES, queens, nuclei, and bee-keepers' supplies. A. T. DOCKHAM, Rt. 1, Box 95, Eagle Bend, Minn.

ITALIAN BEES, queens, beeswax, honey, and bee-keepers' supplies. M. E. TRIBBLE, Marshall, Mo.

FOR SALE.—Bee-keepers' supplies. Write for catalog. Lengst & Koenig, 127 S. 13th St., Saginaw, Mich.

FOR SALE.—Golden and red-clover Italian queens. WM. A. SHUFF, 4426 Osage Ave., Philadelphia, Pa.

ITALIAN BEES and queens—red-clover and golden strains. E. E. MOTT, Glenwood, Cass Co., Mich.

SWARTHMORE Golden-all-over, Caucasian, Banat, Carniolan, Cyprian queens. E. L. Pratt, Swarthmore, Pa.

QUEENS. Free list giving safe method of introducing, ready Feb. 15. E. E. LAWRENCE, Doniphan, Mo.

ITALIAN BEES, queens, honey, and ROOT'S bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

FOR SALE.—Root's bee-supplies, wholesale and retail; factory prices; catalog free. Beeswax wanted.
W. E. TRIBBETT, Staunton, Va.

Improved Carniolans always winter best, breed up strongest early in the spring; the finest comb-honey builders. (Italians for those preferring them.) Catalog free. W. W. CRIM, Pekin, Ind.

GOLDEN-ALL-OVER Caucasian Banat bees and queens. We book orders for early queens from our best imported breeding stock for honey, with 600 twin mating-boxes. THE SNYDER APIARIES, Lebanon, Pa.

QUEENS.—Improved Red-clover Italians bred for business; June 1 to Nov. 15, untested queens, 60c; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

IMPROVED ITALIAN QUEENS now ready; nuclei and colonies about May 10, Danzenbaker or L. frames; 20 years a queen-breeder; 500 colonies to draw from. Circular and testimonials free.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

KODAK and Camera users, send us your developing and finishing. Send for price list. A full line of Kodaks, films, and all Photo Supplies.
FURNAS & MADDOX, 552 A, Louisville, Ky.

ANGEL'S GOLDEN BEAUTIES and his bright three-banded Italian Queens have but few equals and no superiors. A fine large queen of either strain for $1.00; an extra select breeder for $2.50. I have had 12 years' experience at queen-breeding. Address
SAMUEL M. ANGEL, Route 1, Evansville, Ind.

Wire poultry netting, recently offered in this department, is all sold.

SWEET-CLOVER SEED.

We receive numerous inquiries from our readers, asking where they can get sweet-clover seed. We have on hand here, also in Chicago, the unhulled white at 22 cts. per lb., postpaid; 10 lbs. for $1.00 by express or freight; 100 lbs. for $8.00, bag included. We have here also the hulled white at 8 cts. per lb. extra.

YELLOW SWEET-CLOVER SEED.

Just before going to press we have located some yellow sweet-clover seed in South Carolina, which we have secured to supply orders. Until further notice the price will be 30 cts. per lb., postpaid; 10 lbs., by express or freight, for $1.80; 100 lbs., $16.00.

JAPANESE BUCKWHEAT.

We have a very limited supply of Japanese buckwheat seed. If any one reading this knows of a stock of choice seed for sale we should be pleased to hear of it. Until further notice we shall have to make our price, including bag to ship in, 40 cts. per peck; 75 cts. per ½ bushel; $1.40 per bushel; $2.50 for two bushels.

OUR COVER PAGE.

The cover page of GLEANINGS for this issue represents the tropic zone. The broad-leaved plants are probably plantains—a near relative of the banana. Both are honey-plants. The banana fruit is also represented just as it grows, seemingly upside down to persons unacquainted with it.

DAISY WHEELBARROWS.

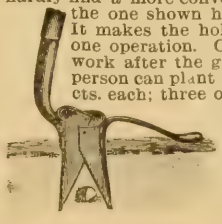
We have just received a carload of wheelbarrows from the factory, which are quite an improvement on the last carload previous to this. They cost us more, and the price should be raised to $4.00 each, and they will be so listed in the next edition of our catalog. For the present we will furnish them at the same price at which we have been selling—$3.50 each.

FACTS ABOUT BEES.

This little book, describing the Danzenbaker hive and system, has been out of print for several months. We have entirely rewritten it, and published a new edition which is just completed and ready for mailing. It is somewhat enlarged, and printed on enameled paper, and we have placed a price on it of 10 cents. The applications we have on file will be filled as fast as possible, regardless of price. In size and contents we believe it will be considered a valuable book at the price.

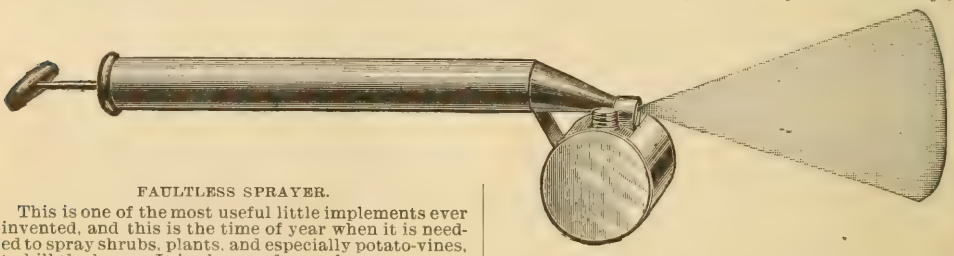
ACME HAND POTATO-PLANTER.

The time is here for potato-planting, and you will hardly find a more convenient tool for planting than the one shown here, especially in light soil. It makes the holes, and drops and covers at one operation. Once over the field does the work after the ground has been fitted. One person can plant two acres in a day. Price 55 cts. each; three or more at 50 cts.; a crate of one dozen for $5.25. We also have special bags fitted with straps for holding the potatoes while using the planter, which we can furnish at 50 c. each, or $4.50 per dozen.



BEES FOR SALE.

Owing to spring losses there should be a large demand for bees. We have a carload available at Floresville, Texas. They are Italian, three and five banded stock, in ten-frame Dovetailed hives. Hoffman frames wired, and combs built on foundation. We offer them, including queens, shipped direct from Floresville, at $6.00 per colony; 5 or more colonies at $5.00 each, or a full carload of 300 at $4.25. This is for prompt acceptance, and subject to previous sale.



FAULTLESS SPRAYER.

This is one of the most useful little implements ever invented, and this is the time of year when it is needed to spray shrubs, plants, and especially potato-vines, to kill the bugs. It is also used as a kerosene spray on cattle to keep off flies. They are so cheap that you should have several, each loaded with the different mixtures needed for various purposes. We have some 20 to 30 dozen, which we offer, to close out, at 27 cts. each; three for 75 cts.; $2.50 per dozen, made all of tin. With galvanized-iron tank, 35 cts. each; three for $1.00; $3.50 per dozen. We could not replace this stock to sell at these prices. Some of our dealers also have a supply on hand.

BEESWAX LOWER.

One effect of the cold late spring with its consequent loss of bees by spring dwindling has been to cut off to a great extent the demand for comb foundation, and also to increase the amount of beeswax available. By the law of supply and demand, this depresses the price; and this depression, like the advance, comes earlier than usual this year. We have a large surplus stock, and will pay, till further notice, 30 cts. cash, 32 cts. trade, delivered here or at our branch offices.

QUEEN ORDERS DELAYED.

The continued cold weather through the month of April and past the first week of May has made it impossible to begin queen-rearing here, and we learn from breeders as far south as Florida that weather conditions have been very unfavorable. As a result, orders booked for queens for delivery this and next month are bound to be delayed. Queen-breeders must have warm sunny weather for the successful rearing of queens; and those who have placed their orders will have to exercise unusual patience this spring. This is especially true of orders for untested queens. Of course, queens which have been wintered over can be supplied in suitable weather as soon as they can be spared Many colonies are in a reduced condition from loss of bees and interruption to brood-rearing during the cold spring weather.

SECOND-HAND FOUNDATION-MILLS.

We have the following second-hand comb-foundation mills to offer. We give a brief description of each, and shall be pleased to mail a sample of foundation, representing any one or more of these mills, to those interested, on application:

No. 082, 2½x10 medium-brood mill, round cell, late-style frame, in good condition. Price $15.00.

No. 083 2½x10 medium-brood hex. mill, late-style frame, in good condition. Price $16.00.

No. 2275, 2½x6 hex. thin-super mill, in good condition. Price $11.00.

No. 078, 2½x6 hex. thin-super mill, in extra good condition. Price $12.50.

No. 079, 2½x6 hex. thin-super mill, in extra good condition. Price $12.50.

No. 085, 2½x6 hex. thin-super mill, in good condition. Price $12.00.

No. 086, 2½x6 hex. extra-thin-super mill, in good condition. Price $12.00.

No. 087, 2½x10 hex. light-brood mill, in fine condition. Price $15.00.

No. 088, 2¼x12 old-style Dunham round-cell mill, for heavy brood, in fair condition. Price $14.00.

A B C OF BEE CULTURE.

Our stock of the last (1905) edition of the A B C of Bee Culture is getting very low, and we have been cutting down on all large orders for some time to make the stock last as long as possible. We have got fairly started on the new edition; but with the great amount of work necessary to complete it we shall hardly have any ready to furnish before September at least, and it may be later. If any dealers or agents or others have extra copies which you are not likely to dispose of before the new edition is ready, will you kindly notify us, and we will furnish orders for them.

The new edition is being printed on enameled book paper, and will be about one-fourth heavier than any former edition It will be by all odds the finest edition ever issued. It will cost us more than 25 per cent more to produce it, and we have decided to increase the price to $1.50 postpaid, or $1.25 shipped with other goods. Orders already booked for the new edition at the old price will, of course, be filled. The wholesale and jobbing price is also advanced in proportion.

SPECIAL BARGAINS IN OLD-STYLE STOCK.

We are making some special offers on some old-style goods at some of our branches, which we desire to close out. There are some who prefer some of these older patterns to those adopted since, as we frequently find. To such this is an excellent chance to secure some goods of your choice at special prices.

At our Washington branch we offer:

77 eight-frame covers, Danz., flat metal-bound, which were standard three or four years ago. They are put together, all ready for use when painted. Price 25 cts. each; 10 for $2.20, or the lot at 20 cts. each.

197 ten-frame size, same style, at same price.

60 eight-frame and 32 ten-frame bottom-boards, Danz. style of 1903, with metal-bound tilting floor-board—very convenient for cleaning. Price of either size, 20 cts. each; $1.70 for ten, or 15 cts. each for the lot.

50 hive-stands with slanting front, not now listed in our catalog. Price 12 cts. each; $1.00 for 10.

25 hive-stands of an older pattern, without slanting front. Price 10 cts. each; 80 cts. for 10.

At our Philadelphia branch we offer:

89 eight-frame and 500 ten-frame Danz. flat covers, metal bound on ends, same as those at Washington. Price 25 cts. each; $2.20 for 10; $20.00 for 100.

10,000 thick-top staple-spaced frames, with end and bottom bars ⅞ wide by ¼ inch thick; otherwise they are just like our present style. Price $2.25 per 100; $10 per case of 500.

Of our regular pattern, all-wood frames, we have an overstock, which we offer, to reduce it, at $1.75 per 100; $7.50 per box of 500.

An overstock of regular B. bottoms, ten-frame size, not reversible, 20 cts. each; $1.80 for 10; $17.00 per 100.

Overstock of 10-inch 4-row shipping-cases, with 3-inch glass, at $8.00 per crate of 50; hold 24 sections, 4¼ x1½ plain; also of 10-inch 2-row shipping-cases, with 3-inch glass, at $4.50 per crate of 50.

We have at Chicago several hundred slotted section-holders, nailed, which have been used and taken back in exchange for other style of fixtures. These new cost $2.00 per 100 in the flat. We offer these nailed, ready for use, packed for shipment, at $1.25 per 100, while they last. While they are somewhat stained with propolis from use, they are a bargain at this price to any one needing this style of section-holder.

We have in stock in Ogden, Utah, to dispose of, 300 thick-top staple-spaced frames at $2.50 per 100; 300 all-wood frames at $2.00 per 100; 2 No. 4 Novice extractors at $8.50 each; 1 bee-tent at $1.75; 250 folding cartons for 4¼ x 1⅞ sections, $1.25; 1000 cartons, wrappers, labels, etc., for brick honey, at $10.00. These goods are offered free on board at Ogden at catalog prices as above, less 10 per cent discount for prompt cash order to close out the stock quick.

Special Notices by A. I. Root.

ALL ABOUT BEANS.

This is a nicely illustrated pamphlet of 28 pages, and it would be well worth while for those who grow beans of any sort to any extent to send to the Department of Agriculture, Washington, and ask for "Bean Bulletin No. 289," just issued.

THE SPENCER SEEDLESS APPLE.

At least one of our subscribers (I hope there are no more) has invested $2.00 in a Spencer seedless-apple tree. With the wide publicity that has been given through almost all of the agricultural press, warning people against this much-advertised fraud (for it is little else) one can not help wondering how they can make sales of an apple (called by experts inferior to the Ben Davis), at $2.00 a tree. My good friends, it will pay you well to take the *Rural New-Yorker* on account of its exposé of humbugs along their line, if for no other reason.

THE PARADISE SWEET WINTER APPLE.

In answer to many inquiries, the Storrs & Harrison Co., of Painesville, O., can furnish trees of this variety in the proper season at 25 cents each, or $2.00 for ten. Perhaps I might remark that, after our apples of this variety were all gone, I tried some other sorts, or such other sorts as I could get hold of at this season of the year; but so far I have not found any other apple that I can eat with impunity a little before bedtime, as I always do (in the spring) the Paradise winter sweet. The tree is a rank grower and a great bearer; but the apples are not fit to eat in the fall, even if they do *look* as if they were ripe.

INCUBATION AND INCUBATORS.

The above is the title of an exceedingly interesting bulletin of 31 pages, sent out by the Department of Agriculture, and mailed free to any applicant. Address Secretary of Agriculture, Washington, D. C., and ask for Farmers' Bulletin No. 236. I regard this bulletin as especially valuable because it is written by an expert who is not biased in any way in favor of any particular incubator. The instructions are sound in every respect, and it gives many hints of great value to me that I never got from any incubator catalog. The writer says, "The bill opens and shuts about the 15th day, and the cry of the chick is heard about the 18th day." Now, I have listened to eggs in incubators, and to those under a sitting hen, most intently, all along up to the time they began to break, but I never heard a sound until some time during the 20th day, and then it was just as the shell began to break open.

SOME NEW BOOKS ON GARDENING.

The O. Judd Co. have just submitted to us samples of three new books—Bean Culture, Celery Culture, and Tomato Culture. They are all handsomely bound in cloth, fully illustrated, about 150 pages each, beautiful print and paper, and the price is only 50 cents postpaid. These handsome books are somewhat of a rebuke to some of the cheap paper pamphlets that are sent out as fifty-cent books. I refer particularly to some of the poultry-books. When I pay 50 cents I expect to get quite a good-sized book, but I have been disappointed several times of late by receiving for my money only a cheap paper pamphlet, oftentimes printed on poor paper, poor print, and only a few small pages at that. I know the authors make as an excuse for these big prices the value of the contents of the book; but the books put out by the O. Judd Co. contain about as much valuable matter, and are as well up to date, as any of the other books I have mentioned.

The book on tomatoes not only contains every thing up to date in regard to growing a crop, but it includes growing tomatoes under glass, and it discusses all the latest diseases and insects, and refutes the ancient legend that tomatoes induce cancer, etc.

The book on celery culture is equally exhaustive. It also includes celery-growing in Florida that has grown up to such proportions in different parts of that State. The half-tone cuts are some of the very finest of the kind.

The book on bean culture discusses not only the beans that grow in the garden, but bean-growing as a great farm industry in growing snap beans in the Southern States for the Northern markets.

All three of the books are out this present year of 1907. They will be mailed from this office on receipt of price.

Only Sand, Cement, and Water are used in making Concrete Building Blocks

No Experience Necessary

Only common labor required. With our instructions, the beginner can make as good blocks as an experienced mechanic.

Own a Factory

There is big money in their manufacture. Start with one or two machines and make them pay for a big equipment. We outfit you with the best machines at reasonable prices, on easy terms.

Send for our new catalog. It tells all about mixing.

Medina Concrete Machinery Co.

22 Court Street Medina, Ohio

NOTICE

Free Lecture and Demonstration on Bees, Season 1907, Tuesdays and Fridays, 10 to 12 o'clock, A. M., 10 Vine Street, Philadelphia, Pa.

So great has been the interest, and so numerous the calls, to see our bees, from parties who have not the time to visit our Jenkintown apiary, that we have arranged our plans to set aside Tuesday and Friday during the season of May and June, from 10 to 12 o'clock, to give a public demonstration for any one, whether a customer or not, to call and have explained to him the marvelous work of the honey-bee.

While our apiary, of some forty or fifty colonies, has always been open to inspection, yet the calls to see the bees coming at all hours of the day, many times when we were rushed with other work, were necessarily hurried and unsatisfactory, and were confined mostly to our customers. We now invite the general public, and a much more complete and general demonstration will be given. By giving us your name and address on entering the office, veils will be furnished you and your friends, so there will be no danger of being stung.

P. S. Our Jenkintown apiary is always open by appointment to visitors. Ask for

WM. A. SELSER, Mgr.

The A. I. Root Company, Philadelphia, Pa.

Telephone 181 W. Ogontz.

Joseph Horne Co.,
Pittsburg, Pa.

HALF PRICES
. . FOR . .
Women's Separate Skirts.

$5.00—Regularly $10.00.
$6.50—Regularly $12.50, $13.50, $15.
$7.50—Regularly $16.50, $18.00.

The Materials are panama, chiffon panama, mohair, sicilian, worsted, suitings, broadcloths—medium and light weights for summer and autumn.

The Styles are pleated and gored models—side pleats, box pleats, cluster pleats, etc. Different widths of gores.

The Colors are black, white, blue, brown, green, plain gray, plaids, stripes, and checks, in all colors and combinations.

Women who read this are advised they can write us and secure one or more of these skirts; and if they are not exactly as we state, if they are not worth more than the prices we ask, then **Return the Skirts to Us at Our Expense.**

DEWEY AUTOMATIC FOUNDATION FASTENER.
"Your automatic starter-fastener is all you claim for it—the best on the market."—DOOLITTLE & CLARK.
$5.00 reward. I will pay the person securing the greatest number of starters, in 15 minutes, this reward to establish a record. Write for particulars and testimonials.
E. H. DEWEY, Great Barrington, Mass.

Rider Agents Wanted

in each town to ride and exhibit sample 1907 model. *Write for Special Offer.*
Finest Guaranteed **1907 Models $10 to $27**
with Coaster-Brakes and Puncture Proof tires.
1905 & 1906 Models $7 to $12
all of best makes
500 Second-Hand Wheels
All Makes and Models, good as new **$3 to $8**
Great **Factory Clearing Sale.**
We **Ship on Approval** *without a cent deposit,* pay the **freight** and allow **TEN DAYS' FREE TRIAL.**
Tires, coaster-brakes, sundries, etc., half usual prices. **Do not buy** till you get our catalogs. *Write at once.*
MEAD CYCLE CO., Dept. W215 Chicago

HAVE A LOOK At The World's Best

Poultry Journal. Our Beautiful Xmas Number containing **3 color pictures** from Burgess' masterpieces in oil, **costing $1,000,** and book plans for **Poultry Houses,** all for **10 cents.** We will tell you How to Make Poultry Pay. Address **INLAND POULTRY JOURNAL, 15 Cord Bld'g, Indianapolis, Ind.**

ROSE-COMB WHITE LEGHORN EGGS, $1 per 15; $1 50 per 30. Barred Rocks, bred for eggs and meat-eggs, 75c per 15, straight. (Order from ad.) Satisfaction guaranteed. S. J. Thomas, Osceola Mills, Pa. R. 1 B. 1

AMERICAN POULTRYMAN

Most Practical Poultry Journal Published. Devoted to Profitable Farm, Poultry, and the allied Interests of the Farmer and Ruralist, their wives and children.

26th year. Beautifully printed and illustrated. Up-to-date and helpful. Best known writers; show how to succeed. Specially edited for women and children. **50 cents per year. Special introduction offer to new annual subscribers until Sept. 1, 1907.** Only 25 cents, or for 30 cents we will include a large illustrated poultry book invaluable to every one interested. Stamps accepted. Sample copy free. Don't miss this offer.

AMERICAN POULTRYMAN,
Department B. C. Springfield, Ohio.

MANDY LEE

Incubators and Brooders

are made for business. The extra amount of chicks you save with these machines over what you could raise with other kinds will soon pay for a MANDY LEE Incubator and Brooder. Don't waste time and money. Get the best; write to-day.

Ask about our mixed-grain food and our gape cure.
C. M. SCOTT CO., 1006 E. Wash. St., Indianapolis, Ind.

METAL MOTHERS.

Complete fireproof Hatching and Brooding plant for $7.50; 2 qts. oil will hatch and brood the chicks. Our nest system is the latest discovery. Full line poultry supplies. Lowest prices. Free catalog. Write to-day.
CYCLE HATCHER CO.
Box 223. Elmira, N. Y.

Rhode Island Reds

Buff, White, Silver, and Golden WYANDOTTES.
White, Barred, Buff, and Black ROCKS.
Brown, Buff, and White LEGHORNS.
Black JAVAS and MINORCAS.
Light BRAHMAS.

Hardy, prolific, farm-bred, pure stock. *For birds, moderate prices.*

Eggs to Hatch at 10 cts. each.
WALTER SHERMAN, 100 Boulevard, Newport, R. I.

EXCELL IRON and STEEL ROOFING & SIDING

Direct To You from our own factory at lowest factory prices. We are manufacturers and handle no 2nd hand nor short length stuff. Every part of our roofing and siding is made in our factory from genuine Charcoal Iron, Double Refined Puddled Iron or Steel. Put on the kind of roof that wears. Ours is guaranteed. If it isn't the best you can buy anywhere, don't pay for it. Easy to lay. No experience needed. Tell us about your building and let us quote you factory prices. Write for Metal Goods Catalog No. 98 It is free.

THE UNITED FACTORIES CO.
Cleveland, Ohio.

A New Factory

and also a new firm name, but in the same place with the same management. We have just put in a complete

Weed Process Comb Foundation Factory

of the very latest type, and we are now ready to work up wax for western bee-keepers at low prices. . . We want several thousand pounds of beeswax at once, and will pay top market price for same. Let us hear from any one having wax to offer. .· .· .·

Buck & Wilson, Augusta, Kan.

Butler County

Predictions for CLEAR WEATHER in the near future.

Six weeks of cold weather when we should have had Spring, must not discourage. Better order now so you will have your supplies on hand when needed. As always, we have a large stock of

Root Co.'s Supplies

on hand to fill orders promptly. Also a fine lot of Italian

Queens and Bees

in one, two, and three frame nuclei and full colonies. Send for our forty-page catalog, etc.

John Nebel & Son Sup. Co.

Montg. Co. :: High Hill, Mo.

Mr. Texas Bee-keeper:

I should like to talk to you *personally.*

First, I want you to know about my supplies. I handle Root's Goods, of course; for I believe in giving my customers complete satisfaction—for that's better in the long run than low prices. My place of business is on the S. A. & A. P. Ry., just opposite the passenger depot, where I have built a warehouse 40×250 feet, and I have filled it full to the brim, for I handle Root's goods by the carload. This means I can furnish you with supplies with the utmost promptness.

Then, too, I have installed a complete Weed-process Foundation factory. I can turn out 500 lbs. a day. I can work your wax into foundation. In fact, my facilities in this line are not surpassed in Texas.

My can business is increasing by leaps and bounds. That is because of the quality of the goods. It will save you dollars to get my prices. Better write for them to-day.

Nothing pleases me better than for bee-keepers to make their headquarters at my office when in San Antonio. You are always welcome. I have fitted up my office with plenty of desks and chairs, with writing-material, a reading-table, and all the bee journals on hand. Consider yourself invited.

If you haven't my catalog just drop a postal.

I can supply Red-clover and Golden Italian queens promptly.

I am now paying 23c cash and 26c in trade for average clean beeswax delivered here. Save your slumgum. I will buy it. Let me know how much you have, in what condition the slumgum is, and in what kind of an extractor it was rendered, and I will make you price I am paying.

Call or Address

Udo Toepperwein, - San Antonio, Texas

1322 South Flores Street

We are Not in a Trust!

Bee-hives, Sections, Brood-frames, Extractors

Every thing that bee-keepers use at LOWEST PRICES.
Quality the Highest. We've been making them 25 years.

American Bee-keeper

A profusely illustrated practical bee-journal which we have published for 17 years. 50c year. Sample copy and our 1907 illustrated catalog and price list free. Address

The W. T. Falconer Mfg. Co., Dept. C, Jamestown, N. Y.

New Goods - Big Stock

New Warehouse : Root's Goods : Prompt Shipment : Low Freight

Everything for the Bee-keeper at Savannah, Georgia

We are prepared to furnish promptly a full line of supplies; choice new stock just from the factory. BEES and QUEENS. We have large apiaries of fine stock. Book your orders at once, as there will be a heavy demand this season. Catalog sent free. Correspondence solicited.

Howkins & Rush, 124 West Liberty St., Savannah, Ga.

Dadant's..... ..Foundation

We guarantee it absolutely satisfactory every way.

Ask any dealer who handles our make along with any other, and he will say, "Of course, Dadant's is the best." Ask a bee-keeper who has used our make and he will tell you the same thing. WHY? Because we make the manufacture of foundation our SPECIALTY. We devote our time and energies to making THE VERY BEST COMB FOUNDATION that CAN BE MADE.

It will cost you no more than any other make. Send for free catalog and prices. Early-order discounts on all kinds of goods for the bee-keeper now.

We work beeswax into foundation.
We buy beeswax at all times.
Prices sent on application.

Dadant & Sons, Hamilton, Ills.

Root Goods

for the West

Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS.

My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

Write for estimate with liberal discount for orders sent in now.

Jos. Nysewander, Des Moines, Iowa

565, 567 West Seventh Street

Gleanings in Bee Culture

VOL. XXXV. JUNE, 15, 1907. NO. 12

THE A. I. ROOT CO.
MEDINA, OHIO.

Telephone Your Rush Orders

A great many of our customers can reach us through the Michigan State Phone at an expense of from ten to twenty-five cents. When you are greatly in need of goods in the busy season, it will pay you to use the phone.

BEESWAX.

We always pay the same price for wax as The Root Company. Watch the notices in "Gleanings." You can save freight expense by shipping to us. Put your name in the box and ship by FREIGHT to BEECH, Mich., via. P. M. R. R.

We believe in the Goods we Sell

When we say "Root-Quality," we mean that for selection of material, excellence in workmanship, and for up-to-date methods, Root's goods are unequaled.

M. H. HUNT & SON, Redford, Mich.

Jobbers and Dealers in "ROOT-QUALITY GOODS" in Michigan.

THE SWARMING SEASON

is here. Are you prepared? Why not order your supplies now, and take advantage of

Low Freight Rates

from TOLEDO, which places our goods in your door cheaper than you can get them elsewhere. We afford you every advantage in both Poultry and Bee Supplies. We sell The A. I. Root Co.'s bee-supplies, Model Incubators and Brooders, Prairie State Incubators and Brooders, Poultry Supplies of all kinds.

Our Large Illustrated Catalog

illustrates and describes our complete line; tells how to raise bees and chickens successfully. . Free upon request.

The Griggs Bros. & Nichols Co.

523 Monroe St., Toledo, Ohio.

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De Espana, Portugal y Colonies.

Pidan catalogos de las colmenas, extractores, prenzas para cera, ahumadores, zinc perforado, escape de abejas, velos, cuchillos, maquinas para hacer base de panales, y todos otros articulos utiles en apicultura manufacturado por la celeberrima casa de

A. I. Root Company,

la fabrica la mas importante del mundo. Precios muy modicos a los subagentes por mercancias puestas en nuestros talleres.

EMILE BONDONNEAU,

Agente Générale

POR TODA EUROPA Y COLONIAS,

142 Faubourg SAINT DENIS, PARIS. 10me.

C. H. W. WEBER

Headquarters for . . .

BEE-SUPPLIES

Distributor of Root's Goods Exclusively at Root's Factory Prices

GIVE ME your orders for the **Best Goods Made.** You will be pleased on receipt of them. You will **save money** by ordering from me. My stock is complete; in fact, I keep **every thing** the **bee-keeper** needs. **Cincinnati** is one of the best **shipping-points** in the Union, **particularly in the South,** as all freight now **goes through Cincinnati.** Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly **free.**

A SPECIAL DISCOUNT ON EARLY ORDERS

I will buy your Honey and Beeswax

I pay **cash on delivery;** or, if you are in **need of honey,** write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of **extracted** or **comb honey.** I guarantee its purity.

Queens and Nuclei

Let me book your orders for queens. I breed the finest **Golden Italians, Red-clovers, Carniolans, and Caucasians.** Can furnish **Nuclei** beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White Sweet-scented Clover, Alfalfa, and Alsike.

C. H. W. WEBER

Office and Salesroom, 2146-48 Central Ave.
Warehouse, Freeman and Central Avenues.

CINCINNATI, OHIO, U. S. A.

Honey Markets.

GRADING RULES.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

The prices here quoted are wholesale, or what the honey brings on arrival.

PHILADELPHIA, Pa.—The honey market has been quite brisk for this time of the year. A number of odd lots have been cleaned out of the market. We quote fancy comb, 14 to 15; No. 1, 13 to 14; amber, 12 to 13; fancy white, extracted, 7 to 8; light amber, 6 to 7. Beeswax firm at 32. We are producers of honey and do not handle on commission. WM. A. SELSER.
June 10. 10 Vine St

ZANESVILLE, O.—Practically "nothing doing" in the honey line. While there is a little demand for honey, the old crop is wound up and no more in sight here. Fancy white comb would bring almost any price within reason. The dearth of comb honey has stimulated slightly the demand for extracted in retail packages. I quote pound jars $2.20 per dozen, wholesale.

Locally the supply of beeswax exceeds the demand. I offer 33c f. o. b. Zanesville in exchange for bee-supplies. EDMUND W. PEIRCE,
June 4. 136 W. Main St.

KANSAS CITY, Mo.—The honey market is almost bare of comb honey, and demand good; receipts of extracted are light, and the demand light. We quote No. 1 white comb, 24-sec. cases, $3.25; No. 2 white and amber, 24-sec. cases, $2.50 to $2.75; extracted white, per lb., 8; extracted amber, per lb., 7 to 7½. Beeswax, per lb., 30. C. C. CLEMONS & CO.
June 1.

DETROIT.—The demand for comb honey is little better than usual for this time of year, and very little honey in town. Extracted is dull. Prices as follows: Fancy and A No. 1 white comb honey, 17 to 18; No. 1 and No. 2, 13 to 14; darker grades, 11 to 12; extracted white clover, 8 to 8½. M. H. HUNT & SON,
May 25. Redford, Mich.

NEW YORK.—White comb honey is practically cleaned up, and there is very little demand at this time. Some dark and mixed comb is on the market, but no demand to speak of, and some of this will have to be carried over until next season, or sold at a sacrifice; therefore we can not encourage shipments of off grades or dark honey at this time. Extracted honey is in fair demand, and prices are ruling firm. There is very little new crop arriving as yet from the South; and while it is rather early we doubt whether we shall have any large shipments from the Southern States this season, as we fear there will be a short crop, judging from the reports we are receiving. There is quite a good stock of last year's crop still on the market—sufficient to last until the new crop from various States arrives. There is no change in price as to extracted honey since our last. Beeswax is firm, and likely to remain so for the next two months to come.
May 25. HILDRETH & SEGELKEN, New York.

ST. LOUIS, Mo.—In regard to comb and extracted honey, will say that it is still scarce and none coming in, as the market is bare of both grades. We quote as follows: Fancy white, 16 to 17; No. 1, 14 to 15; amber, 13 to 14; broken and inferior, less. Extracted honey would bring 7 in five-gallon cans; Southern in barrels, from 5 to 6; same quality in five-gallon cans, ½c higher. Beeswax: for choice pure, 31 per lb. Impure and inferior, less.
June 11. R. H. HARTMANN PRODUCE CO.

BUFFALO.—No good white No. 1 white-clover honey in our market now. Occasionally a few cases arrive, but it sells quick at 16 to 17. More could be sold if we could get it. There is some demand for No. 2 white, if good color, but slow sale at low prices when the comb shows yellow. Good No. 2 white is 13 to 14; No. 1 buckwheat, 10 to 11, and very slow sale; No. 1 white extracted, 7 to 8; No. 2 white extracted, 6 to 7; dark, 6 to 6½; beeswax, 32 to 33. W. C. TOWNSEND,
May 22. Buffalo, N. Y.

ST. LOUIS.—Extracted honey is coming in very sparingly. We quote our market as follows: fancy white comb honey, 15 to 16; No. 1, 14 to 15; amber, 13 to 14; broken and inferior, less; Spanish needle in 5-gallon cans will bring about 7c; Southern in barrels, 5 to 6; same quality in 5-gallon cans, ½ to 1c higher. Beeswax, for choice pure, 31; impure and inferior, less. R. HARTMAN PRODUCE CO.,
May 20. St. Louis, Mo.

CINCINNATI.—There is no material change in the honey market at this writing. Extracted honey is not moving as rapidly as it might, owing to the cold weather. Quote amber in barrels at 5½ to 6½; fancy table honey in crates of two 60-lb. cans at 8 to 9; for choice yellow beeswax, free from dirt, we are paying 31 cash, and 33 in trade, delivered here.
May 23. THE FRED W. MUTH CO., 51 Walnut St.

BEE SUPPLIES.

We handle the finest bee supplies, made by the W. T. FALCONER MFG. CO., Jamestown, N. Y. Big Discounts on early orders, let us figure with you on your wants.

MUTH SPECIAL DOVE TAIL HIVES, have a honey board, warp-proof cover, and bottom board, think of it, same price as the regular styles. Send for Catalog.

THE FRED. W. MUTH CO.,

51 WALNUT ST., CINCINNATI, OHIO.

CHICAGO.—Comb and extracted honey supply is exhausted so far as choice grades go, with a few lots of off and low grades for which there is no demand. We do not look for any movement until the yield of 1907 appears on the market. Beeswax sells upon arrival at 32 cts.
May 20. R. A. BURNETT & Co., 199 So. Water St., Chicago, Ill.

DENVER.—This market is entirely bare of good white comb honey, and we could make quick sales at good figures of any consignments made to us now. We have a good supply of extracted honey which we are quoting at 7½ to 8½ for strictly No. 1 white, and 6¾ to 7½ for light amber. We pay 24 to 26 cents for good clean yellow beeswax delivered here.
May 22. THE COLORADO HONEY PRODUCERS' ASS'N, Denver, Col.

SCHENECTADY.—Owing to the continued cold weather, up to this date, there has been an unusual demand for comb honey, and we are unable to fill orders for fancy white at present, but have some No. 1 buckwheat still on hand; but very little demand for extracted. Prices unchanged.
May 20. CHAS. MACCULLOCH, Schenectady, N. Y.

CINCINNATI.—The market on fancy white comb honey is entirely bare. No. 2 is selling slow at 12; extracted light amber brings 5½ to 6. Beeswax is selling here at $35.00 per 100 lbs.
May 21. C. H. W. WEBER, 2146-2148 Central Ave., Cincinnati, O.

COLUMBUS.—Market is almost bare. We can handle some fancy or No. 1 white; selling 15 to 16.
May 23. EVANS & TURNER, Columbus, O.

LIVERPOOL, England.—Chilian honey, 3¼ to 6½; Peruvian, 3¼ to 6½; Californian, 5½ to 8½; Jamaican, 3½ to 6½.
May 25. TAYLOR & Co., Tithebarn St.

HAVRE, France.—Honey (extracted) is now selling at 8 to 9 cts. per lb. Beeswax from Madagascar brought 30 cts., and French unrefined, 31 to 33.

EVANS & TURNER

COLUMBUS, OHIO

WANT TO BUY 1907 CROP COMB HONEY

Write us immediately, naming price on different grades.
We want to hear especially from Michigan and Wisconsin Producers

The Danzenbaker 20th Century Smoker
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Awarded Highest Prize
A GOLD MEDAL
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IS THE BEST, STRONGEST, COOLEST, CLEANEST, CHEAPEST, AND LARGEST SMOKER SOLD FOR A DOLLAR

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to CLOG WITH SOOT.

ALL THAT IS CLAIMED.—N. E. France, Platteville, Wis., General Manager of the National Bee-keepers' Association says:

I have given your 20th Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

SURPASSES ALL OTHERS.—Mr. Grant Stanley, Nisbet, Pa.—"After giving the Danzenbaker 20th Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until the fuel is all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker."

BEST IN TWENTY YEARS.—M. D. Andes, Bristol, Tenn.—"I have used the 20th Century Smoker one season. It has given me entire satisfaction. In my twenty years of bee-keeping I first used the old stand-by Clark smoker, and I believe I have tried all the different makes, as I am always looking for the best, and will say that your smoker beats them all up to date."

NEVER TOO HOT TO HOLD.—Dr. Reginald Munson, Washington, D. C.—"I am well pleased with the 20th Century Smoker. It keeps fire well without getting too hot to hold on continuous use, and makes smoke enough to satisfy the most critical."

Price Dan-ze, Large 3½-inch Smokers:
Postpaid—one, $1.15; two, $2.10; three, $3; five, $4.50.
By Express or freight—one, $1; six, $4.20.

"Facts About Bees," a sixty-four-page pamphlet, sent free on request. Send also address of your bee-keeping friend for same.

F. DANZENBAKER, NORFOLK, VA.
(Jamestown Exposition Sta. Money-orders on Norfolk.)

WE WILL BUY AND SELL

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of the different grades and kinds.

If you have any to dispose of, or if you intend to buy, correspond with us.

We are always in the market for WAX at highest market prices.

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Circulation 32,000

72 pages, semi-monthly
$1.00 per year

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

Published by
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J. T. CALVERT, Business Manager

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The Pearl Agnes Bee-hive

FIG. 1.

FIG. 2.

The body of the hive has five frames with a total comb capacity of five-sixths of two full-sized Hoffman frames—that is, each is exactly one-third that of a full frame ($16\frac{3}{4}\times8$ inches interior). The frame itself has somewhat the appearance of a large section $5\frac{3}{8}\times8$ inches. It is supplied with full comb foundation, or with a starter across the end as may be desired. The length (8 inches) of these small sections is the same as the depth of the interior of a Hoffman frame, and the depth ($5\frac{3}{8}$ inches) is one-third the length of the Hoffman, so that three may be fitted into the length of the Hoffman, if placed side by side and on end.

The super is fitted with sections $2\frac{1}{2}$ inches deep by 2 inches wide—that is, one-fourth the size of the Danzenbaker 4×5 section, and hence it may be used, if desired, in the regular Danzenbaker super as "toy" or "sample" sections (Fig. 2). These little sections, when filled either in the Pearl Agnes hive or the regular full-sized super, are convenient, dainty, attractive, and, to the young folks, "just too cunning for any thing." They may be used as sale samples, or novelties for the table, or as gifts to friends and to visitors at the apiary. The fences of the super are in the same form, but of smaller size than the regular fences. The cover is shaped like a gable and roof, so that, together with the fanciful painting of the three parts in three different colors gives the whole a pleasing effect. And it is further enhanced by the feeding-bottle (with perforated cap) which extends down through the roof, and is of the proper length to project far enough to have the aspect of a chimney.

THE A. I. ROOT CO., Medina, O. Malden, Mass., June 11, 1907.

Gentlemen:—The three-frame nucleus and tested queen came duly to hand, and I at once installed them in my observation hive bought of H. H. Jepson, 182 Friend St., Boston. They prospered finely in spite of the cold weather. I also bought of Mr. Jepson a Pearl Agnes hive for my baby Ruth (ten years old), the first Pearl Agnes hive sold in Boston by Mr. Jepson, and into six of my frames I put eighteen Pearl Agnes frames. On looking at them this morning I was surprised to find brood hatching out, and I am in a rush to transfer, so I am wiring you for a red-clover queen, select untested, to be mailed to-day sure, and I hope you will receive my message in time to ship her majesty to-day. Yours very truly, EDWIN E. HARRINGTON.

Prices

A complete little hive. Just right for teachers of small schools, and others who want to study the bee for a short time at little expense; with five brood-frames $5\frac{1}{2}$x8, and super holding twenty sections 2x$2\frac{1}{2}$x$1\frac{1}{2}$, with necessary fences, complete with foundation at the following price: each, nailed and painted, $2.50; in flat, $1.75; ten in flat, $15.00. Filled with bees and untested Italian queen, this hive can be sent at low cost by express. Price of complete hive with bees and queen, with smoker, veil, and book of instructions, $5.00.

The A. I. Root Company, Medina, Ohio

Gleanings in Bee Culture

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A. I. ROOT, Editor Home Department
H. H. ROOT, Ass't Editor

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We wish to call your attention to the Swarthmore outfits advertised elsewhere in these pages. If you have not tried your hand at rearing a few queens by this system you have missed a good deal of real enjoyment. You may not make any money by the operation (you can if you wish), but the fun of it to a bee-keeper is beyond expression in figures. It is the romantic part of bee-keeping, though it has also much to do with the practical side as well. There is also another reason why you should try modern queen-rearing. It is this: If you don't experiment a little in this line the other bee-keepers whom you meet will call you an old fogy, whatever that is.

THE TRADE IN BEES AND QUEENS.

So far this has been a hard season on the breeders of bees and queens, for several reasons. The weather has been unfavorable — probably the worst we have had for twenty-five years, and this state of affairs prevails over the entire country. Owing also to heavy losses in springing, the demands on the breeders have been unusually heavy — more, probably, than they could fulfill had the spring been mild. Another disagreeable feature has been the phenomenally nice weather for a day or two, followed by snowing or freezing weather. This caused the breeders to promise in the first place to give early delivery and then disappoint their customers. Owing to the cold unsettled weather the quality of the queens has also been impaired, for it is generally conceded that bright nice weather not only produces better stock, but the color of the bees is actually lighter and brighter — a fact not generally known. We trust, therefore, the breeders will be treated leniently, as all these drawbacks are beyond their control, for there is no way of getting round the weather clerk. As a general thing, our breeders are very painstaking and careful, and are desirous of pleasing their trade in every way possible; but they are subject to natural causes. There may be a few careless breeders, but they cut no figure.

The foregoing may seem rather hard, but all rural industries are subject to these uncertainties.

A NEW TOOL.

If there is any thing bee-keepers dearly love it is a new apicultural tool to experiment with. In this respect they are all Yankees, to the manor born. Next to this they like to argue with each other as to the merits or demerits of every thing new in bee-keeping; and the bee-keeper who does not try the latest inventions along this line is looked down on by the other members of the craft.

We are reminded of this in reading the advertisement in this issue of E. H. Dewey, Great Barrington, Mass., in which he calls attention to the merits of his foundation-fastening machine for starters in sections. Mr. Dewey's invention is something entirely new and quite ingenious. Send for his circular.

We desire to call particular attention to the ad't of the Electric Wheel Co., of Quincy, Ill., whose specialty is wagon-wheels made entirely of steel. These wheels are a vast improvement on the old-style high wooden wheels with narrow tires. Naturally steel wheels are far more durable than wooden. They are less expense for repairs, for very dry or very wet weather has no effect on them. They are wide-tired, therefore do not sink into the soft earth as narrow tires do, and therefore economize the work of the horses or mules. They do not destroy the roads as narrow-tire wheels do. They run easy, for, being made entirely of steel, they run true and smooth. But they have a tremendous advantage in that they are only half the height of the old style. This makes a wagon fitted out with these wheels very much easier to load, and handier in every way. They are particularly useful in the harvest field for almost any crop. For cane and corn crops there is nothing better. They are handy for hauling bees, as they are easily loaded, and run smoothly. This company also make wagons fitted with their wheels to accommodate those who require a new wagon, but they sell a great many sets separately from the wagon. They sell many sets of these wheels to residents of foreign countries, and more particularly so in Cuba and other tropical countries where the conditions are very trying. They are not as expensive as might be supposed. Write for prices.

AT THE CLOSE OF THE SEASON FOR 1907

ROOT'S HIVES WILL OUTWEIGH NEARLY ALL OTHER STYLES.

SEND IN YOUR ORDER NOW.

The A. I. ROOT COMPANY

Syracuse New York

How to Keep Bees

By Anna Botsford Comstock

228 pages. 32 pages of illustrations.

A charmingly written manual describing clearly and in detail the outfit, first steps, and methods. The author's well-known literary ability has combined with her enthusiasm for a subject to produce a very unusual volume. It is a handbook for those who keep bees for happiness and honey, and incidentally for money. It serves as well as an introduction to the more extended manuals already in the field. "Finally with all due deference to the authors of the excellent books on bee culture which we have already, my opinion is that this new book, 'How to Keep Bees,' is the best one for a beginner, or one who does not wish or expect to keep more than a dozen colonies, that has yet come before the world."—*A. I. Root, in Gleanings, July 1, 1906.*

Chap. 1, "Why Keep Bees," urges honey, perhaps money, recreation, love of nature study, and the need of bees in "a perfect garden," as good reasons for keeping bees. The second chapter tells "how to begin" in a small way, and we may get all the necessary detailed information for management from later chapters, arranged in order of demand for information.

Price $1.00. Postage 10 cents extra.

Money refunded to any dissatisfied purchaser.

The A. I. Root Co., Medina, O.

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A series of booklets on bee subjects by E. L. Pratt, of Pennsylvania, known to the bee-keeping world as "Swarthmore." These books are full of the most valuable information. The Swarthmore method of queen-rearing is spoken of as the most important innovation in bee-keeping of recent years:

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BABY NUCLEI. The using of little frames and a handful of bees for mating queens has created quite a stir in the queen-rearing business. From this booklet you get your information direct. Price, postpaid, 25 cts. French edition entitled "Nuclei Miniatures," 50 cts. postpaid.

COMMERCIAL QUEEN-REARING. A complete description of the Swarthmore methods of queen-rearing in regard to cell-getting. Price, postpaid, 25 cts.

SIMPLIFIED QUEEN-REARING. Revised edition. It tells the honey-producer how to rear queens by the very simplest method ever published. Good queens for little money and little trouble, in just as effective and economical plan for the bee-keeper who works for profit. Price 25 cts. postpaid.

SWARTHMORE QUEEN-REARING TOOLS. Complete outfit or separate parts. Write for price list.

ORDERS for these books should be sent to your regular dealer in supplies, or to the publisher of any bee-journal. The trade supplied by THE A. I. ROOT CO., Medina, O., distributing agents for E. L. Pratt.

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Cash discount, if paid in 10 days, 2 per cent.
Bills payable monthly.
No medical or objectionable advertising accepted.

"A Square Deal."

We believe that every advertisement in this paper is backed by a responsible person. But to make doubly sure we will make good any loss to paid subscribers sustained by trusting any deliberate swindler advertising in our columns, and any such swindler will be publicly exposed. We protect subscribers against rogues, but we do not guarantee to adjust trifling differences between subscribers and honest responsible advertisers. Neither will we be responsible for the debts of honest bankrupts sanctioned by the courts. Notice of the complaint must be sent to us within one month of the time of the transaction, and you must have mentioned GLEANINGS IN BEE CULTURE when writing the advertiser.

If you are looking for a new business which is likely to prove profitable we hope you will read what the Medina Concrete Machinery Co. have to say. Since the tremendous increase in the price of lumber, concrete construction has become quite prominent,

If America excels in any thing it is in the invention of articles intended to facilitate the housekeepers' work. One of these inventions that has real merit is the steam-cooker, which largely reduces the work of cooking,-and in some cases may materially reduce the attention required, and also the cost of fuel. The odors of cooking food are also controlled to a great extent by the steam-cooker. Evidently the steam-cooker meets a real need with many people, for there is a large demand for them. Among the best and also one of the first in the field, is the O-hi-o cooker, made in Toledo, O., which you will find advertised regularly in GLEANINGS. The company who make these utensils are very desirous of securing agents to push the sale of them, and make liberal arrangements with that end in view.

THE VILLAGE.

We have recently come on to a magazine that is unique. It is true we have magazines galore nowadays, all more or less claiming to be original, but this one occupies a new field and does it well. As its name indicates, it is devoted to village life as a thing apart from city or rural life. Very little has yet been said about our beautiful American villages where everybody has a kindly interest in everybody else, and where socialism has no show because the inhabitants are all true socialists. Here we find blended the charming simplicity of rural life with what is best in city life. This magazine undertakes to exploit the village in much the same manner the great magazines have magnified the glories of the great cities without saying very much about their drawbacks. Evidently there is a wide field to be occupied. In the June number now before us, Morrisville, N. Y.; Auburndale, Mass.; Fredonia, N. Y.; Medway, Mass.; Ticonderoga, N. Y., and Woodbine, N. J., come in for notice in a sympathetic mood. But, in addition, a bee village comes in for special treatment as exemplifying in the highest degree communal life. To our foreign readers who are anxious to learn just how Americans live we would recommend this magazine. Village improvement, it is almost needless to say, is an important feature of this magazine. It is published at Hyde Park, Mass. and 35 Nassau St., New York.

The Bee-keepers' Review

For March has for a frontispiece one of the most beautiful winter-scenes that it has been my lot to witness. It is the apiary of Mr. F. J. Miller, of London, Ont., Canada, who tells how he makes a success of hauling honey home to extract it, using a gasoline-engine as power to run the extractor. Mr. Miller says that with his system of management he can manage 500 colonies alone.

Mr. E. F. Atwater, of Idaho, tells how he successfully managed an apiary 36 miles from home, warming up the last batch of honey in a 12x16 honey-house before extracting it.

The April issue shows how to protect a hive with tarred felt by tying it on—only the work of one minute, and one man can do the work alone.

Mr. Townsend is continuing his series of articles on "Helpful hints for Extensive Bee-keeping," and he makes the articles very seasonable, and very helpful.

The foregoing are only a few of the good things that may be found in these issues of the Review; but they show the character of the reading that may be found in the Review.

There are still a few sets of the Review for 1906 on hand, and, as long as they last, a set will be sent free to each subscriber for 1907.

The book, Advanced Bee Culture, is $1.20; or with the Review, only $2.00 for both.

W. Z. Hutchinson, Flint, Mich.

Poor Honey Crop

in 1906, but we sold in Michigan

1,143,000
LEWIS SECTIONS

WHY?

A. G. WOODMAN, Grand Rapids, Mich. Remus, Mich., Feb. 25, 1907.

Dear Sir:—I use *Lewis Sections* exclusively, there are none better—the only perfect "V"-cut section that has come to my notice. They fold without moistening. E. D. TOWNSEND.

5 CARLOADS NOW IN

The rush is now on. Do not send your orders to the one-horse dealer and be disappointed. We ship goods the same day order is received. Our shipping facilities are the best in Michigan—74 freight and 55 express trains daily.

ADVANCED BEE-VEIL, French tulle veiling, cord arrangement, cotton with silk face, postpaid, **50c**

A. G. WOODMAN CO.,

Long distance phones: Bell 181; Citizens, 3120 **Grand Rapids, Mich.**

Our discounts on **BEE-SUPPLIES** are still in effect.

WE furnish EVERY THING needed in practical bee culture, at lowest prices. We make the DOVETAILED, LANGSTROTH, and ALTERNATING HIVES. The most practical, *up-to-date* hives are the MASSIE HIVES. We make them. Have you seen them? Have you received our new 1907 catalog? It is surely the easiest catalog to order from you ever saw. It is so easy that you can not make a mistake in your orders; a child can order from it as well as an adult. It is something new and entirely different from any you have ever seen. Write us a postal card for it to-day. It is free.

Address Kretchmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa. :: Trester Supply Co., 103 S. 11th St., Lincoln, Neb.

Catalogs issued in German and English.

NOW READY

to fill your orders for hives, supers, sections, and foundation of all grades. We now have a large stock of these goods on hand and can supply your wants for regular goods without delay.

We are booking orders for BEES and Queens, and to assure early shipment you should send in your orders now.

Price list free upon application.

W. W. CARY & SON, Lyonsville, Mass.

A NEW BEE-SUPPLY HOUSE

AT LITTLE ROCK, ARK.

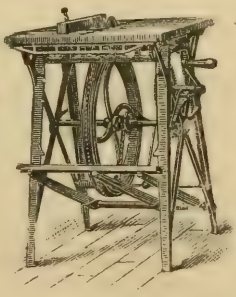
I am prepared to furnish you the best of bee-supplies, manufactured by The A. I. Root Co. Let me send you my catalog of bee-keepers' supplies. Also have for sale the very best strain Italian queens and nuclei or full colony. Satisfaction guaranteed. **W. J. LITTLEFIELD.**

NORTHERN NEW YORK BEE-KEEPERS.

BUY your supplies where you can buy to the best advantage. Save freight charges and time. Large stock of new goods. "Root's goods." Cash paid for beeswax. Send for catalog and price list.

A. H. REEVES & CO., Watertown, N. Y.
17 Morrison St. Phone 1296.

BARNES' HAND and FOOT POWER MACHINERY



This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, etc.

MACHINES ON TRIAL

Send for illustrated catalog and prices. Address

W. F. & JNO. BARNES CO.
545 Ruby Street,
ROCKFORD, ILLINOIS.

PATENTS.

Twenty-five Years' Practice.

PRINDLE & WILLIAMSON,

Second Nat'l Bank Bldg., Washington, D. C.

Patent practice in Patent Office and Courts.
Patent Counsel of The A. I. Root Co.

60-lb. SQUARE CANS FOR SALE.

1000 60-lb. honey-cans, A No. 1 condition, packed two in a case. Cases also first class. Will sell them cheap.

MICHIGAN WHITE CLOVER HONEY CO.,
29 Woodbridge St. West, Detroit, Mich.

1884 **1907**

New 64-page catalog for the New Year now ready

FOR YOU

Twenty-two successful years manufacturing bee-supplies and raising Italian bees and queens. . . . . Root's Goods in Stock.

J. M Jenkins
Wetumpka, : : Alabama

MYERS LOCK STITCH AWL

Makes same stitch as sewing machine. Repairs shoes, harness, carpets, awnings, sails, gloves, mittens saddles, robes, comforts or fur coats. You need one, your neighbor needs one every day.

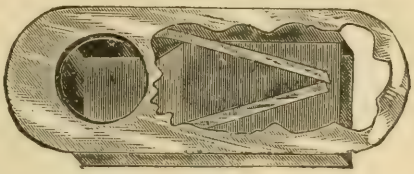
Costs only $1.00, prepaid. Get one and secure the agency in your locality. Every one buys it. Great opportunity for agents east of Mississippi River. One agent sold 100 in 4 days. Write for booklet B 8

C. A. MYERS CO.,
6537 Woodlawn Ave., Chicago, Ill.

50c Hand-woven by Mexicans in Mexico, from palm fiber; double weave, durable, and light weight, with colored design in brim. It retails at $1; sent postpaid for 50c to introduce our Mexican hats and drawn-work. Same hat plain, 40c; both for 75c. Large, medium, and small sizes. Fine for fishing, camping, seashore, and gardening. Hat booklet free.

The Francis E. Lester Co., Dept. A A, Mesilla Park, N. M.

CUTS USED IN THIS MAGAZINE ARE FROM
THE MUGLER ENGRAVING CO.
MUGLER BLDG. CLEVELAND, OHIO.



PORTER BEE-ESCAPES

HIVE ESCAPE

When taking off surplus this is the greatest saving device. It does away with the shaking of the heavy supers, the cruelty of excessive smoking which causes the bees to uncap their honey and start robbing. Just tip the super to the angle of 45 degrees and insert the board. In a few hours it is free of bees; then take off your super. You can as well afford to be without a smoker as without the Porter Bee-escape.

PRICES

Each, 20 cts.; dozen, $2.25; postpaid. With board, 35 cts. each; $3.25 per 10; by express or freight.

TESTIMONIALS

They are perfect in action.—British Bee Journal.

No bee-keeper can afford to be without them.—Prof. Cook in American Bee Journal.

Worthy of highest commendation.—Eugene Secor, judge on awards, World's Fair, Chicago.

I would not do without them even if they cost five five dollars apiece.—W. Muth-Rasmussen, Independence, Cal.

They are absolutely perfect. I can not tolerate my own make since using them.—John S. Reese, Winchester, Ky.

They are one of the best things ever brought into any apiary, and should be used in every bee-yard in the whole world.—Wm. McEvoy, Foul-brood Inspector, Ontario, Canada.

There is no robbing or fighting or disturbance in the apiary when the surplus honey is taken off with them. They are simply perfect.—W. Woodley in British Bee Journal.

HOUSE ESCAPE

To be used over the doors and windows in the extracting-house, or any place you wish to clear of bees. The most persistent robber can not return. Some bee-keepers make a practice of taking off the filled supers and stacking seven or eight in a pile. The Porter Honey-house mounted on a board makes the best kind of escape. Don't wait till to-morrow before you get a supply. You can not afford to be without them longer.

PRICES

Each, 25c; dozen, $2.75; postpaid.

TESTIMONIALS

The Porter bee-escape clears the supers of bees so perfectly and quickly and easily that it makes the taking off of honey a pleasure instead of a dread as in former years.—G. M. Doolittle, Borodino, N. Y.

The removal of full honey-boxes has become an amusement since we began using the Porter bee-escape.—Ed. Bertrand, Editor Revue Internationale d'Apiculture, Nyon, Switzerland.

This number of the Review contains more unqualified praise of the Porter bee-escape than any other issue has ever contained of any other implement; but so long as it is deserved, who cares?—Bee-keepers' Review.

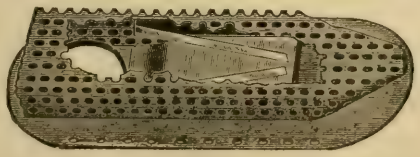
They are the greatest thing on earth for expelling bees from supers.—G. J. Flansburg, South Bethlehem, N. Y.

I would not be without them for four times what they cost.—Dr. W. A. Tufts, Musson, La.

Undoubtedly the best bee-escape is the one invented by R. & E. C. Porter.—W. S. Pouder, Indianapolis, Ind.

Bee-men are certainly behind the times if they can afford to use them and do not.—M. H. Mendleson, Ventura, Cal.

For Sale by Dealers Everywhere!

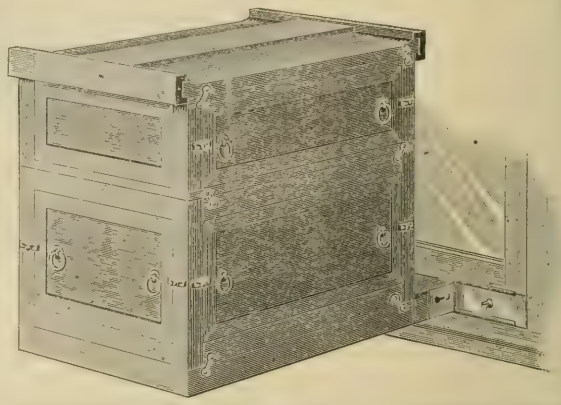


R. & E. C. Porter, Patentees

Send Orders to Your Dealer

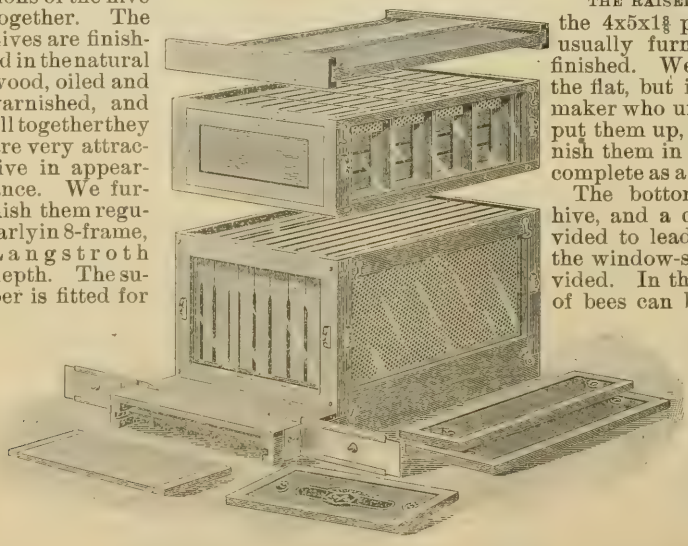
ROOT OBSERVATION HIVE.

In recent years there has been an ever-increasing interest in bees as a subject for nature study in the schools, and a corresponding demand for observation hives to facilitate the study of bees at work, without exposing the student directly to them, as is necessary with ordinary hives. To meet this demand we offer several styles and sizes of observation hives. These are made with skeleton frame, with glass in sides and ends of the brood-chamber, and in sides only of the super. Shutters are provided to cover the glass. These shutters have brass rings to handle them by and brass buttons to hold them in place. Brass hooks are also provided to hold the several sections of the hive together. The hives are finished in the natural wood, oiled and varnished, and all together they are very attractive in appearance. We furnish them regularly in 8-frame, Langstroth depth. The super is fitted for the 4x5x1⅛ plain section. Hives are usually furnished put together and finished. We can supply material in the flat, but it is work for a cabinet-maker who understands his business to put them up, and we do not care to furnish them in flat unless you order one complete as a model.



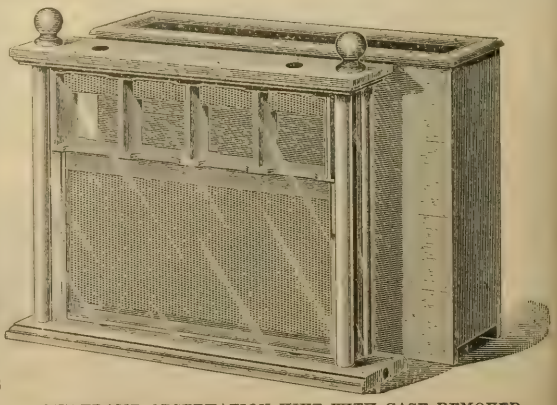
OBSERVATION HIVE INSIDE A ROOM WITH ENTRANCE UNDER THE RAISED SASH.

The bottom is no longer than the hive, and a covered extension is provided to lead the bees outdoors under the window-sash or other opening provided. In the full-sized hive a colony of bees can be kept by a window the year round, or for only a part of the season, as may be desired. The work of the hive, including the building of comb in the sections, can be watched at intervals without opening the hive or disturbing the bees. For work in the schoolroom before a class we recommend the one-frame hive. With the one-frame observation hive it is necessary to remove the frame of bees and put in a fresh one about once a week at least, for the best results. As a rule, arrangements may be made with a local bee-keeper to provide a frame of bees each Monday morning, returning at end of week.



OBSERVATION HIVE WITH PANELS REMOVED.

We make one-frame observation hives for L. frames or for Danz. frames and a row of sections above, or the L. fr. with a row of sections above. These are provided with a wood case to slip over to shut out the light when you are not watching the bees. We show this one-frame hive and the case in accompanying illustration. This consists of turned-wood corners with glass inserted in grooves in ends as well as the sides.



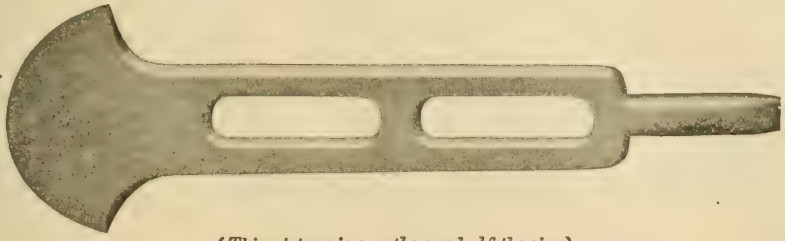
ONE-FRAME OBSERVATION HIVE WITH CASE REMOVED.

FOR SALE BY ALL DEALERS IN BEE-KEEPERS' SUPPLIES.

Something New=The Ideal Hive-Tool

Bee-keepers have long needed a Tool with which to work among the hives during the bee-season. The Tool shown here was invented by Wm. Muench, a Minnesota bee-keeper, some years ago, but it was not on the market before. We have lately bought this Tool, and all rights, from Mr. Muench's widow, and have had the first lot made. They are ready for delivery now.

Best Hive-Tool



Only 30c, by mail

(This picture is exactly one-half the size.)

DESCRIPTION.—The Ideal Hive-Tool is made of high-grade malleable iron, much like wrought iron, 8½ inches long. The middle part is 1 1-16 inches wide an 17-32 thick. The smaller end is 1⅞ inches long, ½ inch wide, and 7-32 thick, ending like a screw-driver. The larger end is wedge-shaped, having a sharp semi-circular edge, making it almost perfect for prying up covers, supers, etc., as it does not mar the wood.

What Dr. Miller and Miss Wilson Say of It:

In the first edition (1903) of Dr. Miller's "Forty Years Among the Bees," page 58, he says: "Of all the hive-tools I have tried, I like best the Muench tool." On Jan. 7, 1907, he wrote us saying he thought "just as much of the tool as ever."

Miss Wilson, Dr. Miller's assistant, says this of the Ideal Hive-Tool: "It is an ideal tool. In fact, I don't see how it could be improved upon. I am sure we would feel utterly lost in the apiary without it.....You will have to try one yourself if you want to know its worth."

The Ideal Hive-Tool Free to a New Subscriber.

To a **new** subscriber to the **Weekly Bee Journal** for one year (at $1.00), we will mail an Ideal Hive-Tool **free**; or we will mail the Hive-Tool alone for 30 cents (stamps or silver, if more convenient). Sample copy of the Weekly American Bee Journal sent on request; **or a 8 months' "trial trip" for only 20 cents.** Address,

GEORGE W YORK & CO., 334 Dearborn Street, CHICAGO, ILL.

The Weekly American Bee Journal is in its 47th Year

The Oldest and Only WEEKLY Bee-Paper in America

$1 Standard-bred Queen for 50c

Send us $1.50, and we will mail you the American Bee Journal for one year, and also one of our splendid **Standard-bred Untested Italian Queens** this month. "First come, first served" with queens.

Address as above

MARSHFIELD GOODS

MEANS

Quick Shipment, Honest Goods, Low Freight

Our sections are manufactured from young basswood timber.
Hives are almost clear lumber—they are beauties.
Shipping-cases made strong and substantial, nice, smooth, and perfect.
Send for our free catalog of supplies.

Marshfield Manufacturing Company, Marshfield, Wisconsin, U. S. A.

" If goods are wanted quick, send to Pouder."
Established 1889

What the Other Fellow Says:

By the Bee Crank.

Sometimes the other fellow's views on a subject count for more than the opinion of the man most interested. Here's what one of my old customers thinks about my methods :

WALTER S. POUDER, Peru, Ind.
Indianapolis, Ind.

Dear Sir:—In my capacity as distributing agent for your bee-supplies I have been mentally scanning the past. You have sent me *value received* for every dollar that I have ever sent you, and each shipment some extras thrown in, in the form of promptness, accuracy, care in packing, and so forth. I sincerely thank you for your tokens of appreciation. You will please fill the following order. . . . . Very truly yours,
GEO. S. DEMUTH.

For years this man has been aware of the advantage of " sending to Pouder " for his supplies.

He got all he expected, and more.

Other men in all parts of the world would tell you about the same thing if you could ask them.

My success was brought about by an eighteen years' of prompt and reliable dealing with my customers—attending to the smallest details of their orders.

I sell Root's goods at Root's prices, and you are saved freight charges on them; Hoffman's Frames and Danzenbaker Hives, Dovetailed Hives, Section Honey-boxes, Weed-process Comb Foundation, and other supplies, always ready for shipment.

I pay 31c in cash or 33c in trade for beeswax. Send by freight or express, according to size of shipment.

Get my new catalog—it's free.

Walter S. Pouder

513-515 Massachusetts Avenue, Indianapolis, Ind.

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Company, Medina, Ohio

E. R. Root, Editor A. L. Boyden, Advertising Mgr.
H. H. Root, Asst. Ed. J. T. Calvert, Business Mgr.
A. I. Root, Editor of Home Department

Vol. XXXV. JUNE 15, 1907. No. 12.

DR. E. F. PHILLIPS' government bulletin on queen-rearing now appears in French, by M. Mont-Jovet.

A. I. ROOT seems to be an enthusiastic preacher of the gospel of outdoor air. Keep it up, Bro. Root.

ITALIANS, says R. Pincot, *Apiculteur*, page 113, build cells having a mean diameter of 5.5 millimeters, while the natives reach only 5.2 millimeters.

THE *Irish Bee Journal*, one of the brightest in the world, opens its 7th volume in spick-and-span new dress, and its paper and typography are now in keeping with its contents.

THAT BEES automatically follow any one color when foraging is disproved by seeing a bee on a hyacinth-bed, visiting in succession all the different colors on one trip.—U. Kramer, *Schweiz. Bztg.*, p. 148. [Correct you are.—ED.]

I PROPHESY that the "Temperance" department will not be a permanent feature of GLEANINGS. "'Cause why?" Because at the rate things are now moving it will no be long till saloons are driven out entirely, and then there will be no need of the department.

BEES BUILD their cells not exact hexagons, but with the transverse diameter greater than the two oblique diameters. Following this, Rietsche makes foundation with cells having a transverse diameter of 5.6 millimeters (.220472 of an inch, or 4.5357 cells to the inch), and oblique diameters of 5.45 millimeters.—*Apiculteur*, p. 113.

L. E. MERCER is a dangerous man to be running around loose among bee-keepers, getting examples of extravagance. At the Los Angeles convention he was sporting an automobile. I forgave him that extravagance because he gave me a spin in it; but there he is again, top of p. 771, at work *with his Sunday clothes on!* For such extravagance there can be no forgiveness.

SPECULATIVE FEEDING is the name in Germany for what we call stimulative feeding, and an appropriate name it is. Lehrer Cremer says in *D. Bienen Zucht*, "He who speculates, always risks, and often loses." [Stimulative feeding in the hands of a beginner may be and probably is at times "speculative;" but in the hands of a veteran there need be no risk.—ED.]

OBSERVANT bee-keepers can hardly fail to have noted that, when brood-rearing is about to cease, eggs and sealed brood will be found, but no unsealed larvæ. Devauchelle (*Apiculteur*, 142) says this is because the temperature in the brood-nest sinks below 80°, hence too cold for the eggs to hatch, although the queen continues laying. He has found the same thing to occur in cold spells in the spring.

A BEE, when it travels afoot, always moves three legs at a time; but it isn't a pacer. The front leg and the hind leg on one side move simultaneously with the middle leg on the other side. [It is probable that not one bee-keeper in a thousand would be able to describe the movements of the legs of a bee in walking. Probably now a good many of us will watch the operation and see if the observation here made is correct.—ED.]

IN GERMANY a solution of honey in alcohol and water is generally used as a lubricant for foundation-machines. Cheaper and better, says Kramer (*Schweiz. Bztg.*, 156), is this: Grate raw unpeeled potatoes, and pour on them water quite warm. Stir a few minutes; strain, and you have the very best lubricant. Isn't that practically the same as starch, that has been largely used in this country? [Yes, but not quite so good. The trouble with a starchy lubricant is that it is likely to sour and mildew on the foundation after it is packed in boxes. We would object to alcohol and water, because the for-

mer is expensive, and besides we have no *proof* that soap *is* obnoxious to bees.—ED.]

DR. BRUENNICH, one of the best authorities on the other side of the water, quoting Doolittle as authority for letting bees do their own superseding, says in *Bienen Vater* that Doolittle is an investigator of bees for whom he has extraordinary respect, counting him one of the greatest lights among bee-keepers in the whole world. It seems good to find a man broad-minded enough to recognize worth in whatever country it may be found.

"SECTION" is a word likely to be overworked if sectional hives come into prominence. On page 766, Fig. 3 shows a "section filled with brood-frames," and Fig. 2 a section filled with sections. Isn't there too much "section" about that? Why not use "a *story* of brood-frames" and "a *story* of sections"? [We can not see how there could be any confusion, as the context will almost invariably show what is meant. We have many samples of the same thing in our common English of every-day life.—ED.]

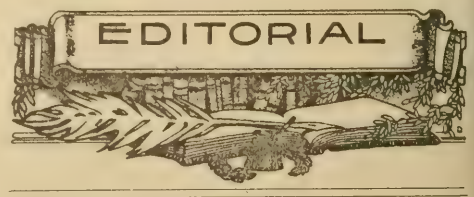
APICULTURAL-EXPERIMENT stations number 33 in Austria; in Switzerland, 38; in U. S.—? [Our dear Uncle Sam is doing a great deal for us now; but, say—it is not true that he has no stations for the study of apiculture. Besides the one at Washington, D. C., there is a sub-station at Chico, California, in charge of J. M. Rankin. Already much and important work has been done, especially in the line of original investigation of bee diseases. A multiplicity of stations may not do the work of a couple of good ones.—ED.]

DR. BRUENNICH (*Leipz Bztg.*, p. 42) takes Americans severely to task for their unscientific methods in bee culture, running all over the world for new varieties, and mixing blood indiscriminately, instead of persisting in the pure culture of some one variety. The rebuke is merited, doctor; but please remember that conditions here are not the same as in Switzerland. You have found that the native bee is better for you than any foreign variety, and you are wise to persist in its pure culture. We have found that for us a foreign variety is better than the native, and as yet are not entirely sure that some other foreigner may not be still better. Do you blame us for scouring the world for that possibly better variety?

THE FEAR that bees would gnaw around foundation splints has prevented your enthusiasm, Mr. Editor, p. 755. Will that fear be removed if I tell you that my bees never gnaw around them? In the thousands of splints I have used I never saw one gnawed around—no, not the fraction of an inch. Your fears are not well founded when based upon experience with tin bars not coated with wax. A 32 wire may be the largest bare metal they will stand, but I'll agree to put in a coated wooden splint a full inch wide, and there shall be no gnawing. Please don't base your fears upon imagination. [We take it all back, doctor; but now can you get up some satisfactory machine or method for making the splints? Whenever we get an order from you for them our workmen have a regular time of it. They are exceedingly difficult to make; and if we were to charge what they are worth it is a question whether the public would buy them. Broom-splints of the right size have been substituted, but they are irregular.—ED.]

IF ANY PROOF is needed that the new local-option law in Illinois is a good one, here is that proof from a Chicago daily, it being a special from Peoria, Ill., dated May 14: "The liquor interests of the State have formed an organization to fight the local-option law in all its features. Distillers, brewers, and saloon-keepers from every part of the State have been implored to join the organization for their own protection." [The value of new temperance legislation can be gauged pretty accurately by the subsequent actions of the liquor interests. It is the "hit bird that flutters," you know. You will note that, every time any new important piece of temperance legislation is enacted, the brewers and their allied interests get busy.—ED.]

THE INTERESTING matter about wax-rendering in GLEANINGS, June 1, raises the question whether it will not be better to have wax-rendering a specialty in the hands of a few to whom others shall send old combs, etc., just as foundation-making is a specialty. [There are two objections to this. One is that the sending of combs indiscriminately over the country, especially those that are discarded because they were filthy or possibly diseased, will be likely to spread serious contagion. Second, combs are very bulky. The boxes would be large and unwieldy, and the freight would be high. We have in some cases solicited consignments of old combs; but there is so much dross and filth that we don't encourage the practice of sending them except for experimental purposes. The process of wax-rendering is not so difficult as it might seem. All there is to it is plenty of hot water and frequent squeezings of the slumgum, followed by thorough washing. But when it comes to reading over the mass of details of various writers one is liable to become confused.—ED.]



THE apiary shown on the front cover page of this issue is that of W. Z. Hutchinson, at Flint, Mich.

WE have been advised unofficially that the next convention of the National Bee-keepers' Association will be held at Harrisburg, Pa. We presume we shall hear from Mr. France direct. In the mean time we would state

that Harrisburg is in the heart of a fine bee country and big-hearted bee-keepers. They will, no doubt, see to it that the National is royally entertained.

Mr. Lea, the government entomologist of Tasmania, has been advising all the fruit-growers of that country to keep bees to insure the full fertilization of the fruit-blossoms. He has also warned the growers against spraying while the trees are in bloom.

Dr. B. H. Warren, the State Dairy and Food Commissioner of Pennsylvania, has declined to occupy again that position, his term of office having expired. He is the man who brought the glucose trust to its knees in the Keystone State, and, besides, has conducted a strenuous campaign in behalf of pure food when it was much needed.

DOES IT PAY TO FURNISH FREE ALSIKE SEED TO FARMERS?

Fortunate will be those who have had a lot of alsike-clover seed scattered around in their vicinity. In the neighborhood of our out-yards we are having a fine growth of the plant, and we expect a fair return in the form of nectar — if not this season, another year. Remember that we gave away the seed *free* to all parties who applied for it within a mile of our yards. One farmer would tell another about our free-seed proposition; and the result was that many came for the seed. But we expect to get it all back within two years, and a good profit besides. He who never casts his bread upon the waters will never have any in return.

SHOULD THE NATIONAL BEE-KEEPERS' ASSOCIATION EXHIBIT HONEY AT THE WORLD'S PURE-FOOD SHOW?

The editor of the *American Bee Journal* follows up our suggestion that the National Bee-keepers' Association be represented at the World's Pure-food Show at Chicago, Nov. 19 to 25, by adding another that some of the money from the Honey-producers' League be used for making a honey display. This show of pure foods is exciting world-wide interest and enthusiasm, hence the necessity for a honey-exhibit. If we do not fall into line the public may conclude our honey is bogus, and that we are afraid to show it. If the honey crop is short, that is only another reason for the exhibit, as the bee-keepers will require a better price for their product than they have been getting.

FOREST RESERVES.

The Secretary of Agriculture, as we expected, has determined to do something with the forest reserves, and now proposes to take measures to improve the pasturage available for stockmen where the land is suitable. A special officer, Mr. Colville, has been appointed to do what he can to improve pasturage conditions. We hope the Department of Agriculture will take care to see that the bee-keepers are given a fair chance as well as the cattle-men, by planting seeds which are not only good for stock but for bees as well. If the government can naturalize some of the various species of clover on these immense tracts the bee-keeping interests of the nation would be considerably benefited. No doubt Dr. Phillips will see to it that something of the kind is done.

THAT FIELD OF DANDELIONS ILLUSTRATED ON PAGE 840.

Probably some of our amateur photographer subscribers will be interested in knowing how this photo was secured. It is a well-known fact that yellow and green, to the ordinary dry plate, are almost one and the same thing, for the photo will make it appear that every thing is of one color; but by putting in what is known as the ray filter, with a yellow screen, we get fairly correct color values. In the photo reproduced elsewhere one will see the sharp contrast between blossoms and the green foliage; and this contrast is made possible by the use of the yellow screen.

We desire to suggest that, in photographing highly colored honey-plants, which a correspondent may desire to be seen in an engraving, before doing so he consult with us or some expert photographer as to how to secure the proper color values. In many cases orthochromatic plates will help greatly. At other times a ray filter will give satisfactory results, but a great many times it produces no effect except to delay the exposure.

SWEET CLOVER IN A NEW LIGHT.

In the *Australian* of April 6, which has just come to hand, sweet clover is made to appear in its true light. The paragraph is in answer to a correspondent.

The missing specimen has come to hand, and has been identified by the Government Botanist as the *Melilotus alba*, the white flowering melilot, an introduced plant belonging to the *Leguminosæ*. The odor of the plant is due to cumarin, which in excess acts as an intoxicant, and also gives a strong flavor to milk and butter. In moderate amount, however (10 per cent or so), it adds to the flavor and palatability of the hay or herbage; but it would be highly inadvisable to allow stock to graze entirely or mainly on this plant. As in many other cases, a little is good and excess injurious.

The idea of adding 10 per cent of sweet clover to any other fodder to give it palatability is excellent—more especially so in the case of corn silage, which is lacking in taste and nutriment. If we could induce farmers to see the practicability of this idea, sweet clover would probably become a prominent farm crop. In other words, the fodder would be flavored with vanilla (cumarin). Quite possibly the objections to silage as a feed for milch cows would disappear if sweet clover were added to it in a proportion of 10 or 20 per cent. It is worth thinking about, and some experiments ought to be made at once; for sweet clover grows easily in the corn-producing States. Bee-keepers would do well to call attention to this suggestion in all agricultural papers.

THE RESULT OF MR. BENTON'S TRIP IN QUEST OF NEW RACES OF BEES IN THE EAST.

AFTER receiving an official announcement (published in our last issue) to the effect that Dr. E. F. Phillips, formerly acting in charge, was now Apicultural Investigator in the Bureau of Entomology, we wrote to the acting Chief of the Bureau, G. L. Marlatt, stating that we had as yet received no information as to the result of the trip of the former Apicultural Investigator, Mr. Frank Benton, in the East in search of new races of bees, adding that we had received numerous inquiries as to the outcome, and that any information that the Bureau could give us we should be pleased to place before our readers. The subjoined letter will explain:

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF ENTOMOLOGY.

WASHINGTON, D. C., May 29, 1907.

My dear Sir:—I am in receipt of your letter of May 16th, asking for information concerning the results of the trip by Mr. Frank Benton, in search of new races of bees.

I regret that I am unable to give you a report of this trip, since the Bureau of Entomology has received no such report from Mr. Benton, and he is no longer connected with the Bureau of Entomology. The only information which we have on the subject is a verbal statement from Mr. Benton to the effect that he found very few bees, and was unable to ship any of them to this country. The tone of his statement concerning them would indicate that they are not desirable.

Respectfully yours,

G. L. MARLATT,
Acting Chief of Bureau.

The A. I. Root Co.:
Mr. E. R. Root, Ed. GLEANINGS IN BEE CULTURE,
Medina, O.

We regret very much the outcome of the trip; for in view of this failure to produce results it will probably deter any further attempt on the part of our government to send a man after new races of bees for some time to come, and perhaps it is just as well. Any desirable race of bees capable of domestication can be sent here by some resident beekeeper at an atom of the expense it would take to send a man after them.

We were under the impression that *Apis dorsata* was the particular bee sought for in the Benton expedition; but his experience was doubtless the same as that of others—the difficulty of confining or housing these bees and shipping them. At one time there was great enthusiasm manifested in the matter of importing them to the United States; but in view of the several unsuccessful attempts to domesticate them, even in their own habitat, to say nothing of the difficulty of getting them here, we may conclude that they, like the bumble-bees, will always remain in a wild state, and in a climate adapted to their nature.

INVESTIGATIONS OF FOUL BROOD IN GERMANY.

DR. ALBERT MAASSEN, of the Kaiserlichen Anstalt, at Dahlem, Germany, has recently issued another brief statement on his investigations of brood diseases of bees which is of interest. In June, 1906, Dr. Maassen issued a note announcing that he had examined 112 cases of diseased brood, and had found *Bacillus alvei*, Cheyne, in but 13. Since, as we now know that *Bacillus alvei* is found in European foul brood, this would indicate that this disease is present in Germany, a supposition which is the more strengthened by symptoms mentioned in various foreign journals and texts.

In the other 99 cases *Bacillus alvei* was not found; and while the author does not give the symptoms of these cases, the descriptions of foul brood in foreign publications would indicate that the ropy type of disease, American foul brood, is the prevalent disease in Europe, and we are justified in the surmise that this is the disease in which *Bacillus alvei* was not found. *Bacillus alvei* is never found in American foul brood in this country, according to recent investigations of Dr. Moore, of Cornell University, and, later, of Dr. White, in the Department of Agriculture, Washington, D. C.

This is further strengthened by the fact that, while spores are present in abundance in diseased material, they grow only with difficulty. The author speaks of the presence of another bacillus; but in neither of his papers does he give us any description of the organism, so that it is impossible to tell what it is that he finds. The uniform presence of this other bacillus, and the prevalence of American foul brood in Europe, justifies us in thinking that the bacillus found in the 99 cases is possibly *Bacillus larvæ*, White.

All recent workers on the brood diseases of bees—Burri, Lambotte, and others, speak of the fact that the bacillus in ropy foul brood fails to grow, or grows only with difficulty, on the usual laboratory media, and this, to that extent, confirms the work of Dr. G. F. White, of the Bureau of Entomology.

Dr. Maassen has also seen two other organisms in diseased material, *Streptococcus apis* and *Spirochæte apis*. He has not as yet described these micro-organisms, nor has he established any casual relationship for any of the species seen by him in diseased material The work is still being carried on.

BUCKWHEAT CAKES AND HONEY.

THE honey market is not the only one which has been improved by the passage of the recently enacted pure-food laws. The latest to come to our notice is buckwheat, which has recently taken a rise owing to the fact that buckwheat flour in future must be buckwheat flour, and not a mixture of "Red-dog flour" and buckwheat.

There were some who all along declared that a good deal of our buckwheat flour was not genuine, and it appears they were entirely right in their surmise. The result is, there is not enough of the genuine article to go round just now. In addition, it is said that the American people are more disposed than formerly to eat buckwheat cakes; but they want the real goods, and they ought to get them by all means. This looks like good news, and there is every indication that these statements are not in the least overdrawn.

This prompts several of our agricultural exchanges to urge their readers to grow

more buckwheat. For example, the *Wisconsin Agriculturist* gives its opinion that the demand for buckwheat has suddenly doubled, owing to the action of the pure-food laws, and advises its readers in favorable localities to engage in its culture, stating that there is much suitable land in that State. As there is quite a large contingent of bee-keepers in Wisconsin, we hope this advice will fall on willing minds. Some of the other States would probably succeed just as well, and it is reasonable to suppose that an interest in buckwheat can be created where at present none exists. If it should get to be as popular all over the country as it now is in the East, the bee-keeping interests of the country would be immensely benefited, for this grain not only yields honey, but calls for it after it has reached the table.

There is also a demand for buckwheat among poultry-keepers, since it was found the European poultry experts used a combination of buckwheat flour, oatmeal, and barley flour for fattening and finishing poultry for critical city markets. Evidently there is a bright future for buckwheat in this country at least, and probably in Canada as well.

IMPORTANCE OF BETTER HIVE-COVERS, AND PAPER-PROTECTED SUPERS.

MANY facts go to show that the ordinary single-thickness board cover, while costing something less than the double cover, is expensive to maintain. A hot sun will penetrate through it, requiring more bees to stay at home to ventilate to keep down the temperature of the hive; and during the fall and spring months it permits a great deal of valuable heat to radiate.

Mr. D. A. Jones, of Beeton, Ont. (a bee-keeper who, twenty years ago, had attained a world-wide fame in beedom as the one who, in connection with Mr. Frank Benton, went to the Orient and came back with new races of bees), called our attention one frosty morning in the fall, when we were visiting him, to a rather interesting phenomenon; but in doing so it was evidently not his purpose to show that a single-board cover was too thin, and hence a waster of heat, but, rather, to show how strong his colonies were, and how he gauged their strength by an examination of the top of the hive-covers. Said he:

"Ernest, come with me. I want to show you something."

As we went up and down the rows that early morning he drew our attention to the fact that the tops of the hive-covers were covered with a white frost except oval spots over the centers of the clusters.

"Now," said he, "just notice that these ovals vary in size. In the case of a very strong colony, the white frost is thawed almost clear out to the edges of the cover. In the case of a medium-strength colony the oval is smaller, and so on clear down to the nuclei. There," he said, "on a morning like this I can determine the strength of every colony."

If it then occurred to him that these ⅞-inch board covers were too thin, and were radiating very valuable heat, he did not mention the fact, nor did we think of it at the time; but during the twenty years since then we have often thought of it. We have seen a similar phenomenon at other yards; and the conclusion has been irresistible that such covers, while useful at times to indicate the strength of a colony, are wasteful of stores and brood. A colony not warmly protected is compelled to eat more in order to keep up the requisite animal heat.

But that is not all. Many hives of bees are put out in the open without shade-boards. While the bees will keep the interior of the hive cool they do so at an enormous waste of energy, keeping back a lot of fielders that ought to be gathering nectar.

Quite a number of the bee-keepers of the country are beginning to use double covers. R. F. Holtermann and Dr. C. C. Miller are both strong advocates of such covers. The former uses an extra piece of paper felting between the two covers. Dr. Miller uses only two thicknesses of ⅞ boards with a dead-air space between. While this is good, it does not go quite far enough. Should we have a cool summer, and especially if we should have cool nights, there will be a lot of backward work in the supers unless the bees are provided with a good thick cover.

Those bee-keepers who are fortunate enough to own a double cover, one telescoping over the other, should place between the two covers several folds of newspaper. Those who are still more fortunate in having a deep telescope cover would do well to interpose between the two some newspapers with the ends falling over the sides and ends; then shove a telescope cover snugly over the whole. This is not theory nor guesswork, because we have seen the proof of the pudding; and if any of our readers will test it themselves, select a dozen colonies of equal strength; give half of them single ⅞ boards for the covers, and the other half telescope covers with newspaper folds under them as explained.

But there will be some who will find themselves without these telescope covers. All such we would advise securing some large squares of heavy manilla paper. Fold the old newspapers over the top of the regular hive-cover; then, with the help of an attendant, fold one of the squares of manilla papers centrally over the top. Tuck the edges neatly down over the super as you would a package of soap, and then tie a string around it, looping it into a bow-knot.

"Oh! but," you say, "this will be a lot of work."

Admitted. But you will find it will pay you just the same, if our experience and observation are any criterion.

We suspect some will say, "If we have to fuss with a lot of strings and papers we will go out of the business."

To all such we can only say, "Try it and let us know the result."

Heavy manilla paper will stand severe

storms for at least one season; and while it may be considerable work to untie the strings and put them on again, you will probably conclude that a winter case made of solid wood will be a justifiable expense. The paper, of course, will be good for only one season.

PARAFFINE PALMED OFF AS CERESINE.

A CIRCULAR letter has been recently sent out by an Austrian firm calling attention to the deception being practiced by certain firms in this country who send or export to Germany paraffine wax which, by various means, is made to resemble ceresine wax. Apparently the bulk of the so-called ceresine imported is simply "doctored" or "doped" paraffine. They use small quantities of the genuine wax, together with aniline dyes to give the required color. To make it appear opaque they mold it at a low temperature.

If we are not misinformed this same "ceresine" is intended for human consumption in some cases, and hence comes under the scope of the United States pure-food laws. We may explain to our readers that ceresine is a superior mineral wax made from ozokerit, which is mined in Austria. If the United States Department of Agriculture and Internal Revenue officers of the Treasury act in this matter there ought to be no difficulty in stopping this dishonest trade.

This practice is largely followed to get away from buying beeswax, for some purposes at least.

Of course bee-keepers need have no fear in buying comb foundation, for nothing but pure beeswax is used by the manufacturers of this article. It has been intimated once or twice that adulterated foundation could be bought in this country; but so far as we know, there is absolutely none of it.

WEATHER CONDITIONS AND HONEY PROSPECTS UP TO JUNE 8.

WEATHER conditions have continued to be unfavorable, with a cool or chilly atmosphere, with much rain and occasional snows in the northern portions of the country. In Cleveland, Uhrichsville, and many other points in Northeastern Ohio, for example, light flurries of snow were reported on June 5th. This broke all records since 1882, and similar conditions were reported in some of the other Northern cities.

The clovers and basswood seem to be backward over the country generally, although in the extreme Eastern States some clover is already in bloom; but at last reports it was yielding no honey. The up-to-date bee-keepers who feed their bees will have powerful colonies for the harvest if it *does* come; for it has not been too cool to raise brood. But many bee-keepers will suffer this spring mainly through starvation (especially the don't-care kind), for bees have used stores enormously during the last month in brood-rearing; for they, like their owners, have been willing to draw on the last available supplies with the expectation that good weather must come, and with it a good supply of nectar.

We have received no favorable reports from any locality except Oregon and Washington, where a good crop of honey is expected. But this is true: Bees in the hands of progressive bee-keepers will be in fine condition; and should there be a late honey-flow, which is not at all improbable, if the past is any criterion, after a late wet season the bees will probably redeem themselves and their owners.

The irrigated regions, were it not for the cool atmosphere, would have their rain-belt competitors at a great disadvantage, and they may have yet.

We are by no means discouraged; for in 1882, a year similar to this, when bees died heavily during the spring, and bee-keepers had entirely given up all hopes, there was a good crop of honey, though it was late. The clovers, so far as reported, are in good condition; and should we have suitable weather later on we shall have a nice flow of nectar.

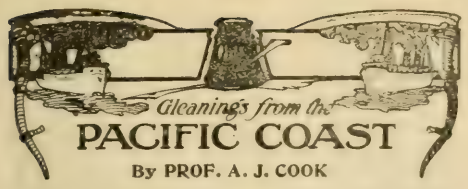
In the southern portions of the country, where the main honey-bearing flowers are out of bloom and past, there is not much in the way of encouragement; but we Northerners still have strong hopes. In the mean time let us not be discouraged. If we do get a crop the good prices we shall probably secure this year will more than make up for the discouraging conditions early in the season. This will, therefore, be a season of the survival of the fittest in the Northern States. All others will be frozen out, or, perhaps, more exactly, *chilled* and starved out.

THE SOUTH THE DUMPING-GROUND.

What to Eat for April contains a severe arraignment of most of the Southern States because they refuse to fall in line with the Northern and Western States in pure-food laws for the protection of the lives of their citizens.

The conditions are worse than formerly, because the concerns that formerly had a market in the North for adulterated goods are now obliged to dump the *whole* of their stuff into the Southern market or export it. This condition of affairs would not continue much longer if a few good people would resolutely set to work to have this matter settled right. It seems very extraordinary that the people of the South should be willing to have foisted on them all sorts of concoctions which are deleterious to health, and in some cases are actually deadly to persons eating them.

There are a large number of GLEANINGS readers in the South—enough to raise quite an interest in the subject if they would only set themselves to work in the right way, and get up a petition in their own neighborhood. This is the right time to strike, and strike hard. There is a great stigma in the thought that the North dumps its dangerous food products on to the South. Will it suffer this wrong?



THE SEASON.

California bee-keepers are suffering another disappointment in the failure so far, this season, of realizing their expectations of a fine bee-year. As this is the second in succession, it can not fail to make the less courageous lose heart, and question the reliability of the business. In the past it has been considered almost certain that we would get a good honey crop if there were good and timely rains. This was thought rightly to be a great advantage, as the bee-keeper would know of a surety in the early spring whether he would need supplies, as sections, etc., and so would buy or not according as the rainfall would be generous or scant. Both last year and this the rains have been very plentiful, and bee-keepers, according to all the experience of the past, had reason to expect very prosperous years. Our average rainfall at Los Angeles, for a long period of years, has been 15 inches. At Pomona, 4½ miles from here, it is 18 inches. This year we have had over 25 inches, and it came so gently and so well distributed through the season that we had every reason to look forward with very pleasing anticipation.

But last spring and this have suffered a climatic change that has dampened the hopes of the bee-men. We have very cool weather, so that the bees have been kept from the field much of the time, and, when there, seemed to get no nectar to speak of. We have fogs in the morning, which, though they make our days delightfully cool and pleasant, are not conducive to nectar secretion, and greatly hinder the work of the bees. Indeed, I hear of many that are having to feed the bees to keep the wolf from the entrance. We may hope that these cool seasons will not continue; they surely put a second (?) after the suitability of our region for bees and honey.

AN INTERESTING EXPERIMENT.

There is a German bee-keeper living between Claremont and the nearby mountains, by the name of Arms. He has quite an area of land which is so stony that it is good for little else than bee-forage. It abounds in sage and buckwheat, and, with favorable seasons, Mr. Arms realizes good money from his apiary. I suppose that every bee-keeper is the better if he has something of an inventive genius. Mr. Arms seems not destitute of this peculiarity. He saw that he secured good honey crops in seasons of good rainfall, and none when the rainfall was far below the normal. So he bethought to divert the water from San Antonio Creek, when it was running full, after heavy rains, and wasting its precious freightage in the not distant ocean. So he bethought of digging ditches and filling sink-holes and basins on his land, on which there are not a few. He found that the water sank rapidly into the gravel. This experiment not only benefited Mr. Arms, but all the community, as it was learned that all the winter runoff can be retained by dividing the stream and conducting the water on to the porous gravels, which have a wondrous and quenchless thirst for the life-giving water. It will be of great benefit if all this water can be easily and cheaply retained in the underground reservoirs, and not lost in the great sea. From the experience this winter, we believe that this will be possible; and very likely, through the accidental demonstration of this poor and unlettered bee-man, our section will reap a lasting benefit. It is probable, if we can fill up these reservoirs every season, as seems possible, we can secure water to make many more of our very fertile acres blossom like the rose.

POLLEN.

I have a large and very enthusiastic class in botany at the present time. It numbers 32, and for the past days they have been studying pollen. It is a very fascinating subject for study. They find that the pollen grains differ very much in form and markings. Indeed, we can almost always tell what flowers bees have visited by simply looking at the pollen grains. In some cases the form of the pollen is beautiful indeed. Nor is it alone in form that the pollen is attractive. The students find that the color is quite as attractive, and worthy of attention. They find that yellow is by far the most common color, but the yellow varies all the way from a very light yellow or straw color even to the darkest yellow, and from that to orange, often nearly red. Brown pollen comes next in order; and dark pollen, almost black at times, is not wanting. The opposite color, or white, is sometimes met with among the plants of the snap-dragon family (*Scrophulariaceæ*). This is the figwort family, and has many very famous honey-plants, as the figwort of Ohio and the East. They also find green and bright-blue pollen. These are rare, but are beautiful ornaments as they hug the pollen-baskets of the hind legs of the bees. The gilias are very common here, and very beautiful. Many of these have the blue pollen, and we often find the bee getting pollen and honey from the gilias at the same time. These flowers are scattered too much to be of the best service; but I feel sure that we get much benefit from them. I gave this subject to the pupils to investigate, and I asked them how they found out what they reported, and the answer was that they could see the color in the anthers of the flowers; that often they could shake the pollen on to white paper so as to determine the color; but best of all was to get the bees to help them. They find all the colors of pollen mentioned

above, on the legs of the bees, snugly packed away in the corbicula.

POLLINATION.

We should not fail to call the attention of our people to the great work of bees as pollinators of our fruit and vegetable bloom. If we have cold foggy weather all through the period of bloom of cherries or plums or pears, we shall have a very meager crop. Of course, it very seldom happens that we have no warm sunny days, but it does often happen that the days are so generally unfavorable that the crop is much reduced. It is gratifying to find that our fruit-men are coming quite generally to recognize this fact. I believe that the good work and exceeding importance of bees in this role of pollinators can not be too much emphasized or overestimated. I find that our cherry-growers are very anxious at the time of cherry-bloom, and are very happy if warm sunshine covers the entire period of bloom. The cherry crop is a very profitable one, and the loss of it is often very serious.

SAGE BLOOM.

Although we have no honey to date, yet we do not mourn as those without hope. The white and black (or bail) sage is coming on well; and if we have warm weather we may yet hope for a big crop. We must see to it that we have strong colonies to reap the benefit of later bloom and nectar.

Bee Keeping Among the Rockies

by J. A. GREEN

First swarm April 24. A number of colonies have swarmed or prepared to swarm between that time and May 10, although the weather has been unfavorable a large part of the time, cool and cloudy. I do not know that I ever saw my bees in more uniformly strong condition at this season. As there was scarcely any loss of bees during the winter, it is likely that this season will see a return to something like the old number of bees in this valley.

A great many hold the theory that in a very open winter the bees fly so much and are so much more active generally that they consume more honey than they would in a winter somewhat colder. The past winter was very warm and open, scarcely any cold weather here, and most of the time the bees were flying every three or four days. Yet the lightest of my colonies had plenty of stores, and I have been obliged to take away solid combs of sealed honey from a number of my colonies this spring to make room for the queen to lay.

SWEET-CLOVER BLOSSOMS 285 DAYS FROM SEED.

I told you before something of the sweet-clover seed I planted last July. Three lots of seed were planted. Some of the ordinary white variety, some old seed of the yellow variety, and some seed of the yellow that was gathered July 18, all the planting being done some time between the 20th and 25th of July. The seed of the white was hulled, while the yellow was in its natural condition. The white clover came up very promptly, with a good thick stand, while the yellow did not germinate so well, having only a scattering stand. But this spring the seed that did not germinate last summer is growing finely and the old plants of both varieties are doing well, the ground planted to the white clover being covered with a heavy growth. The yellow seed had probably been covered a little deeper than the white. Whether the difference in germinating was due to this or to the fact that one was hulled and the other not, or a natural difference in the varieties, I do not know. I wish I did.

All this planting was done in an orchard where the ground has always been kept in a state of perfect cultivation, which shows that in Colorado at least there is no difficulty in getting sweet clover to grow in cultivated land.

The first blossoms of the yellow clover were seen May 5th, which would be 285 days or less from the time the seed was sown. Although a biennial plant, this particular lot of clover will have completed its life-history inside of a calendar year, using parts of two seasons. This shows the possibility of getting a full crop of blossoms on the same land each year. Ordinarily when sweet clover occupies the whole of the land there are not many blossoms except on alternate years, as the second-year plants cover and shade the ground so completely that no young plants are started that season.

It was my intention to plow under the white clover as soon as it was about a foot high, my main object in planting it being to furnish an object-lesson to the orchardists, many of whom are beginning to appreciate the value of green manuring and cover crops, but who can not yet be brought to look upon sweet clover as any thing but a nuisance. Alfalfa has been recommended for this purpose by our experiment-station men, but I believe sweet clover is in several respects far superior.

On account of a pressure of other work I did not get at the work until it was too high to plow under, so I will cut a crop of hay from it and then plow it under as soon as it has grown up again. The ground will then be cultivated until July, when I expect to plant another crop of sweet clover. If further experiments succeed as well as this I shall have shown the practicability of plowing under a heavy crop of clover on the same land every year. Any one familiar with the

use of leguminous plants for this purpose will readily see that this would prove sweet clover one of the most valuable plants to the agriculturist and especially to the orchardist. "But," you will say, "of what interest or value is this subject to the bee-keeper? Why try to get any one to raise sweet clover for the purpose of plowing it under before it blossoms?" For two reasons. In the first place, any thing that will help to remove the unreasoning prejudice that many entertain against sweet clover will be beneficial to the bee-keeper. If the farmer can be brought to see that sweet clover is a valuable plant in his fields, he will look at it with a more tolerant eye in the waste places. In the second place, if sweet clover should be largely raised for any purpose whatever it could be depended on that some of it would be allowed to bloom, for one reason or other. A great deal of seed would be raised, for one thing.

SPRAYING FRUIT-TREES—WHEN TO DO IT.

Some have criticised me a little for giving the fruit-man's side of the spraying question in the May 1st number, on the theory that it is not best to publish any thing that might be used against us. I feel, though, that it is best that we should post ourselves thoroughly on all sides of a question as important to us as this of spraying blossoming trees in order that we may better instruct the ignorant or combat the prejudiced or mistaken notions of the fruit-men. The successful general knows well how important it is to be informed as to the plans of the enemy.

It might well be charged against me that I did not go as fully into the matter as I might have, and I will try to remedy that now.

Fruit-trees are sprayed for several purposes —first, to combat injurious insects, of which the most important is the larva of the codling-moth or apple-worm. Other insect-pests for which spraying is done are the scale insects and the aphides. For these latter pests the spraying is best done when the trees are dormant, or if done at other times the sprays used are not poisonous, and there would be no object in spraying at or near the blossoming time, so these need not be considered further.

The second object of spraying is to cure or prevent various diseases, generally fungous in their nature, such as scab, rot, and mildew, which we do not have here to any extent, but which are more or less prevalent in the eastern States. The specific for these is spraying with a solution of a copper salt—sulphate of copper—in combination with lime, forming what is known as Bordeaux mixture. While this is of a poisonous nature it would not be specially destructive to bees. There is no advantage to the orchardist in using it at the blossoming time except that he may "kill two birds with one stone" by combining it with the spray used to poison the apple-worm. The only spraying then that is of importance to the bee-keeper is that which is done at the blossoming time for the purpose of poisoning the larvæ of the codling-moth. For this purpose an arsenical poison is used, such as Paris green, London purple, arsenite of lime, or the arsenite of lead. Orchardists here use only the two latter, with the preference given to the arsenite of lead.

The codling-moth lays its eggs on the leaves or bark of the tree. These do not hatch until some time after the blossoming period. After they hatch they make their way at once to the young apples and burrow into them. The object of spraying is to coat the apple with a poisonous covering so that the first few bites the worm makes into the apple may be its last. Spraying before blossoming would be of little or no advantage, since the apple is scarcely formed then. There would be no advantage in spraying until a couple of weeks after the blossoms had fallen, except for one thing. Sixty per cent of the worms, it is found, enter the apple at the blossom end. It is necessary then that there be a poisoned meal ready for him at this point. When the blossom opens, the sepals (the green leaves that form the calyx) are more or less folded backward along the stem of the apple. After the petals have fallen, the sepals begin to turn forward; and by a time varying somewhat with varieties and the weather, but seldom longer than a week, they have folded tightly over what we call the blossom end of the apple—the point where most of the worms make their entrance into the apple. Effective spraying requires that this vulnerable point of the apple be coated with poison before this closing of the calyx. To spray while the blossoms are still on will not do this as effectively as a little later, when the stamens and pistils are more or less withered, besides injuring these delicate organs and thus reducing the crop of fruit.

The very best time to spray is several days after the petals have fallen and the sepals have turned forward so that the calyx is a cup which will catch and hold as large a quantity as possible of the poisoned spray. The man who can get through with his spraying in two or three days is going against his own interests if he does not watch carefully this closing of the calyx and delay his spraying until it is in this cup-like shape that will best receive and hold the poisoned spray.

In the foregoing I have given the period for the closing of the calyx as it has been generally accepted here. Since writing this I have received a bulletin on the subject from the Illinois Experiment Station. While agreeing generally with the conclusions reached here, I notice that they extend this period somewhat, though they conclude that, on the average, orchards should be sprayed within seven days after the time that most of the petals have fallen. Observations here for the present season also indicate a somewhat longer period than has been considered correct before. From this it is evident that this time varies with locality and season, as well as with variety, and would probably average somewhat longer than I have indicated in the foregoing article.

This Illinois bulletin places even more

stress on the importance of getting the poisoned spray into the calyx cup, since with them nearly eighty per cent of wormy apples injured by the first brood of the codling moth have been entered from the calyx. What I want of bee-keepers is to fix firmly in mind this fact: That the main object of spraying at this time is to get the poisoned liquid into the calyx cup or blossom end of the apple, and be able to show careless or uninformed fruit-growers that they can not do this as effectively while the tree is in blossom as they can later, and that any time before the calyx has closed is better than while the petals are still on.

System simplifies the work: therefore, *have a system.*

A reputation for honest goods and honest dealing is bound to bring success. This should now be more easily done with the pure-food law to help us.

To many bee-keepers "a bee is a bee." When driving through the country, how many apiaries of pure Italians, Carniolans, or even all pure black or German bees do we see? Sometimes we run on to an occasional yard of a pure race; but more often there is a general mixture of a whole lot. This habit of swinging around from one breed to another, mixing and crossing, is not the way to get the most profitable results and satisfaction out of bees. Don't do it.

KEEPING COLONY RECORDS.

The star colony in a bee-keeper's apiary is the one that gives the most surplus honey and keeps it up the longest. By this test every one of us may test our colonies and try to bring all the rest up to its standard, or at least as nearly so as possible. A record should be kept of all colonies, each hive having a number. In offering an apiary of over 70 colonies of bees recently, the owner wrote: "I have every queen clipped, and every queen and colony numbered, and keep a record of them, and know of what strain each queen is, and what is the record of each colony." But how many bee-keepers think this worth while and do it?

MOVING WITH OPEN ENTRANCES.

We have tried moving bees in many ways, and with entrances open or closed in some way. The former is not to be recommended. Although some successes have been reported, there are too few of them. Open-entrance moving works all right under certain conditions, and *so long as you keep moving.* The bees cling to their hives well enough; but if a stop is made, the trouble begins. It is better to close the entrance. Use any of the simple hive-entrance closers that have been mentioned in these columns. One of the simplest ways we have ever used is to tear heavy burlap or some material of this kind into strips as long as the hive is wide, and about 2 inches in width. To close the entrance, simply fold it double and push it in with a piece of section box or a knife-blade. Eighty colonies were moved thus in warm weather, and remained closed up till 5 P.M., when, after the hives were all set on their new stands, the entrances were opened by running through the yard, and tearing out the strips of cloth.

EFFECTS UPON COLOR OF HONEYS.

Cotton is another plant which yields honey of different colors according to the different soils or localities in which it grows. The honey from cotton of luxuriant growth on rich black or alluvial river-bottom land is of very light color, while upland cotton, or that grown on sandy or clay soils, yields amber honey. It seems that the chemical conditions of the soil, the growth of the plant, and atmospheric conditions, all have some bearing upon the color of cotton honey. Certain chemical conditions of the soil may not only affect the plant-growth, but perhaps the juices of the plant itself, thus becoming apparent in the color of the honey. A plant of luxuriant growth yields nectar much more abundantly than those of less luxuriance. With dry climatic conditions, decreased secretion of nectar and evaporation to a certain extent takes place. Under such conditions honey from upland cotton, together with less luxuriant growth on poorer soils, would be dark in color. The best and lightest grades of honey will be secured from a luxuriant growth of cotton on rich soil during moist balmy weather.

THE GROCERY'S BEE.

Jimmy and Tommy were watching me over the fence as I was "knocking swarming on the head" at one of my out-yards. When through with the work I said to them, "Well, boys, do you all ever have honey over at your house?"

Said Jimmy, "Yes, sir; but we somehow don't like it very much any more now."

"But why, Jimmie? That's strange. You must not have good honey. Where did you get it?"

"Ma got it from the grocery," said he.

Now, I had an idea what the matter was, and so I asked the boys to have a taste of some *real* bee honey. This seemed to appeal to both of them. They fell right in, and after a good taste of it Jimmie said, "My! Tom, this *is* real bee honey; golly! how I wish our grocery had a bee!"

Since the workings of the pure-food law we can be sure that the "groceries" will

from now on "have a bee," and handle nothing but the pure article. Now let us, as bee-keepers, endeavor to furnish good well-ripened honey, for the "grocery's bee" alone will not make the satisfied customers.

AN IMPROVED STRAIN OF BEES.

While in the Beeville country (Texas) some time ago I ran on to what was known as the Atchley improved strain of bees; and many of the bee-keepers who had some of this strain in their yards claimed that this was an improved strain over others they had, especially for honey-gathering. I became inquisitive, and wanted to know how these bees were "fixed up," so I had Mr. Willie Atchley, of Beeville, write me about them. It will be remembered that Willie Atchley was at one time well known throughout beedom for his method of grafting queen-cups by transferring into them "baby, cradle, and all," from the old combs. He writes: "For the Atchley improved stock I cross, by mating daughters of pure Cyprian mothers to pure Carniolan drones. Then daughters from these queens are mated to pure Italian drones, and you have the Atchley strain. I use Cyprians for their get-up and get; Carniolans for gentleness and white cappings of comb honey, and Italians for compact brood-nest, non-swarming disposition, and color."

OH WHAT SHADE-BOARDS!

With one of the apiaries bought last year I got also a lot of about 50 shade-boards that were the most abominable curiosities. They were made of two pieces of full two-inch stuff, 36 inches long and 12 inches wide. These were cleated or nailed on to two pieces of 2×6×24 inches, and over the joint was nailed a piece of board 1×4×36 inches, and some even 6 inches wide. Although I have not heard of such, shade-board lifters would be almost a necessity where such shade-boards were used. As they are all made of heavy yellow pine they weigh from 50 to 70 lbs. each—more when wet. These cost about 75 cents each for material alone. Shade-boards are necessary when the hives are out in the sun; but they should be light and cheap. Sugar-barrels can be bought here for ten cents, and one will make three shade-boards 24×30 inches. The staves are simply nailed on to one piece of board 24 inches long, placed across the middle of the staves. A brick or small stone has to be used on these to hold them down; and as I use a brick for a "marker" on each hive, two birds are killed with one stone, and there is no objection to them.

Shade-boards, besides their use for shade, are valuable protectors to the covers of the hives, especially in hot climates where covers are drawn into all kinds of shapes. I have tried *all* the covers that have come to my notice; and while some are better than others, they all have to yield to the power of the elements as they exist in such a climate as we have here. For this reason I have sometimes thought seriously of using a protecting-board over the covers. Be these never so flimsy, they will lengthen the life of a cover considerably—enough so, I believe, to pay over and above for the extra cost of the boards and the trouble of having to handle them while on the hives.

TRAYS FOR MOVING BEES.

Those trays on page 555, for moving bees, are all right. I saw them used, some eight years ago, in moving 80 or more colonies over 40 miles of rough rocky roads, and all arrived in good condition except two combs broken in two colonies. The view on p. 555 is faulty in that it does not show two cleats nailed under the tray, one across each end, to raise it up an inch for ventilation, which is very important. The photo shown herewith was taken immediately after the colonies had been lifted out of the tray and set on their stands with the original hive-bottoms. The trays are still seen beside the hives.

COLONIES JUST LIFTED OUT OF MOVING-TRAYS.

Concerning these trays Mr. Arthur Worden, of Sabinal, Uvalde Co., Texas, has this to say:

"I make a frame or bottom for each hive, just large enough for the hive to drop inside of cleats that run around the ends and sides of the frames. That will keep the hive from slipping about, and also keep the bees from getting out. In the bottom of these frames is left an opening 6 inches wide and the entire length, and screen wire is tacked over it. That will give plenty of ventilation. Also nail a one-inch cleat under the bottom, at each end, so as to let the air circulate underneath the hive when you place them in the wagon."

Nail your covers on so they will not jolt off, and set your hives into these frames, and you are ready to load. A spring wagon is best to use.

I think that ventilation from the bottom is much better than at the entrance, because there will be more light there than at the bottom, and the bees would naturally come to the light in trying to get out. I have known them to cluster at the entrance so close as to cut off all ventilation, and smother to death the whole colony.

HONEY PLANTS AND FLOWERS.

"I think I read in one of the bee-papers lately that the first pollen in Doolittle's locality was from the skunk-cabbage. Is this right, Mr. Doolittle?"

"Yes, Mr. Smith, that is right."

"Now don't think me impudent; but I want to ask how you know. I have hunted all about to see where my first pollen comes from, and I am inclined to think it is from the pussy willows."

"What makes you think it is from the willows? You live so near me that it would seem that your bees would get their first pollen from the same source mine do."

"Yes, and that is why I thought you were mistaken."

"But you have not answered my question regarding what made you think that your first pollen comes from the willows."

"My reason for so thinking is that this first pollen is of the same color as the bloom on the pussy willows."

"You are right as to the color; but did you find the pussy willows opened when this first pollen came in?"

"No. Neither did I find any other flowers open; but from the color of the pollen I judged that the pussy willows must be in blossom in some early-sheltered place."

"Do you have any skunk-cabbage?"

"Yes, it is quite plentiful over in my back lot, down on the swampy end of it. I went over there one day later on, but it was not even leaved out then. This was a week after I saw this first pollen coming in; and this was another reason why I thought you must be mistaken."

"Well, now, next spring when you see this first pollen coming in I want you to go over there and look for a little reddish-purple-colored hood-shaped thing from 2 to 2½ inches high; and when you have found one, just peer inside of this hood, when you will see a little round yellow ball, about the size of a marble, this ball being covered with little spikelets from which the pollen hangs; and if the day is favorable you will find from one to three bees in each of these little hoods gathering the pollen; and if you doubt that such is the blossom of the skunk-cabbage, just break off one of these purple hoods and smell of it. In looking in you will note that the space about this pollen-ball, between it and the hood, is very little more than that required by the bee, so that in gathering pollen from this source the bee becomes more or less dusted over with the pollen, often having about as much on its body as in its pollen-baskets. Did you notice whether the bees bringing the first pollen were dusted over or not?"

"Yes. I noticed that very many of them were."

"Exactly; and when you knew that the bees were working on pussy willow, did you ever notice their bodies covered with yellow dust?"

"Really, come to think of it, I do not so remember, which makes me think that you are right and myself wrong, after all. But the pussy willow comes on nearly as soon, does it not?"

"That depends on the weather. If it continues warm, then in a very few days the willows will open, and almost on their heels come the soft maples and the elms. But if cool weather comes on it may be two or three weeks after the skunk-cabbage before any more pollen is gotten. This cabbage is so early that it often gives the bees pollen before the snow is fairly gone."

"What flowers give the first honey?"

"The first nectar gathered comes from sap from the hard maples, from where the trees have been injured by frost, squirrels, or otherwise during the winter. If this injury is on the south side of the tree, the sap flows down over the bark, and the sun partially evaporates it till it is boiled down enough so the bees have quite a feast. Some years I go through the woods with a pole having a sharp spike on it and strike this into the trees on the south side some eight on ten feet from the ground, when, if the weather is right, the bees have a good time gathering this sweet, which helps much about early brood-rearing."

"Well, that is quite a scheme. I never thought of doing that. But about the flowers?"

"Before the sap scheme is fairly over, the woods flowers begin to open, such as the adder-tongue, liverwort, bethroot, etc., from which the bees get a little nectar, which helps a little on brood-rearing, but they never secure enough from any of these sources to store much in the combs. The first source of nectar which is gathered in sufficient quantities so we really get any honey from it comes from the white and golden willows, which intermingle their nectar with that from the hard maples, at which time, if the weather is right, a gain of from ten to fifteen pounds per colony is made, and the bees start out for the season in earnest."

"After these come the fruit bloom, black locust, raspberry, white and alsike clover, basswood, buckwheat, and fall flowers, in the order named."

"Yes, that is right, only you have missed some of the sources of honey."

"I guess not. What have I missed?"

"First, the wild mustard. This often gives a greater yield in this locality than white clover."

"How is that? How do you find out all of these things?"

"By using a little time and my eyes. Have you never noticed fields of grain yellow with the wild-mustard bloom just before the blossoming of white clover?"

"Yes; but I did not suppose the bees got any thing but pollen from that source."

"Did you ever go to these fields and watch the bees at work on them?"

"No."

"Had you done so you would have seen that the bees were lapping up the honey or nectar, rather than gathering pollen. But you must have noticed that some of your sections which you supposed were being filled with clover honey were quite dark after being finished, when you held them up before a strong light."

"Yes; but that darker honey came from the alsike clover."

"Oh, no! It was the mustard honey that gave the dark look. This I know, not only by causing the bees to give up their loads of nectar when working on the mustard, but by sections filled from this source when the clovers were not yielding nectar."

"What else is there which gives nectar that I did not mention?"

"Chestnut and whitewood (or tulip, as some call it); cultivated teasel, the second crop of red clover, and occasionally honey-dew, so called, coming from certain aphides."

"How did you find out about all these?"

"By following the bees till I found out these different flowers. One Sunday morning in the fore part of September, when I first awoke a little after the break of day I heard through the open window a great noise of bees in flight. My first thought was that I had left some sweet exposed, and a general robbing was going on, for the bees had been doing nothing for several days. I dressed quickly and rushed out, supposing I had a very undesirable job to look after before breakfast. Upon reaching the hives there was no sign of robbing, but the bees were pouring out and in, a large part of those coming in being so loaded that they fell short of the entrance. Before noon the work had ceased, and nothing more was done that day. The next morning I was astir with the first streak of daylight in the east, and, almost as soon as the bees could see, the excitement began, and the bees loaded with nectar came in as before. I started out and made a circuit of the apiary to find out which direction the bees went. Nearly all went in one direction, swinging round the house and shop (they were southwest of the house); they passed out over the lawn and road, going off to the northeast. A large piece of woodland lay in this direction, about three-fourths of a mile away in a direct line. I hitched up the horse, and started out; first east, passing under the line of flying bees; then at the next turn of the road I went north, and again passed under the bees. Again I turned east, and the third time passed beneath the bees, many of which were flying toward home with their loads only just above the buggy-top. I now drove through a lot to the woods, upon reaching which I found them working on the hickory-trees, and only on these. Climbing one that was low at the edge of the woods I found the upper sides of the leaves all sticky with sweet, which was thrown off by the aphides, which were feeding on the under side of the leaves above. After the sun had shown out for a spell the aphides seemed to cease throwing off this sweet or else the sun dried it up so the bees got nothing, while during the night, through the moisture, or a throwing-off of more, the leaves would be covered the next morning again, thus giving the bees work for a week, when a big rain came on, after which nothing more was obtained. But during that week the hives increased from 15 to 25 pounds each, which was the largest yield of so-called honey-dew I ever knew."

"And this is the way you find out what the bees are at work on?"

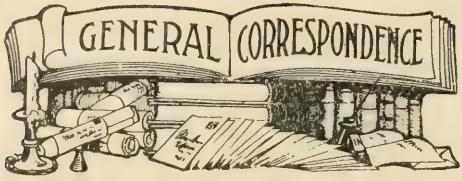
"Yes. That is something like the way I have tracked out all the sources from which bees gather nectar and pollen in this locality."

"Do you think you are any better off for knowing all the sources your bees secure honey and pollen from than you would be if you were ignorant of these matters?"

"I think this: If you would succeed, it is your *business* to know from just what plants and flowers your bees gather pollen and nectar, so you can put your maximum amount of bees and your honey-yielding flowers together. Then you have *success;* and the looking after the pollen bloom, as a source toward that maximum of bees on the stage of action, at the right time, bears no trifling relation to the matter. A thorough knowledge of your location is second only to having your bees in sufficient numbers to take advantage of the honey harvest when it comes."

FIVE-BANDERS NOT HARDY.

MR. F. A. LOCKHART, of Lake George, N. Y., in referring to the recent very unfavorable spring, draws attention to the fact that his five-banders suffered the most heavily of all. F. A. Salisbury, in the same mail, writes that his extra yellow stock are all "gone up." N. E. Cleaver, of Emporium, Pa., tells practically the same story. We have observed time and again that the five-banded or very yellow bees do not seem to be able for some reason to stand a severe winter or a bad spring, like the leather-colored stock. It has been suggested that this extra yellow blood is a sport from the Italians of southern Italy, and that the leather-colored Italians that do not sport to yellow are from northern Italy or Switzerland. If this be true, the tropical ancestry of the one and the cold mountainous environment of the other may account for the difference in hardiness.



HOW TO HANDLE BEES IN CLOSED-END FRAMES.

The Right and Wrong Way.

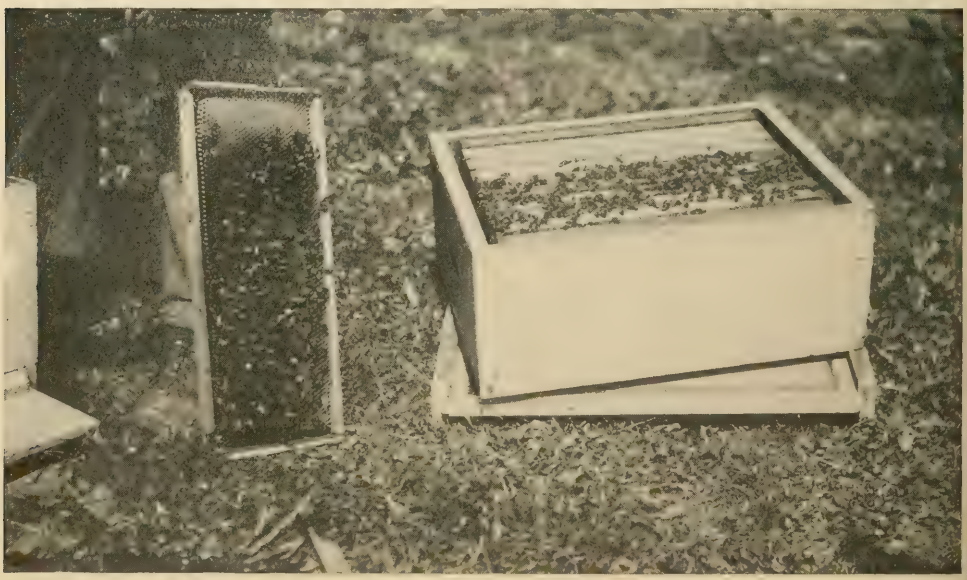
BY E. R. ROOT.

[Considerable interest is now being manifested in the subject of closed-end frames — especially so, as they have made so good a showing this backward spring. A good many have the idea that they are not only difficult to handle, but awful bee-smashers. In the hands of some people, perhaps the charge would be sustained; but, like every thing else, there is a right and a wrong way to handle them. As this has been fully explained (at least for one type of this frame) in a new booklet entirely rewritten by E. R. Root, entitled "Facts About Bees," we have thought best to reproduce here a chapter or two together with the special illustrations that were prepared, explaining the whole process.—ED.]

We will assume that you have a colony of bees in a hive, and that the same have been placed in the back yard. You will now desire to know how to open a hive and how to handle it. To open the hive blow three or four puffs of smoke into the entrance of the hive. This is to drive back the guards. With a screwdriver or hive tool enter the blade between the cover and the top of the hive or super as the case may be. Keep on crowding the blade until a little gap of about a sixteenth of an inch is formed. Blow a little smoke into this gap. Now give the screwdriver a slight downward pressure, thus making the gap wider. Blow in a little more smoke. Leave the screwdriver in place, with the right hand gently lifting the cover of the hive. We say "gently," because this is very important. A quick nervous jerky motion is liable to cause the bees to fly out and sting. As the cover is being lifted, with one hand blow a little smoke—not much—over the tops of the frames. Lay the cover down in the rear of the hive, bottom upward. If there is a super on the hive remove this in precisely the same way, prying the screwdriver between it and the lower part of the hive, in the mean time using a little smoke. The super should now be set down on the cover in such a way that the diagonally opposite corners just rest on the cleats. This will leave a space of about $\frac{3}{8}$ inch between the super and the cover.

In handling bees, always make it a point to avoid killing or smashing them. A bee that is crushed carelessly is liable, by its little squeals, to start the other bees.

Well, now we are ready to remove a comb. Pick up the screwdriver with one hand and the smoker with the other. Enter the blade between a pair of frames, and give it a slight twist, blowing a little smoke down between; next loosen the follower, after which it may be removed. Break the connections on each side of the frame to be removed, then set down the smoker and the screwdriver. With the balls of the fore fingers passed down between the ends of the hive and the frame, grab hold of the end-bars of the loosened frame. Very slowly lift it upward. If you find it still sticks, pry the frames on each



MANNER OF SETTING A HIVE ON A HIVE-COVER IN SUCH A WAY AS NOT TO KILL BEES; HOW A FRAME CAN BE LEANED AGAINST THE LEG.

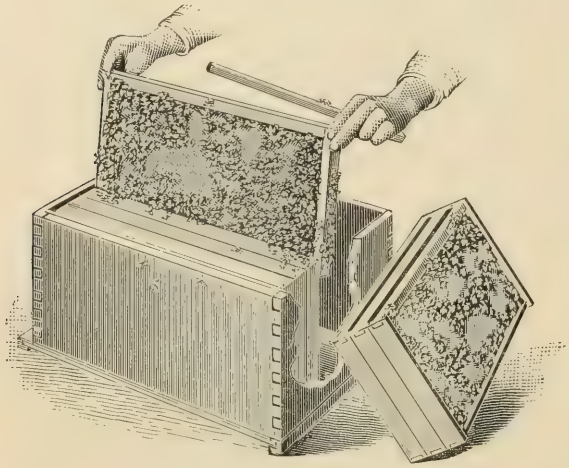
side a little further apart, when it should come out easily. When it is removed, look it over and set it down against the hive or some other object. Loosen up another frame to close the hive up. Put one frame in at a time; but in doing so be careful not to kill any bees. This can be done by sliding the edges that come in contact with each other

METHOD OF GRABBING CLOSED-END FRAME WHEN REMOVING IT FROM THE HIVE.

ABOUT TO INSERT A CLOSED-END FRAME INTO THE SPACE FROM WHICH IT CAME.
When in place, be sure to crowd the frames tightly together. This is important.

in the same way. After examining the brood and the young bees, and after having found the queen (she looks like the other bees, only she is a little larger and longer) then proceed *past each other on a perpendicular line*, as shown in the appended illustrations, in such a way as to brush the bees off; or, if preferred, a little smoke may be blown down be-

tween the edges that come in contact, driving the bees away; but if there are many bees in the hive this is impracticable. Insert all the frames one by one till all are in place, and then put back the follower.



[Note how the bees may be brushed away as the edges of the frames are slid past each other.]

As a general rule it is not necessary to remove *every* frame. The practical bee-man will soon learn how to tell from examination of a single frame what the whole colony is doing. If eggs and brood in various stages are found on the comb, it may be assumed that a queen is present. If the colony seems strong, and the bees are flying at the entrance vigorously to and from the fields it may be inferred that the queen is doing her full duty; so it is a general practice not to pull out more than one frame. If this is put right back into the slot from which it came, even if the end-bars are totally covered with bees, they will be brushed out of the way in the operation *and not a bee will be killed.*

Holding the smoker between the knees while handling the frames.

HOW TO MAKE AN ARTIFICIAL SWARM.

Suppose the colony has become so strong that you would like to make an artificial swarm by "dividing," as we say. Split the brood-nest into two or three divisions by means of the screwdriver and a little smoke. Each division of three or four frames held together by propolis connections can be removed in solid blocks and inserted in one or more empty hives; and in this way the colony will be divided into two or three parts. If empty frames of foundation be now placed on each side of the bees thus removed, we shall have the nucleus of a new colony; but it should be understood that the flying bees will go back to the old stand, and an effort should, therefore, be made to take the most of the bees away to the new stands, for the flying bees will soon go back and take care of any brood left at the old stand. In the course of two or three days an examination will show in which nucleus or division the queen is present. If eggs are found, she is surely in that hive. If queen-cells are built, then just as surely she is not there. See how the bees supply themselves with a queen.

THE WRONG WAY TO HANDLE CLOSED-END FRAMES.

[The illustration shows the wrong way to handle closed-end frames. They should always be made to stand together in close contact of twos, threes, and fours. When so placed they will not tumble together in confusion, killing bees between the contact edges. The only way to straighten up a mess of this kind without killing bees, is to pick up one frame at a time and slide the edges of contact down past those of another frame; this will shove the bees out of the way without killing or maiming any. If, on the other hand, they be pushed up together on their points of support sidewise the killing of bees will be inevitable. To save time, the frames should always be handled in blocks of two or more.]

In these various manipulations, it will be seen it is not necessary to kill a single bee.

and, what is more, closed-end frames can be handled in blocks of two or three. When so handled, the several frames in each block are not pried apart where stuck together with natural bee-glue. With an ordinary unspaced Langstroth frame, a beginner, at least, would not be able to handle two or three frames at a time, for he would have to stick his fingers down between the several combs to keep them apart and from smashing bees, and run

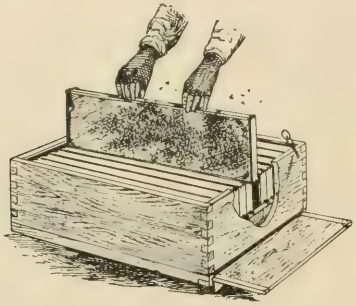
SLIDING A CLOSED-END FRAME DOWN BETWEEN TWO OTHERS.

[If the spacing be an easy fit, any bees that may be on the end-bars may be displaced without killing one. When all the frames are in place, *be sure to crowd them tightly together*. If left a little way apart, the bees will fill up the cracks with bee-glue, making separation afterward hard and disagreeable.]

HANDLING CLOSED-END FRAMES IN GROUPS OF THREE AT A TIME.

[This illustrates how the frames can be handled in blocks of two or three at a time. The propolis or bee-glue, holds them together while this is done. When the frames are in place, don't forget to crowd them up tight.]

the risk of being stung; and if he were stung he would be liable to drop the frames and be a sadder and wiser man therefor, and in all probability he would never want any thing more to do with bees. Right here a closed frame allows one to handle two or three at a time, without any danger of a catastrophe of this kind. The Hoffman frames can be handled in the same way, and with the same facility.



THE RIGHT WAY TO HANDLE DANZENBAKER FRAMES.

Closed-end frames should not be pried apart singly, but in blocks of two or more. When so handled, they will not tumble over against each other, as shown in illustration just preceding. When a single frame is taken out, the next adjoining ones should be pried a little apart from it. It may then be removed, and when inserted in the same way; and all bees that may in the meantime have crawled over the contact edges will be shoved out of the way as the frame descends into position. Notice that the pin-support is out of the way where it can crush no bees. When the frames are in place, crowd them together tightly to keep out the bee-glue.

HOW TO BUMP THE BEES OFF A COMB.

The method here shown (the Dr. Miller plan) illustrates one plan of jarring the bees off by a sharp quick blow of the fist on the back of the hand holding the frame.

FULL SHEETS OF FOUNDATION.

Naturally Built Comb Lasts only a Few Years; the Use of Queen-excluding Zinc.

BY C. W. DAYTON.

For about ten years I used full sheets of foundation in brood-frames; but about seven years ago I decided to let the bees build their own combs, as it was cheaper at the beginning, and I thought I could see methods by which I could compel the bees to build natural combs free enough from drone comb for practical purposes; but during the last two or three years I have been getting a decided leaning toward full sheets of foundation at all times. What a man may *think* has very little influence on what the bees will *do*.

They will build worker combs very nicely when new strong swarms are hived and there is a steady flow of honey from the flowers; but if these particular requisites happen to fall a little short, there may be very unsatisfactory work done. If some of the combs remain for completion the next spring it will be quite sure to be drone. New combs which are perfect do nicely for two or three years until they begin to be clogged with cocoons. Then they begin to tear down and add pieces here and there. Some comb gets moth and mouse eaten; some will contain pollen which, in damp weather, or in the outer corners of hives, will mold, thus causing patches and holes to be made clear through the combs to get it out. Robbers often tear holes through the combs in their strife for the honey. Then there are all kinds of accidents constantly happening, which break or tear a piece out of a comb. It is a small matter, seemingly, and we may promise to fix it; but it is usually neglected, and so on; and this constant routine, kept up for a few years, renders the combs in bad shape. We finally decide that the combs should receive a wholesale renewing, and we decide not to repeat the trial of natural combs again. That is my experience.

But if the frames were put up without holes for wire, at first, it will be difficult to pierce them after the frames have been nailed and in use. But the machine, as shown in the Feb. 15th issue of last year, will do the work.

It will not be best to make an entire change in a single season. The job is so great as almost to discourage one from continuance in the business. The best way is to renew about two combs in each colony every spring. As the bees are being built up for the harvest we have a good chance to see which are the combs in a colony which are in greatest need of rejection. Then if the two sheets of foundation are inserted the col-

ony will be considerably encouraged in drawing them out. I believe one of the helps to cause swarming is a brood-chamber full of old combs, and the presence of many drones another inducement.

ANOTHER METHOD OF SHAKING BEES OFF THE COMBS.

A strong hold on each edge of the frame is taken; it is then given a quick jerk downward and upward. If done right, it will dislodge all the bees.

For 100 colonies it would require 200 new frames, and for 200 colonies 400 new frames. It is best to keep these extra frames on hand, and prepare the foundation and frames for use at odd spells and rainy days and evenings when there is nothing else that can be agreeably worked with; and the job will not be so large but that it can be done without hiring help, as would be the case if it is put off until the arrival of the actual work in the apiary. When the season starts in, there is always enough to keep us more than busy in attending to swarms and arranging the receptacles for honey. If this work is brought into the kitchen, in small amounts at a time, the children can assist in some parts, and will soon learn to take an interest in it, and learn to notice just how each part must be done, in a certain invariable way.

The time of a farmer can usually be had at $1.50 to $2.50 at some seasons of the year; but at seeding time or thrashing it is worth $10 to $20. So in the honey harvest the bee-keeper needs all of his time and thought to care for the crop properly. A mistake may seem trivial at certain times; but if it has to be corrected in the rush of the season it becomes expensive.

One bee-keeper put in 5000 frames with inch starters, and without wire or holes for wires. Time will tell when he begins his career of tribulations. They think a day or two of cutting off the heads of drones will suffice. In an apiary of 300 or 400 colonies this work would almost keep one man busy. As soon as the heads are clipped once, the queen proceeds directly to replace them; and she will go into the upper story as soon as anywhere, to lay her drone eggs. I use excluders to keep the queen down, up to the time the honey-flow begins, when they can be taken off and there will be no further trouble. The honey seems to crowd the brood out.

As to excluders being used on the hives all the time, I would not. Still, I never could see but that the colonies having excluders on all the season got their supers filled as quickly as where the excluders were removed. Of course, it certainly is easier for the bees not to have the excluders on. There is about one queen in 25 which seems to prefer the upper story all the time. If a third story is put on she goes directly into that. If we let such queens have their own notions we should not get much honey from that colony; but if the queen is confined to the lower story we shall find the super filled just as compactly and neatly as any others. In such a case an excluder will save several dollars' worth of honey.

I have 150 excluders of the wood-zinc kind, and wish I had 150 more. We lose money, and that rapidly, to undertake to do without the necessary appliances. The next thing is to see their necessity. But a necessity is not always necessary all the time; and because it is not necessary all the time, many fool themselves by thinking they can be dispensed with *all* the time.

Chatsworth, Cal., March 25.

DANDELIONS FOR BEES.

A Land Flowing with Milk and Honey; Dandelions for Cows, etc.

BY A. I. ROOT.

I have just had one of my happy surprises. For a year past or more the children (and grandchildren) have been petitioning for a cow; but I said it would cost more to get a cow and care for her properly than to buy milk of the milkman, and so the matter was put off. Finally our teamster bargained for a half Holstein-Jersey cow during my absence. I said, "All right, boys, go ahead; but if you do not find your cow a white elephant in a few weeks I shall be much mistaken."

Of course, we expected to turn the cow out to pasture when the grass was up; but we do not have a fence on the ranch, so the matter was delayed while discussing the fence problem. Now let me digress to tell you that our orchard was for many years used for market gardening, and, as a consequence, it is well tile-drained and heavily manured with manure from the livery stables. The

last crop we put on it was potatoes under straw. The whole orchard was mulched heavily with wheat straw. As the season was very wet, the potato crop was partly a failure; but the straw rotted all over the ground. Mrs. Root said if it would only kill all the dandelions it would be a good investment. Well, the straw killed every thing *but* the dandelions. They pushed up through, and I doubt if anybody ever saw a better "stand" of dandelions. This spring, when the cow was bawling in the stable to get out, the dandelions were up and dressed, and just began to show their yellow blossoms. Now, here is where my happy surprise came in. Perhaps I am stupid, and behind the times; but I did not know that a cow would *eat* dandelions. She was tied to a stake by means of a rope only a rod or two long, and put out to pasture. She soon gave us to understand that dandelions were the correct thing so far as *she* was concerned. Every bud and blossom was gathered up, and when the boys were bragging about more milk than would go into the biggest-sized tin pail (14-qt.) I said I could not believe that the milk could be good. But I am glad to tell you that the milk suits me in exactly the same way the dandelion-blossoms seemed to suit the cow, and we have more than a pailful of

DANDELIONS IN FULL BLOOM.

[The above is a glimpse of a four-acre lot on which I grew 375 bushels of potatoes per acre on the whole field. It illustrates what may be done with tile and only two rods apart, and a heavy application of stable manure. When I spoke to our teamster about plowing it up and seeding it over again to get rid of the dandelions he said if I did it would spoil his best field for timothy hay, and he did not seem to think the dandelions early in the spring were much of a detriment to timothy that came on after the dandelions were all gone and out of sight. I wish our experiment stations would tell us what they think about this. Are not the dandelions worth for milch cows all they subtract from a growth of timothy that comes on later?—A. I. R.]

beautiful rich milk—twice a day. The neighbors told us that butter made from this kind of milk does not need any coloring, and I can well believe it. Now, the surprising thing to me is that, while people have been talking about waging war on the dandelion pest, nobody has said a word, so far as I can remember, about its value for milch cows. It makes a big feed quicker than any other plant I know of—away ahead of the clovers and grass. Along near the path of the steam-pipe that goes under ground from the factory to the house we have dandelions in bloom in March. Why have not dairymen and milkmen said something about this before, and utilized for early feed for cows this plant that has been called only a pest, so far as I can learn?

I have been expecting somebody would object to the *quality* of the milk; but in Rootville every individual, including grandpa and the babies, declares the milk is "without spot or blemish." I told Mr. Calvert I would take back all my objections to the cow. Our poultry-journals are talking about egg-machines—hens that are bred so particularly for eggs that they are literally a machine to convert all kinds of food into marketable eggs.

Well, this cow of ours in this little dandelion-orchard is the best "milk-machine" I ever saw or dreamed of. While the dandelions last, a very limited area of the plants we have in that orchard would keep the cow giving more than a pailful twice a day. I have been watching these things, and the places where she was staked one month ago now furnish us once more a pretty good feed of appetizing "dandelion greens."

Well, this orchard is not the only place where we have that tremendous crop of dandelions. Up on the hill where I succeeded in getting 375 bushels of potatoes to the acre, the dandelions stand more than knee-high, so thickly that it seems to me as if there would not be any chance for the grass. Mr. Bowman, our teamster, informs me

LARGE SPECIMENS OF DANDELION BLOSSOM, BUDS, AND LEAVES, FULL SIZE, AS THEY GROW AROUND MEDINA.

[This blossom measures, as will be seen, 2¼ inches across, and we have found many as large as 2¾ inches, and, once in a great while, 3 inches in diameter. The standard size of blossom is from 1¼ to 1½ inches.—ED.]

that, after dandelions are past their season, he gets his best crop of timothy hay right on that very ground. During this cold backward spring the bees have been bringing in more honey and pollen from our acres of dandelions than I ever saw them before; and it looks to me now as if this plant that has been called only a pest is one of God's greatest and most precious gifts in making our Northern Ohio clay soil "a land flowing with milk and honey," and *both* at the same time.

Of course, I am aware that dandelions are grown in the East, especially in the region of Boston, for greens; but I have not heard much about it of late years. I think the doctors have called bleached dandelions (such as are grown especially for greens) a very wholesome vegetable. Now, I wish some of the milkmen would tell me whether our experience is an exception to the general rule. Is that cow an extra cow? and is our locality especially favorable for dandelions? or is the present backward spring especially favorable for the dandelions, for milk?

After the above was dictated I found that Ernest had also written an article in regard to dandelions for bees, but it covers somewhat different grounds, and we give it here.

DANDELIONS.

Their Economic Importance, Especially this Season.

BY E. R. ROOT.

The dandelion in the vicinity of Medina has made a most remarkable showing this spring. The cold backward season has been unfavorable for its growth; but during the first few days of warm weather it came out in all its glory. Our fields and our lawns were fairly yellow with it. It came out just in the nick of time. There was no fruit-bloom out then, and the way our bees swarmed upon it almost made us think of the roar on the basswoods of midsummer.

We have always regarded the dandelions as a sort of pest on our lawns; but recent authorities say that it is not a pest; that dandelion greens, dandelion roots, and even dandelion blossoms, are beginning to have some commercial value. Both the roots and the plants are sold at high prices in Cleveland to-day; and yet one of our great dailies, the Cleveland *Leader*, has just come out urging all schoolchildren in the city of Cleveland, with a population of half a million, nearly, to make war on the dandelion; and the children did turn out as one big army to destroy it, root and branch. Did they destroy it? The more they fight it the more they will spread it. Merely cutting off the plant an inch or so below the ground will only be the means of spreading it the more, for every vestige of the root must be destroyed—a thing practically impossible.

The warfare against the dandelion seems to be quite general. Governor Hoch, of Kansas, has organized a crusade against it; the *Gem State Rural* classes it as a nuisance on the lawns in Idaho; the *Pacific Rural Press* says it is gaining ground rapidly in California, and now the *Rural New-Yorker* says it is very common in the East. But in no case are the farmers complaining about the dandelion, for they realize its good fodder value for all kinds of stock.

As a matter of fact, the dandelion will grow luxuriantly on dry hard clay soils when the ordinary grasses would turn brown and die; in fact, dandelion likes a rather dry soil, and that suggests the means of its extermination, or, rather, we would say curtailment of its growth. A lawn should be frequently manured, and then rolled thoroughly, and seeded often with lawn-grass seed. This process, continued with frequent watering, will cause the dandelion to give place to the lawn grass to a great extent; but the various means used for cutting out dandelion do absolutely no good. They rather spread them, because, when the tops are cut off, the roots will divide up into more plants, making the lawn more numerously covered than before.

The editor of the *Rural New-Yorker*, Mr. H. W. Collingwood, one of the best authorities in the United States on agricultural subjects, in answer to correspondents in the last issue of his paper for May 18, asks, "Why exterminate it?" and then adds:

> Even if the extermination of dandelions in a given locality were not hopeless, why try to accomplish it? The plant has both beauty and utility. Tons of the leaves, both wild and cultivated, are used in early spring as pot-herbs, or salad, and most toothsome and welcome it is when properly prepared; the extract of the root and juice of flower-stalk are thought to have value as medicine, and the ground dried root has even been used as a tolerable substitute for coffee. Of the attractiveness of the bloom, there can be no doubt. Attentively considered, it will be seen that it is a model of symmetry. One might almost call it the one perfect flower. Nothing could be added or taken away without marring it. The only trouble is, it is far too common and unvariable.

The dandelion as a bee-plant is coming to be more and more important. It yields both pollen and honey at a time of year when they will do the most good. They usually precede fruit-bloom, and help to give the bees a stimulus that is very much needed just as they come out of winter quarters. While there is no such thing as dandelion honey on the market, and probably never will be, yet the little that is gathered, together with the pollen, goes to make brood at a time of the year when it counts.

While we have no desire at all to sing the praises of what may be regarded in some quarters as a pest, yet a great many valuable plants, as well as animals, have been condemned time and time again, only to find in after-years that they were really friends. Sweet clover is an example of this; and in the bird line we will mention that the crow, once regarded as a farmer's enemy, is now considered a real friend. He is a scavenger, and a gatherer of injurious insects, while the ever-present sparrow, also regarded as a general pest, is not altogether a nuisance; indeed, good authorities seriously question whether it does not do more good than harm in killing noxious insects, and acting as a

scavenger of the streets. Shall we then be in haste to condemn a beautiful plant, beautiful if it were not so common?

A SEASON'S WORK WITH SECTIONAL HIVES.

Swarm Control and Comb-honey Production; How to Find Queens Without Handling Frames; the Two-queen System of Honey-production.

BY J. E. HAND.

[The following article is of exceptional interest, for the reason that it touches on two somewhat debatable questions, namely, the feasibility of finding and catching a queen without touching a brood-frame, and working the two-queen system — that is, two queens in one hive.

It was R. L. Taylor who, some ten or twelve years ago, at one of our bee conventions stated that he could find and catch a queen without handling a frame; for he was then using, as he is now, a Heddon divisible-brood-chamber hive. His method, as we now recall it, was somewhat similar to that described by Mr. Hand. Mr. Heddon followed a different plan; getting the queen by shaking a section until the bees and queen fell out on the ground; but this was practicable only with black bees. In Europe the straw-skep bee-keepers have for years had various plans of getting their queens. We have no divisible-brood-chamber hives in our apiary just now or we would try Mr. Hand's method; but our Mr. W. K. Morrison, who has worked these hives for years, says the method is perfectly feasible, for he has worked it himself. In the *American Bee Journal* for May 30, J. E. Chambers has a scheme for trapping the queen without handling a frame. He is a user of a sectional hive.

Modern bee culture is progressing more and more into handling frames less and hives more, whether Langstroth in pattern or not; but it has been insisted on by the frame-handlers that queens could not be found and caught without pulling out the combs, and that meant taking frame after frame until the queen was located.

We are glad to bring this subject before our readers, and trust that, if any of them have practiced the Hand, Taylor, or Chambers method, they will let us hear from them as to how it works, whether a failure or success.

The other subject, the two-queen system, is receiving more and more prominence; and as so many have made a success of it, some conservatives, as well as the enthusiasts, may do well to give this their careful consideration. By the plan that Mr. Hand here works, he is not only able to produce a crop of honey in a poor locality, but manage a poultry-farm of some 600 or 700 chickens; for, be it said, poultry is his principal business.

It will be noticed that he does not raise any question as to the success of any of the plans here advocated in the hands of others. But as he is able to make these short cuts, thereby making honey and money when some of the rest of us fall down, perhaps we would do well to sit at his feet, for he is a bee-keeper of many years' experience; and, like Gamaliel of old, he is willing to tell what he knows. Mr. Hand writes:]

We are now coming to the interesting part of our subject. We will, from this on, demonstrate by actual work in the apiary the arguments that we have advanced in our two former articles. Our apiary contains 152 colonies, 80 of which were wintered on their summer stands in winter cases, with sawdust packing. The rest, 72 colonies, were wintered in the cellar under our dwellinghouse. This is a most perfect wintering-cellar; however, last winter, for the first time, the mice worried the bees in the cellar, causing many to leave the hives and become lost. Our hives were wintered without bottom-boards. Hereafter, when wintering our bees in the cellar, our hives will be mouse-proof.

It is now May 10, and up to this time we have not loosened a cover to any of our hives since last September. Here is something worth remembering: Don't loosen the covers to your hives in early spring. It causes a great deal of heat to escape from the cluster that is so much needed at this time. Satisfy your curiosity by tipping the hive up on end and looking between the combs from the bottom. As the weather at this time is fine, and the bees are pouring into the hives laden with pollen of many hues, we are assured that they are breeding up; so we will now remove the winter-cases from the 80 colonies that were wintered on the summer stands.

The sawdust that was used for winter packing will serve an excellent purpose in keeping down the grass in front of the hives. This is important, for we must not allow a blade of grass or a weed to grow in front of our hives to hinder the flight of our bees. Having our winter cases removed and piled up in a row along the side of the apiary, we will now clip our queens.

While we do not expect to have any swarms issue, yet somehow a habit of 30 years' standing is hard to break; and as we wish to make an examination of the condition of every one of our colonies at this time, it is but little more trouble to clip our queens so that we can tell their age when we come to supersede them; for we do not aim to keep any queen longer than two seasons, and we will hereafter winter a queen only once, superseding all our queens each season just before the honey harvest. This practice will insure a vigorous queen in every colony, and will practically do away with tinkering up weak colonies in the spring. Every thing hinges on the queen. A vigorous young queen will keep laying late in the season, and will give you a strong force of young bees to go into winter quarters, which means a strong colony next spring, providing the apiarist does his part in providing ample protection for the colony during winter. Since we have adopted this plan with our poultry, our profits in egg-production have been greatly increased, and also the mortality in our flocks has been greatly lessened. We have no more use for an aged queen than for a moulting hen.

We believe that this matter of allowing the bees to supersede aged queens in the spring is a great loss to the honey-producer, and that, by requeening each year, it is possible to secure an approximate yield per colony for each individual colony in the apiary, instead of having a few colonies store our surplus, and the rest do nothing, as is too often the case. Perfect swarm control is not to be accomplished by a single stroke, but is the result of a careful removal of a combination of natural influences that lead up to swarming. Not the least of these is an aged queen, therefore requeening each year previous to the main honey-flow is a great aid to perfect swarm control.

HOW TO FIND A QUEEN IN A SECTIONAL HIVE WITHOUT HANDLING FRAMES.

We will give the *modus operandi* of clipping queens, for the benefit of certain ones who can not see how queens could be found, etc., without handling frames.

First, we will blow a little smoke into the hive-entrance; insert a hive-tool into the entrance. An upward jerk loosens the hive from the bottom-board. Tip the hive up on end and blow a little smoke in between the combs from the bottom. Now place the hive back on the bottom-board; quickly separate the brood sections, removing the top one, which contains the bees and queen, placing it on an empty hive-body or a box; remove the cover; and if the queen is not seen by glancing quickly over the top-bars of the brood-frames, look on the under side of the cover; if she is not there, place a queen-excluder on the lower brood-section. Now place the brood-section, having your bees and queen on the queen-excluder. A few puffs of smoke from the top down between the combs will quickly drive the bees below, leaving the queen on the excluder. You can now take your time to pick her up.

CLIPPING QUEENS.

There are several methods of clipping. We take the queen by the wings with the thumb and finger of the right hand; transfer to the left hand, letting her grasp the end of the second finger with her feet; gently close the thumb and front finger against her thorax, letting the abdomen hang down across the nail of the second finger. With a pair of sharp scissors clip the lace from the wing diagonally, so as not to cut the bone. A queen looks crippled with her wing cut square off; and, besides, it must injure her. The time required to catch and clip a queen by this method is about two minutes.

Having all our queens clipped, and carefully noted the condition of each colony as to numerical strength of bees, amount of brood, and also of honey, the condition of each colony is marked by placing a stone on the cover, the location of the stone on the cover telling at a glance the exact condition of each colony in the apiary. We find, by taking an inventory of our colonies, that we have 50 good strong colonies; 50 fair to medium ones, and 50 fair to light ones, and 2 are queenless. All the light ones were of the

FIG. 1.—FINDING QUEENS IN SECTIONAL HIVES WITHOUT HANDLING FRAMES.

The first operation, as shown in this illustration, is to tip up the front of the hive from the bottom-board and blow a few whiffs of smoke between the combs. The object of this is to drive the queen to the upper part of the hive. A glance at the illustration in the last issue, showing the construction of the sectional hive, will make it clear that there is an unobstructed passageway on account of the very narrow top and bottom-bars.

FIG. 2—FINDING QUEENS IN SECTIONAL HIVES WITHOUT HANDLING FRAMES.

Just after smoke is blown up through the combs, as explained under Fig. 1, the top section with the cover is set to one side where the cover is removed. The queen, in most cases, will be found either on the under side of the cover or on the top of the frames next to the cover, as indicated by the arrow-heads. The illustration shows the upper section in its place over the lower one; but Mr. Hand, in his article, states that it should be set to one side, obviously for the purpose of preventing the queen from dodging down into the lower section when the cover is removed. If the queen is not found in either of these two places, proceed as per the directions under the next illustration.

number that were wintered in the cellar. We think this is owing to the depredations of mice while in the cellar.

As we are going to work our apiary by the two-queen non-swarming system, we will now unite the 50 fair to light colonies with the 50 fair to medium ones.

UNITING BROOD-SECTIONS OF DIVISIBLE-BROOD-CHAMBER COLONIES.

Uniting colonies should be done just at evening, after the bees have nearly quit flying, so as to avoid any disturbance from robbers; and by the next morning the bees are thoroughly acquainted, and no robber can get a foothold.

We will remove the covers from 25 of the 50 medium colonies, placing on each a queen-excluding honey-board. We will next go to one of the fair to light colonies, tip it up from the bottom, blow a little smoke up into the frames from the bottom, driving the most of the bees up into the top section of the hive; drop the hive in position on the bottom-board, separate the brood-sections, placing the top one with the queen and brood and most of the bees on the top of one of the 25 prepared colonies, leaving the lower brood-sections, on which we will place the covers that formerly belonged to the prepared colonies. These queenless brood-sections, with the few bees that will return, will make excellent nuclei for the mating of queens, which always come handy in any well-regulated apiary.

We will now prepare the remaining 25 colonies each with queen-excluding honey-boards, and proceed as before until all are covered.

We have united 100 colonies of bees, and have removed the cover from only 50, and in less time than is required to tell how it is done.

THE TWO-QUEEN SYSTEM IN DIVISIBLE-BROOD-CHAMBER COLONIES.

An inventory of stock at this time shows that we have 50 good strong colonies (each having one queen and two brood-sections, these were the strongest colonies in the apiary, and each colony contains a vigorous queen) and 50 three-deckers, each having two queens with a queen-excluder to keep them apart, and 50 single brood-section nuclei.

Our object in having two queens in a hive is a twofold one. First, we must have very strong colonies if we expect to take advantage of our short honey-flow, which is often of only a few days' duration. We never had a colony that was too strong in bees at such a time.

Tinkering with weak colonies during the honey harvest by giving them brood from other colonies to get them in shape to do work in the supers may do for some locations; however, such loose methods are not to be considered for a moment in such a location as ours, and we very much doubt the expediency of such methods in *any* location.

Every one of our colonies must be ready to enter the sections — in fact, to crowd the supers full of bees right at the very beginning of the harvest. It is *bees* that we want at this juncture, for hives do not gather honey; and a hitch in our management at this time would mean a loss of dollars. Another advantage gained by the two-queen system is keeping the brood-chamber clear of honey. The two lower brood-sections occupied by one queen being in the heart of the brood-chamber, no honey will be stored here, for bees do not store honey below the brood, and will quickly remove any honey that may be so placed by the apiarist. The fertility of the queen in the top section being in excess of the room of the same, very little honey will stop here. This insures a brood-chamber full of brood, and practically free from honey, which will, together with other methods to be described further along, solve the problem of perfect swarm control in connection with comb-honey production. The 50 three-deckers with two queens are to be worked for comb honey by our new system of non-swarming, and the 50 strong single-queen colonies are to be worked for extracted honey. Later developments will show, however, that the *extracted* honey will go into

FIG. 3.—FINDING QUEENS IN SECTIONAL HIVES WITHOUT HANDLING FRAMES.

If the queen is not seen on the cover or tops of the frames (Fig. 2), a queen-excluder is put on the lower section, and the upper section placed over it. Then smoke is blown down between these upper frames, and the section tipped up as shown. The queen will nearly always be found on the excluder.

the sections, thus demonstrating the only system of perfect swarm control that has ever yet been given to the public in connection with comb-honey production. When I say *perfect swarm control* I mean a system that will keep the bees and brood together with no desire to swarm. I am not going to promise you a system of perfect swarm control and then give you an artificial swarm destitute of hatching brood that is continually becoming weakened by the loss of old bees, and *that* hived in a brood-chamber so contracted with honey as to compel the bees to swarm out the next day and the next, and so on.

Birmingham, Ohio.

BUILDING UP THE APIARY FOR THE MAIN HONEY-FLOW.

An Entirely Feasible Plan for a Season like this; how to Get a Profit out of a Lot of Weak Colonies; a Hopeful View of the Clover Prospects.

BY OREL L. HERSHISER.

[The subjoined article presents a plan that looks at least as if it should give good results to the extent that a profit would be secured on an investment that might otherwise give no returns or even a loss. There are some who have tried the Alexander plan of building up weak colonies, and failed. To all such the Hershiser method will commend itself. We are glad to present it, as it may not be too late to apply it this season.—ED.]

Heavy winter and spring losses are reported in many localities in the northern and eastern States and in Canada; and the colonies that have pulled through are in many cases greatly depleted. Without some special care and manipulation many apiarists will get very little benefit from the white-clover and other early honey-flows. However, if the bees are properly and promptly handled a fair crop is possible from colonies that have come through in such condition.

Having had previous occasions to practice all the ingenuity I possessed in order to turn to profitable account the depleted colonies in my apiaries, resulting from severe winter and spring conditions, my methods, if followed by others similarly circumstanced, may enable them to win success where conditions and prospects seem to promise naught but failure.

At this time of year, spring dwindling is practically at an end, and every colony with a handful of bees will build up as rapidly as possible, the rapidity depending largely upon the number of eggs the small number of bees are able to incubate and the brood they can nourish and keep warm. The egg-laying capacity of the queens in these weak colonies being in no way impaired, the problem is how best to turn them to profitable account in the production of eggs from which to rear the bees in time for the honey harvest. It will not do to "spread brood" in weak colonies; and it may be remarked in passing, that, to obtain beneficial results from "spreading brood" under any condition of the colony, requires good judgment.

The plan that I have found most fruitful of good results in getting the greatest benefit from these weak colonies is as follows:

Look the apiary over and make three classes of the colonies, the first of which will be all colonies which are or will be in first-class condition for the forthcoming white-clover honey harvest or the first main flow from whatever source. The second class will be all those colonies which will be of from one-half to two-thirds the required strength for this first main honey-flow; and the third class all the remaining weak colonies, with from a handful of bees to enough to cover two or three frames of brood.

Now go to one of these weak colonies of the third class and shake the bees from one or two of the combs into their own hive, selecting those combs with eggs and larvæ, but leaving with the weak colony the combs having the most capped brood. Now take these combs to one of the strong colonies of the first class, and exchange them for a like number of combs of hatching and capped brood, shaking off most of the bees, and being sure the queen remains in her hive. Now supply one of these combs of hatching brood to the colony of the third class from which the combs had been removed. If this colony has enough bees to take care of two frames of brood, both may be given; but if not, the other frame may be given to another of the third-class colonies. Proceed in like manner until all the third-class colonies have been supplied with one or two combs of hatching brood from the first-class colonies in exchange for the combs of eggs and uncapped larvæ from the third-class colonies, being careful not to give more brood to the third-class colonies than they can keep warm and cause to develop properly and normally. The result of this manipulation will be that the queens in the first-class colonies will almost immediately fill the exchanged frames with eggs, and the colony will be little, if any, the worse for having lost some of its capped brood at this time. On the other hand, the third-class colonies will, in three or four days, have become so strong, by reason of the rapidly hatching bees from the exchanged combs, as to cover one or two combs besides those containing brood. The queen will lay eggs in these exchanged combs as fast as the bees hatch, and in a very short time one or two of the frames adjacent to the exchanged frames will be filled with eggs. As fast as the combs of the third-class colonies are filled with eggs they are given to the colonies of the second class to build them up. It will be surprising to see how rapidly the colonies of the second class may thus be built up. Near the end of this building-up process, and when nearly all the second-class colonies have been brought to a condition of efficiency for the honey-flow, the third-class colonies may be divided into two classes, or, in other words, a part of them placed in the second class to be built up as were the others of the second class, and a few days later still another classification may be made, and the net result will be that seven-eighths or more of

the apiary may be made ready for the honey-flow. It has been the result of getting all the queens to laying to their fullest capacity, and providing a suitable nursery for the eggs and brood.

There is a specially good opportunity to get remarkable results from this system of manipulation this season; for, while brood-rearing has been retarded on account of cold weather, the same weather conditions have operated to keep back the white-clover growth, and also all other early-blooming honey-producing plants, the season in this locality being from two to three weeks late. Of course, as the season advances it will gradually readjust itself as to what might be termed the normal season, until in the fall the backward spring will no longer be noticeable on vegetation. But on the approach of warm settled weather bees will as rapidly catch up with the season if we provide the means of developing the eggs into bees as fast as our queens can lay them; which we all know is at a tremendous rate when the first settled warm weather comes, with apple-blossoms and other early flowers to supply the nectar which gives the proper stimulating effect to the bees; and if no nectar is coming in between fruit bloom and white clover, as is the case in most localities, feeding may be resorted to.

While the weather in this part of the world has been cool and the season backward, there has been no severe freezing weather this spring; and the clovers that survived the open winter look healthy and strong, and the even moisture with no drouths or excessive rains has saved every thing that had any roothold. We may, therefore, look for a vigorous growth of clover when warm weather finally sets in.

Let us, then, be hopeful and build up the weak colonies, and be in readiness with the "dish right side up" to catch the crop when it comes, for we are more likely than not to realize handsomely for all trouble and extra manipulation of the right kind in a season like this. Remember that a colony of bees is valuable to the apiarist who keeps bees for the honey they produce, only to the extent of the profits obtained therefrom. One hundred poor weak colonies may produce no profits whatever, and may be run at an actual loss for the season. But if fifty of them should be used to build up the other fifty into profit-producing colonies, a full crop, and possibly something in excess, might be obtained therefrom, and the entire hundred brought into condition for successful wintering. The net result would then be half a crop for the entire apiary instead of an absence of profits.

Buffalo, N. Y.

UNCLE SAM MEANS BUSINESS.

A DEALER in Detroit, who probably thought the pure-food laws did not amount to very much, was fined quite recently $5000 for falsely labeling oleomargerine in a manner contrary to the law of the United States.

COMB AND EXTRACTED HONEY FROM THE SAME SUPER.

The Control of Swarming in Colonies Run for Comb Honey; What to Do Just Before the Honey-flow.

BY E. D. TOWNSEND.

Continued from last issue.

At the commencement of the honey-flow, and on the day the first new honey is noticed in the hives, the extra combs we have given are removed and the light colonies united, after which a super is given, with the two drawn combs and sections with full sheets of foundation. About the only shifting of brood we ever attempt is done just previous to giving the supers. If we find a colony with much sealed honey along the top-bar of the brood-combs, we change places with the sections of the hive; that is, we place the one with honey in at the bottom, and the one with nothing but brood is lifted on top. In this way we get that desirable condition of having all brood and no honey between the brood-nest and sections.

All our sections were filled full of extra thin foundation, and arranged as I have explained above, with a drawn comb at each outside. There is no need of a shallow super of combs to induce the bees to enter the supers; some of the most obstinate swarms were given these supers, and they never failed to enter if they were in condition to work in an extracting-super.

With the Barber plan, a full set of shallow combs is given to start the bees to working above; then, when they get nicely started, this set of combs is removed and the super of sections given. This works well with a small per cent of the colonies, but in most cases the bees hesitate about going into the sections at the time the combs are removed. I am satisfied that right here is where the majority of the comb-honey colonies contract the swarming fever. With my management on the other hand the bees work nicely until the combs are removed; then they are quite liable to sulk for a few days, and this is something we can not afford to have going on at this stage of the honey season, when the bees of every colony should be doing their best.

Now with a solid comb clear from top to bottom, on both sides of the supers, no matter how high they are tiered, there is no break in the cluster, so to speak, when a super is lifted up, and an empty one given under. This continuous comb calls the bees into the last super immediately; it will not be fifteen minutes, after this second super is given, until there will be honey stored in it, and there is *no let-up*. The work goes right on, on down both sides of the super at once. In a day or two, with a favorable honey-flow they will be occupying the whole of the last super.

This is the way to produce premium honey; it starts the bees working every section in the super at the same time, with a vigor no other system ever anywhere approached. In my apiary last year only 30 colonies

swarmed, out of 84 worked for comb honey, last season. All were worked in two sections of the hive until swarming time; then those that swarmed were hived on the old stand, the old stock being left beside the new swarm for about a week, when they were moved to a new location and their flying bees allowed to return and go in with the new swarm. This is the Heddon plan of preventing after-swarms. The new swarms are hived on one section of the hive, which is five Langstroth-frame capacity, and in very hot weather an empty section of the hive is given under this section for the bees to cluster in; this is to prevent the bees from swarming out, and is removed in about three days, or as soon as the swarm is thoroughly established.

This hiving on a contracted brood-nest forces the bees into the supers. These supers are removed from the old colony to the new hive, before the swarm was hived, for we do not like to disturb a new swarm until about three days after hiving, as the bees are liable to swarm out if disturbed.

If in need of extra queens, or increase, these old colonies are broken into, for each half will have a good queen-cell. Usually, each half will have a cell which you can see without removing a frame; but it sometimes happens that the cells are all in one section of the hive, and in that case a frame is removed that has a good cell or two on it, and given to the half that has none.

GIVING EMPTY SUPERS; CENTER BAIT-COMBS VS. SIDE EXTRACTING-COMBS.

The second super can be given when the first is about half full, and should be placed *over* the first one. Then when the second super is ¼ to ½ full, raise up the first one, and place the second one under it. This plan works nicely, and is the one we usually follow. But the old plan of lifting up the partly filled super, and placing the empty one under it also works well with the super arranged with the two extracting combs at the sides.

Some, being accustomed to using a bait-section in the center of the super, will be tempted to try one comb in that position. In this case, much of the value of the system will be lost; i. e., with that plan, the bees will start in the center and finish the outside last. While the comb in the center starts the bees in the supers, it is much better to start them *first* in that part of the super that is usually the very last to be finished — the outside. It might seem to one who always placed baits in the center that the bees would hesitate about entering the super in which the baits are clear to the sides: but the fact is that they enter just about the same, whether the bait be in the center or at the sides.

If I were producing exhibition honey I would never raise a super to put empty ones underneath, but would place them over the partly filled ones. This gets the sections better filled and better capped. A combination comb and extracted super is an ideal one for this purpose, as the bees do not hesitate about working in the sections. This free and energetic work in the super is very essential to the production of fine honey. But for market the better way is to raise the first super after it is well started on top and place the empty one under it. When the season is two-thirds over, be very careful to give no more sections than the bees will be able to finish up and seal. The last supers given should never be placed below the partly filled ones, for at the last of the season, when the honey-flow is getting more scant every day, these last few sections would be finished and capped thin; such light weights are very unsatisfactory. Therefore, put the last super on top, and give only what the bees can finish. Any more room that might be necessary could be provided by giving a very few extracting combs. These, too, must be placed on top. Usually, instead of giving extracting-combs to the colonies that have sections to finish, the better way is to group the sections together on a few colonies to be finished—care being taken to select colonies that are working freely.

Extracting-combs are given to the colonies having no section work to do. In this way all are kept busy, and we have but few unfinished sections left at the close of the season.

FEEDING BACK UNFINISHED SECTIONS.

Speaking of unfinished sections reminds me that we have but little use for them; the wood is soiled at best; then the honey never looks quite as good as from brand-new sections. By "feeding back," and getting a few supers finished, we had less than a super of unfinished sections left from the crop of 1906, of 2300 lbs.

A kink in feeding back is to uncap that part of the section that is capped, and give the bees an opportunity to lengthen out all the cells to the same length and cap it all over new. When treated in this way the product can hardly be told from that just brought in from the field, and it is quite different from that fed as it came from the hive, with one end of the section capped thin and travel-stained finish while the other end is thick, with a brand-new capping.

This fed-back honey is cased up by itself and put into a carrier, and is shipped to market with the first order. Handling it in this way, we have never had any complaint of its candying before it was disposed of.

THE FINISHING-UP OF THE SEASON.

The last ten days of the honey-flow is a busy time with the successful comb-honey producer; for a man can find good profitable work in shifting supers here and there, to get them all finished before the close of the season.

The bee-escapes are kept busy during this period, for any supers that have a few finished sections should be removed, since the work will progress more slowly as the season draws to a close, and such sections will be travel-stained soon if not removed. Then we want to get our partly filled sections grouped together on those colonies that are doing good work, and this is the best way to do it.

By the time you get over the yard taking off finished sections, as likely as not you can go over it again, as the bees are capping fast, being crowded somewhat for room. This taking off and shifting of supers should continue until the flow stops; then in about a week, when the capping stops for want of honey to work with, the escape-boards are put on, and everything removed and sorted. Those that are not sealed this time are uncapped, put into supers, and fed back as I told you above.

GRADING AND CRATING.

Our 4×5 plain sections of comb honey are all cased up in the latest 20-section no-drip shipping-cases, the wood of the sections being scraped free from propolis and bee-stain. We are very careful in our grading. I tell the boys when commencing this job that, if they find a section that there is any question about, to put it in the next lower grade; in this way all our grades are just a little better than the rules call for. At first thought one would think there would be a loss by following this rule; but we make it even by charging a higher price than the ordinary honey sells for. A good article sells better, and gives better satisfaction, even at a much higher price, than the ordinary at one-third less price.

Shipping-cases should not be nailed until they are ready to be used, and then only what will be needed to hold the crop, for they soil very easily when exposed to the air and light.

When the honey is ready to be cased, ten of the shipping-cases may be placed on the scales and weighed. It is not necessary to put a single mark on the cases, but one-tenth of the weight of ten may be kept in mind, for this will be near enough to the weight of one for all practical purposes.

After the case of honey is weighed, the net weight and the grade should be marked on a small piece of card-board; then, should the dealer who buys the honey decide to sell by the case, or if, for any reason, he did not care to have the weight known, all he has to do is to pull out the one small tack that the card is fastened on with, leaving no sign of a mark on the case to indicate that the case was ever weighed. This is as it should be, for we want to deliver the case to the customer just as clean and free from pencil-marks as when it left the factory; and to do this it is also necessary to wrap the cases in good strong manilla paper before putting them into the carriers. The railroad company never sweeps out a car for honey to be shipped in, and, just as likely as not, the car (or cars if a long shipment) will have been used for coal or lime, or a dozen and one dirty things that we do not want our honey to come in contact with.

With a good strong carrier, and plenty of straw in the bottom for a cushion, and with the cases wrapped in paper, we usually get our honey to market in about as good shape as when it leaves our hands.

Remus, Mich.

THE SELECTION OF A BREEDING QUEEN.

On What Basis Shall the Choice be Made? the Importance of getting Rid of the Poorest Colonies in a Breeding-Apiary.

BY C. F. BENDER.

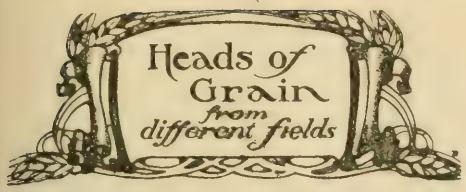
Mr. Holtermann's article on page 413 is a very clear statement of what we ought to know about our bees, and don't; but I rather doubt such knowledge being of very great use in the practical breeding of bees, even if we possessed it. I should like very much to know which of my queens produce the longest-lived workers, which bees would fly furthest, live on the smallest rations, resist unfavorable weather the best, carry the largest loads, or make the most trips. But even if I knew all these things I might yet be a little puzzled to know which queen to breed from if I had nothing else to judge by.

If we turn our attention to practical results, instead of looking for the causes of those results, the decision is much easier. We want the bees that will store the largest quantity of the most marketable honey, and they must be gentle enough so that we can handle them. Those are the requirements in a nutshell.

To take a case from my own practice: The season last year was nearly a failure, but I had one colony that produced honey to the value of $11.00, besides their own stores. The next best gave a net return of $6.00; several others of $5.00, or nearly that. It would be interesting to know what combination of qualities caused those bees to go so far above the average, but such knowledge would probably make no difference in the selection of a breeding-queen. As it happened, all the best colonies were gentle, and all were pure Italians, and so were more likely than hybrids to hold those qualities in the next generation. Other things being equal, of course the colony storing the greatest amount of honey would be chosen. But the best colony produced watery cappings, and so was not suitable for comb honey. The point I am aiming at now is this: That the qualities enumerated by Mr. Holtermann are important only as they affect the honey crop; and of the honey produced we have a ready means of judging.

In regard to controlling the drone parentage, I think the best we can do is to follow Dr. Miller's plan. If one has more than one apiary, keep all the best colonies at the home yard — that is, those that gave the best records the previous season. Then do all your queen-rearing at the home apiary, and let the drone question take care of itself. Where we have a hundred colonies in one place, the mating with drones from other sources will not exceed five per cent. If we are to make any improvement in our stock, it is quite as important to weed out the poorest as it is to breed from the best.

Newman, Ills.



OUTDOOR VS. INDOOR HIVE FEEDING.

My bees came out of the cellar in quite a weakened condition because of dysentery; and since they were set out the weather has been cold and freezing nearly every night through April, consequently they are little different than when set out the last week in March. It will require the best stimulative method to get them ready for the harvest. Most of the hives having tight bottom-boards I can not use the Alexander feeder, which I consider the best for building up colonies in the spring, as with them they can take in feed, rain or shine.

One yard is too far from home to be visited every day, so I am thinking of hanging up perforated five-gallon cans at each yard and filling them every other day, beginning now and continuing till clover blooms. A few questions.

1. Will you kindly tell me how large the perforations should be—what size of nail is best to make the holes, and how many holes should there be in the end of a can?

2. How many cans will be needed for an apiary of 90 colonies?

3. Will not the syrup drip out at night or on cool days when the bees are not gathering it, so that a tub will be needed under each can to catch the drippings?

Portage, Wis. A. C. ALLEN.

[Until settled warm weather comes on we would not advise outdoor feeding. Your better way would be to feed within the hive. This can be accomplished by putting on an upper story or comb-honey super and putting therein a feeder. If the weather be cool or chilly, cover the feeder with a blanket to hold the heat of the cluster down. After settled warm weather comes on, the outdoor method of feeding can be used to good advantage. A square can elevated in the air, as described in GLEANINGS, is as good as any thing. The holes pricked in the end of the can should be about the size of an ordinary pin—the smaller the better if you desire to keep bees busy a long time. This size will just about enable the bees to take up all the syrup in 48 hours. If you want them to take the feed slower, make the pin-holes smaller.

There will be no waste of syrup when the bees are not gathering it on cool days, because atmospheric pressure will hold the feed within the can until it is actually drawn out by the bees.

If you have a hundred colonies in a yard you would probably need two or three cans in order to provide all the bees with the necessary stores.

We wish to say, however, that outdoor feeding is rather hard on the bees that gather it. They will struggle against each other for the food, and this has a tendency to wear them out prematurely. In the early spring they should be saved all the effort possible until they are strong enough to stand a loss of bees that wear themselves out in going to an outdoor feeder.—ED.]

CAGED QUEENS IN UPPER STORIES; ALEXANDER PLAN FOR MAKING INCREASE.

Please tell me if I can keep queens in cages in upper stories ten days. I intend to divide by the Alexander system, and buy queens for new colonies. I should like to know if it would prevent swarming to put brood in the second story (as in the Alexander system), leaving them there, when no increase is desired, working the bees for extracted honey.

Farwell, Neb. C. H. KUHN.

[Yes, you can keep queens in cages in upper stories ten days, provided there are bees to attend to them.

The plan you mention does prevent swarming to a very great extent, and, possibly, altogether in your climate.—ED.]

EVERY MAN HIS OWN MASTER.

From 20 hives, worked for comb honey, I took 1000 lbs. in 1-lb. boxes. I use the Hoffman frame and $4\frac{1}{4}\times4\frac{1}{4}\times1\frac{1}{8}$ plain sections, but will not argue about the matter of whether I am right or wrong, with any one. I think the better way for bee-keepers is to use whatever bee-hive, frame, or section they like, and let others do the same.

Smyrna, Maine. BERTHA M. TIMONEY.

LOAF SUGAR FOR WINTER FEEDING.

I notice that Mr. Alexander on page 315, mentions the use of loaf sugar for winter use. I indorse it, as I have used it for five winters with no loss. I use the supers, and don't waste the sugar as it is not mussy.

New Durham, N. J. ROBT. DIGEN.

[Yes, but we must be careful not to get the sugar too moist. It should be given the bees in a shallow tray.—ED.]

UPPER ENTRANCES.

In GLEANINGS, page 573, Mr. Alexander says: "Also have a separate entrance for each hive." You would oblige me, friend Root, by giving me a short hint concerning the best way for making a separate entrance in a second or third deep story (Langstroth), and also in a shallow one ($5\frac{3}{8}$, for instance), without injuring the body of the hive.

Bochum, Germany. E. WESTPHAL.

[This may be accomplished by pushing the upper story back $\frac{3}{8}$ of an inch. Also, you may make an entrance through the hand-holes, which answers the purpose very well, and does not mutilate the hive.—ED.]

OUR HOMES

by A. I. ROOT

I am come that they might have life, and that they might have it more abundantly.—JOHN 10:10.

I presume it is generally considered that my text refers to spiritual life; but if I am correct it includes also physical life; and no one knows how intimately the two are connected just now. The follower of the Lord Jesus Christ thanks his Maker every day for giving him a human life to live. He regards it as a great and precious gift. I am sorry to say, however—in fact, you know it without my saying it—that there seems to be a tendency of late, I fear among all classes (and I might almost say all *ages*) to declare that life is *not* a boon nor a gift; and there are those who go so far as to reject this great and wondrous gift, and with rebellion and anarchy in their heart destroy the life that God gave.

Just now I am made happy a good many times a day by studying the lives of seven little animate bits of creation. I mean seven ducklings that are not yet 48 hours old. They are of the new Indian Runner variety. I made friends with the mother hen (just as I did down in Florida), learned her language, or a part of it, while she also learned mine or a part of it; and then I watched almost breathlessly to see how the ducklings would understand her language, and how well she would understand theirs. There was a hitch in their vocabulary, as you might suppose; but yet they managed to understand each other very well. It delighted my heart to see these ducklings, when they were but little more than 24 hours old, stand up on tiptoe, or pretty nearly that, flap their little wings, and in their own way give thanks to their Creator for having given *them* a life to live, or at least a glimpse of it.

Now, these little friends of mine, just *new* from the hand of the great Father, are not in the habit of saying grace before their meals, but they do almost invariably give thanks *after* they have had their rations of bread and milk (it is the same milk, friends, that the "dandelion cow" is furnishing in such great plenty).

After I wrote about my nature studies last winter with the chickens, several friends said I had better choose ducks for my next study—that there was something wonderfully interesting about the newly hatched ducklings, and I have found it so. They are as playful as a lot of kittens or puppies. They roll over each other, tip over backward, wag their bills—yes, and their tails too—in a most comical and knowing way; and with their funny little eyes glittering like beads they scan every object that is new to them, tap it with their bills, climb about over objects with their funny webbed feet, and all with a comical grace that I have never seen in any other animated creature. Their very innocence seems to invite a lot of vicious enemies. Several have already warned me that the rats or cats would get them if I didn't look out.

While amid surroundings that are familiar, with their foster-mother in sight, they are happy and very much at home; but when I took the whole lot in a tin pan, with a cloth thrown over it to show them around the factory, they became frightened and almost got into a panic. In one short day they had learned to know *me* and to permit me to handle them as I chose; but when it came to seeing other strange faces, they made me think of a baby that looks about in vain for the mother's face.

We are told that ducks make a wonderful physical growth. I think some book says that, under favorable circumstances, they may double in weight in just one week. Well, now, the mental certainly keeps pace with the physical. Even my chickens did not catch on and learn as quickly as do these ducklings. At first I gave them a good-sized dipper to drink out of; but every last duckling quickly decided, it seemed, that, "if a little is good, more *must* be better;" and after the first sip of delicious water they essayed to climb into the dipper, and in they went in spite of me. I finally brought a little stone watering-crock for poultry, that permitted them to get only their heads in; but they get in it just as far as they can all the same. Of course, I shall give them water to swim in, in due time.

In my last talk, when I spoke about the five smooth pebbles that David selected, perhaps I did not make it quite plain; but it seems to me the pebbles God has indicated to me are the chickens (and ducks, of course), the bees and flowers, fruits, strawberries, if you choose, and the delicious apples that I am enjoying so much in my old age. When I use the word "enjoying" I mean seeing them grow and studying this wonderful thing of life as well as enjoying the daily food that comes with all these rural industries; and just now I can not think of any other one object in the wide world that might interest an invalid and arouse and kindle life and enthusiasm as will a brood of ducks. I do not know whether this Indian Runner strain has any more vigor, life, and intelligence than other ducks, but I begin to suspect it has.

Since I have had the matter in hand, I have been recalling the instances of invalids restored to health by these same outdoor enjoyments—the instances in which the terrible *giant* has been killed or driven away by the smooth harmless-looking pebbles God has in his infinite kindness and mercy revealed to me. In the strawberry-book you will find that some of our finest and most valuable varieties were originated and given to the world by J. F. Little, of Granton, Ontario, Canada. Physicians told him he was absolutely gone with consumption. His children, however, tried to get him interested in creating new varieties of strawberries If I am

correct his first work was done sitting on the ground. He was hardly able to stand up, much less to stand up and work. At first he worked only a little while—perhaps only a few minutes at a time; then he stretched himself out and rested in the sunshine; then he worked a little more, and so on. He not only got well, but lived to a good old age; and it was my fortune to meet him and talk with him later on, after the strawberry-book had been published.

Our older readers will recall the case of Mrs. Sarah J. Axtell, of Roseville, Ill., who, while she was a hopeless invalid confined to her bed, got hold of a copy of GLEANINGS and became so taken up with bees that her friends wheeled her chair up to a window where she could watch a hive of bees at work. To make a long story short, she soon got her lounge on the porch, sat up a little, then learned to open and close a hive. Later still she got up on her feet, and, after a year or two of this kind of gradual progress, accompanied with *constant prayer* and *faith in God*, she received strength to do an amount of work in the apiary that grew up around her that might appall a strong man. Then she and her husband together secured a crop of honey that astonished the world; and as a fitting token of her gratitude to the loving Father who gave her the strength and enthusiasm, she decided that the greater part of the money which she received from this immense crop of honey should be donated to foreign missions. The record of all this appeared in GLEANINGS for 1882, and it was also published in the form of a missionary tract.

Once more, at a recent poultry-keepers' convention down in Florida there were so many calls for a talk from a man who had recently met with wonderful success that he finally yielded, and he started out something like this:

"Friends, I am hardly fit to talk to, much less teach, veterans like those I see before and around me. The greater part of my life has been passed without even caring for or noticing chickens at all. Three or four years ago the doctors up north told me my lungs were gone with consumption so far that medical aid was out of the question. They suggested that I might live a little longer in the mild climate of Florida, especially if I would get into something that would keep me constantly out of doors. I commenced playing with chickens, and became interested. My interest increased, of course, when I found that I was making it a pecuniary success, and that is how it all started."

As this friend was not much of a speaker he was going to sit down here and stop; but a dozen voices called called out, "How about the consumption, Brother Blank? Did the chicken business cure it?"

He got up and laughingly replied, "Oh! I forgot to tell you that I got so busy with chickens I forgot all about consumption, and, as nearly as I can determine, the consumption forgot all about me. I am now, thanks to your beautiful climate and the chickens, a comparatively well man."

I suppose instances like the above could be multiplied indefinitely. On my recent visit to Northern Michigan I was told of a lady who was advised by her doctor that there was no hope for her if she kept on in the way she was going, and this doctor told her to try sleeping outdoors. One of the neighbors said he also insisted on her taking a buggy-ride of *twelve miles* every day in the year, winter and summer. She is now well and strong. I am told that a lady in our town has been for the last two years sleeping out on an upper veranda, winter and summer. When storms come from a particular direction with such force they might blow in upon her bedding, she has rubber blankets arranged to pull down as a protection from that one direction. Although her lungs were badly affected when she commenced the treatment she looks now as if she were strong and well; and I have been told that the affected lung has been almost completely healed. Of course, a faith in God and a faith in prayer should always accompany all such effort to regain health; but as nearly as I can determine many have found a new lease of life by simply complying with the directions I have tried to emphasize so strongly, out in the open air, and some outdoor employment that arouses interest and enthusiasm.

In the fore part of our article I have something to say in regard to people who deliberately throw away or destroy this precious gift of human life. Our good friend Emerson T. Abbott, editor of the *Modern Farmer and Busy Bee*, has a quaint way of putting things that is most remarkable, and at the same time he uses this quaint gift in a most forcible way for upholding righteousness, temperance, and purity. See what you think of this, which I clip from his paper for May:

> There is a great deal said in these times about "race suicide," but there are worse things than a failure to be born. The most suicidal thing we know any thing about so far as the life of a child is concerned is neglect. A child having come into the world is entitled, from those who have been instrumental in bringing it in, to something more than clothes to wear, a place to sleep, and something to eat. If a child is to be neglected as to the development of the higher elements of its nature, "it were better that it had not been born." A father said in our presence not long ago that he enjoyed a cigar, and at one time smoked, but he had not done so for a long time, and he presumed he never would again; and then after a moment's silence he continued: "I have two boys growing up, and I feel that I owe it to them to set them a proper example, so I quit." This father knew what life means, and "race suicide" in his home would be a misfortune, but not in all homes.

Amen, brother Abbott. If our people are brought up in the fear of the Lord, they will be likely, like the little ducks, to regard life as a wondrous and most precious gift; and I think they should be taught daily, as soon as they are able to comprehend it, to give thanks to God for giving them a life to live; and also to the dear Savior who left his home in heaven and came down here to earth that we might have that greater and more important spiritual life, and that we might have it more abundantly for his coming. The expresion, "a failure to be born," while it is a huge joke in one sense, in another it *ought* to awaken sacred and solemn thoughts.

THE INDIAN RUNNER DUCKS.

You may ask what these have to do with high-pressure gardening; but if you could see my little flock go for every bug, worm, and insect, as they are doing this morning, you would understand. I am told that ducks are the only fowls that will devour potato-bugs; but I have not yet had a chance to test it. Since what I have said of them in another column they have grown a little larger. When they were about three days old I had a curiosity to know what they would do with water. I accordingly borrowed Mrs. Root's largest wash-bowl (fortunately she was absent), filled it to the brim with warm water, and sat down to note proceedings. One duckling lifted up his head, got a view of the water, splashed his head in a few times, then with a most comical and dextrous movement he quickly slipped one of his dainty webbed feet on the edge of the bowl, and was in the water like a flash. The rest soon followed, and what a rejoicing they did have! After splashing and flopping their wings and making the water fly, one of them, following the promptings of that amazing and wonderful instinct, dove down under the water, and swam about the bowl with a speed almost incredible. Who taught him that he could get along faster *under* water than he could on the surface? The others soon followed suit, and then to my great surprise they executed a sort of Indian war-dance. They splashed the water nearly out of the bowl, and then shot out of it and circled about the room as if in a panic, hiding in different places as if some enemy were pursuing them. This I have since had reason to believe is a sort of play, just as two chickens will pretend to fight each other when they are the best friends in the world. Just now when my ducklings are not quite a week old they are my daily delight and enjoyment. Not only are the little fellows very handsome, but there seems to be a sort of comic grace in their awkward movements. Their inquisitive black eyes, as they stand upright almost like a human being, make one think of animated interrogation-points. I found much to study and rejoice over with my chickens in Florida; but the ducklings are a surprise and an unexpected revelation to me. These Indian runners have a fashion of standing up straight and flopping their wings so as to make one think they might almost be a link between quadrupeds and mankind. If you have a love for such things, do not fail, dear reader, to try at least one setting of Indian Runner duck eggs. Mine cost only $1 00 for eleven eggs, and they have been worth ever so *many* dollars to me already. I see they are advertised all over our land now, and our periodicals are having a good deal to say in regard to them. See the following extract from *Country Life in America* for June:

> To me these sprightly active birds are most interesting of all the duck family. Their two-fold name denotes at once their origin and their habits. They are natives of the West Indies. They are alert and active, ever on the go, and their movements are more of a run than a walk, partaking little of the awkward waddle of ordinary ducks. The carriage is very erect. Its specialty is egg production. Given the chance, it makes eggs cheaply too: with a good range on pasture land, along brooks, ponds, bogs, etc., it secures a large part of its living during the open season. It has a strong homing instinct, and nightfall generally brings it back to its quarters.
>
> F. H. VALENTINE.

Later, June 6.—The best duckling in the flock, that weighed 1½ ounces the day it was hatched, May 30, weighed, just one week later, 4 ounces. How is that for rapid growth? They have been outdoors, rain and shine, almost every day since they were hatched, and they have had all the bread and milk they would eat, every time they were hungry enough to go back to their feeding-place for it.

THE GREEN FLY AND OTHER INSECT PESTS ON HOUSE-PLANTS IN THE GREEN-HOUSE, ETC.

I do not like poisons around for killing rats and mice or insects, or for curing diseases or any thing else, if I can help it. In our potato-book Mr. T. B. Terry has told you it is ever so much better for the potato to get rid of the bugs by hand-picking early in the spring than to use Paris green—that is, when you can do so. Poisons are dangerous; and when they do cure or kill, at the same time they almost always damage something somewhere, more or less. This spring so far I have kept the green fly, mealy bugs, red spider, and every thing else, off the plants in my greenhouse without fumigation.

Let me say first, that I suppose most of you know already that ants do not injure plants directly—that is, the ants we have here in the Northern States. But they do a tremendous amount of harm by carrying the eggs and larvæ of insects, and distributing them all over the plants in order that they may gather the honey-dew from these same insects much in the same way we milk our cows. On this account we want to get rid of the ants at the same time we kill the aphides. All your plants that are in pots are very easily managed. Get a good-sized pail of hot water. Do not heat it above 120 or it will kill the plants; and unless it is up to 110 it is not apt to kill the vermin promptly. Just dip your plant, blossoms and all, in the hot water, and keep it in about ten seconds. Every living thing will be dead if you carefully follow directions, and few if any plants will be injured in a temperature not exceeding 120. Be sure your thermometer permits a run up to 120 or more or you will burst the tube. You had better have a good-sized pail of hot water, because it cools off so fast. A tea-kettle of hot water close by, however, will enable you to keep the temperature about right.

If you do not happen to have a thermometer, get the water just as hot as you can hold your hand in it, then drop the ants or insects on top of the water and see that it eventually kills them. This seems a little cruel, I know: but for that matter it is cruel to kill rats or mice; but we do not often stop, however, on that account. You want the water hot enough so that an ant will wiggle about a little and eventually die from the heat. If the temperature is high enough to kill the ants it will make sure work of the green fly or the different aphides, mealy bugs, red spider, etc., and it really makes the plants grow thriftier. If your temperature is too high you will see the effect on the tender new growth of your plants after a little time. With a little practice you can get the water just right so it will kill the pests and not harm the tender plant. Now, the ants that spread the mischief in the way I have explained are usually in the ground under the plants. The pots in my little greenhouse are all plunged in the soil up to their rim. This saves a great amount of watering. The soil is made very rich with manure, and this rather encourages the plants in pushing their roots down through the hole in the bottom of the pot. Whenever I see a plant doing extra fine I find the roots have found the hole through the bottom and have gotten down into the manure that we put under the surface of the bed every spring. Well, the ants usually get into the pots through this hole in the bottom, and there locate in the rich soil right under the pot. As there is nothing to kill down there that we care for, when you lift the pots out of their respective holes in the bed just drop a little boiling water into said cavity. It will kill the weed seeds and embryo weeds at the same time that it kills the ants.

When you put your plant in the pailful of hot water you should plunge it down to the rim of the pot. Now, if you find your plants so badly infested that insects go clear down to the surface of the soil, just knock it out of the pot and push the plant down into the water until the water strikes the surface of the soil. The only objection to letting it touch the dirt is that it will soon make your pail of water muddy, and you do not want dirty water on the foliage of your plants.

Now, the above plan will enable you to make every plant absolutely clean in just a few seconds; and if you keep a careful watch on your plants, and kill the first greenhouse fly or aphis that is visible on the young shoots you will not have very much trouble. A stitch in time saves nine with a vengeance in fighting insect pests. Plants out in the open ground are not apt to be affected in this way. There are, however, some exceptions. Last summer I found a Baby Rambler rosebush literally covered with the green aphis. I took my hot water in a big dish-pan and bent the bush over so I could plunge it under the water. In that way I got rid of every green fly; but after a while some more gathered on the same bush. I was in a hurry at this second treatment, and did not stop to test the temperature, and it made my rosebush look sorry for a few days. I have tried pouring hot water on plants that can not very well be immersed; but it does not seem to work so well. The insect ought to be kept exposed to the heat, under water, for as much as ten seconds. The older the animal the longer it will need to be kept submerged. Of course, my plan would not be very profitable for the green bug that has been afflicting wheat-growers to such an extent as to raise the market price of wheat during the past spring. I hope our experiment stations will, however, give us a remedy in due time.

GROWING STRAWBERRIES IN BRADENTOWN, FLORIDA.

Our readers will remember that I have several times mentioned the name of E. B. Rood, of Bradentown, Fla., a prominent bee-keeper and strawberry-grower; and they will, therefore, be interested in the following clipping from *The Strawberry* for June, this year:

I have found the growing of strawberries in Florida both pleasant and profitable; but as I have been largely the pioneer in this section, I have had to blaze the way, and often without a compass or chain, and, as a result, in the earlier stages the course was zig-zag.

I did not know the varieties to plant, and experimented with about fifteen before I found the one best suited to my conditions; viz., the Excelsior, a plant that will fruit and ripen early, even in cool weather, and produce a highly colored and firm berry. I commence picking about Thanksgiving, and continue to pick till May or even June.

I began to grow berries with the idea of shipping, and I am satisfied that I could ship profitably; but I found that few berries were grown in this county, and our own city of Bradentown and all the surrounding towns consume large quantities of berries at 25 or 30 cents per quart—your money in your fist, no berries to spoil on the way to market, and no commission man to fall out with.

I believe there are many such places in Florida where hundreds of dollars' worth of berries could be grown and sold profitably. This is because the same skill required to make a success of strawberries yields handsome returns in growing winter vegetables, $500 to $1000 per acre not being very uncommon. A thousand dollars per acre is my mark for strawberries; and while I have not yet reached it I believe it can be done. At any rate I intend to stick to berries as one of my specialties for a reasonably sure and remunerative crop.

One of my first serious difficulties was when to set out my plants. September and October, especially the latter month, were recommended, but I have found, after a dearly bought experience, that July and August, and up to September 15 possibly, are much preferable, and I must grow my own plants, I think, from plants imported from further north the spring previous. However, I am not sure of this, and am now doing some experimenting along this line.

Then I suffered from cut-worms. If I had had the remedy *The Strawberry* now gives, Paris green, shorts, and honey (I am a bee-keeper), it would have been worth hundreds of dollars to me; but the book I had, written by a man claiming to be an expert, said the only remedy was previous clean culture, and so the cut-worms nearly ate me up.

What a wonderful advantage there is in beginning in any calling where the other fellow left off! and, with the splendid strawberry literature you are giving us, this is largely possible for the growers of the finest fruit in the world.

I think that strawberry-growing has a fine future in this section, as we can produce magnificent crops of fruit for many months when the greater part of our country has gone into winter quarters.

Bradentown, Fla. E. B. ROOD.

I might mention the fact that I have recently purchased an acre of land adjoining

friend Rood; and Mrs. Root and I are planning to spend our winters in the future in that locality, about twenty miles distant from our island home where we have been for the past two winters.

KILLING WEEDS WITH CHEMICALS.

Most of you have probably heard the wonderful things that are going to be or have been accomplished by the use of secret preparations that kill the weeds, especially charlock, wild mustard, etc. This is not particularly new. Some time ago T. B. Terry told us in the *Practical Farmer* about destroying weeds on his gravel walks, drives, etc., by using copperas—using 7 to 9 lbs. to the barrel of water. Just now chemical weed-killers are being extensively advertised, with big claims, and at a big price for material. The Pennsylvania Experiment Station has made careful tests, and analyzed the secret compounds. It is ordinary green vitriol, worth from $2.75 to $3.00 per 100 lbs., in quantity, roasted until a good deal of the water is expelled, leaving it in shape of a white powder. This roasting process does really make it more effective as a weed-killer, and no doubt it may prove to be an important aid in growing many crops. If it would only kill *dandelions* as well as mustard and other things it would certainly be a boon for use on our lawns.

KILLING DANDELIONS—SPECIAL TREATMENT.

Since dictating the above I learn from the *Gem State Rural* that the Idaho Experiment Station has succeeded in killing the dandelions by the use of 2 lbs. of copperas to a gallon of water, with the addition of 2½ lbs. of sulphuric acid. This certainly ought to kill the dandelions, and they leave us to infer that it will not kill the grass on the lawn. If it is true, it is probably the cheapest way to get the dandelions out of your lawn—in fact, about the only way if I am correct.

T. W. BRYAN, OF FICKLIN, ILL.

It looks just now as if we should have to keep a standing warning against this man swindling those who are interested in bee culture. The following letter is a sample of the ones we are getting right along, and below are some extracts from the papers that Bryan is sending out:

Mr. A. I. Root:—Enclosed please find T. W. Bryan's letter and circular, of which I wish your opinion. I am an old customer of yours, and I believe you will tell me the truth. I doubt what Mr. Bryan says, and surely if he has such a good thing you have heard something about it. E. BAUSERMAN.
Edinburg, Va.

BEES! BEES! BEES!

Do you love nice golden honey? Then let me teach you how to attract and catch large swarms of bees which will make you $15.00 to $20.00 a swarm this season.

I want every man, woman, boy, and girl in this country to know that my booklet, which was copyrighted in 1904, will teach them just how to prepare and fit up empty bee-hives packed in your own dooryard, which will attract large swarms of bees for miles, and then catch all the bees you may want, for nothing.

My plan of handling bees is entirely new and complete; does away with the old-fogy way of waiting and watching for your bees to swarm. Please remember that empty bee-hives fitted up according to instructions in my booklet always attract and catch the swarms, therefore they will hive themselves, which cuts out all possibility of any one getting stung by the bees.

The early bird catches the worm. Just so in catching bee-swarms. Send one dollar for booklet entitled "The Art and Secret of Attracting and Catching Swarms of Bees."
Address T. W. BRYAN,
Copyright 1904. Ficklin, Ill.

Let me repeat what I have said on these pages over and over again. Mr Bryan's secret is no secret at all. His dollar book is a little bit of paper pamphlet, and his great secret occupies only a part of one of the small pages. First you are to hitch a red rag to the hive you want the bees to come into. Second, you are to scent it with anise. Well, any bee-keeper will tell you that runaway swarms go into empty hives without the red flag, or the scent of anise, more or less, every season, and it is, therefore, not at all strange they get into his "decoy" hives occasionally, and from these people he gets his testimonials. He is very careful not to advertise in any of the bee-journals. Our bee-papers, and agricultural journals also, will do the public a great service by warning their readers against this swindle. It is high time that the Department forbid this man the use of the mails. The "early bird that catches the worm" is Mr. Bryan himself in getting dollars from unsuspecting people who are not posted.

SALOONS OR SPEAKEASIES—WHICH DO THE MORE MISCHIEF?

I suppose you are aware there are a lot of people who argue that we had better have open saloons, and get a revenue (?) from them than to have blind tigers, etc. Dr. Young, the celebrated orator (the Henry Clay of Kentucky), recently said in a temperance address:

Who can get liquor from a saloon? Anybody, almost, and all he can pay for. True, the saloon-keeper has sworn not to sell to minors nor to persons of known intemperate habits; but, all the same, they get it. But who can get liquor from a blind tiger? Only persons whom the keeper believes to be those who would swear to a lie before a jury.

The above clipping comes from the *Alabama Citizen*, the organ of the Alabama Anti-saloon League. A *blind* tiger is bad enough; but a tiger with his eyes *wide open*, and licensed by the government of the United States to *kill*, is ever so much worse.

PRESIDENT ROOSEVELT ADDRESSES THE MICHIGAN AGRICULTURAL COLLEGE ON THE OCCASION OF ITS RECENT SEMI-CENTENNIAL CELEBRATION.

We make the following brief extracts from his talk:

"No growth of cities and no growth of work can make up for loss in number and character of farming population."

"The bulk of people should work with both head and hand."

"Progress can not permanently consist in abandonment of physical labor, but in the development of physical labor so that it shall represent the work of the trained mind in the trained body."

"We must have a higher plane of efficiency and reward with consequent increased growth of dignity for the wage-worker."

"We must develop a system under which each citizen shall be trained as an economic unit."

"The greatest of crops is the crop of children."

Permit us to say amen to all of the above, and especially amen to its concluding sentence.

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NOTICE

Free Lecture and Demonstration on Bees, Season 1907, Tuesdays and Fridays, 10 to 12 o'clock, A. M., 10 Vine Street, Philadelphia, Pa.

So great has been the interest, and so numerous the calls, to see our bees, from parties who have not the time to visit our Jenkintown apiary, that we have arranged our plans to set aside Tuesday and Friday during the season of May and June, from 10 to 12 o'clock, to give a public demonstration for any one, whether a customer or not, to call and have explained to him the marvelous work of the honey-bee.

While our apiary, of some forty or fifty colonies, has always been open to inspection, yet the calls to see the bees coming at all hours of the day, many times when we were rushed with other work, were necessarily hurried and unsatisfactory, and were confined mostly to our customers. We now invite the general public, and a much more complete and general demonstration will be given. By giving us your name and address on entering the office, veils will be furnished you and your friends, so there will be no danger of being stung.

P. S. Our Jenkintown apiary is always open by appointment to visitors. Ask for

WM. A. SELSER, Mgr.

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Carries a full line of new Lewis Bee-supplies, Hershiser Wax-presses, etc. Slightly damaged Poultry and Bee Supplies at greatly reduced prices while they last. Send for 1907 catalog and fire-sale list. Beeswax wanted. Italian Queens, Nuclei, and full colonies in up-to-date hives for sale.

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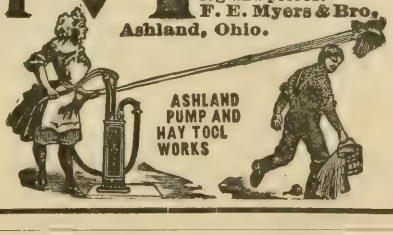

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For trees, shrubs and vines. Model appliances for poultrymen for whitewashing, disinfecting, etc. Write for catalogue with full particulars.

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$53,700 Made by O-HI-O Cooker Agents in 1905 Selling the **O-HI-O** COMBINATION STEAM COOKER-BAKER.

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We have many agents making $5 to $10 daily. Write us and we will give you names of agents near by who are making at least $5 daily. We can easily prove that the "O-HI-O" is the best money-maker you ever heard of, and will make you more money than anything you ever sold or are now selling. *Write us at once and we will prove it.*

Guaranteed to save 50 per cent in fuel, labor, time, and provisions. A whole meal cooked over one burner on any style stove. It assures you deliciously cooked hot meals; *30 days' trial.* No intermingling of odors or tastes. Fine for use in summer cottages. A necessity every day of the year. The only healthful way to cook foods and breadstuffs. :: *Handsomely illustrated catalog free.*

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THE "BEST" LIGHT

Portable 100-Candle Power light. Every lamp warranted. The most brilliant, economical light made. No grease, dirt, odor or smoke.

AGENTS WANTED EVERYWHERE.

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SAVE YOUR BACK

Save time, horses, work and money by using an

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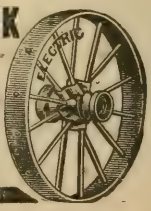

Low wheels, broad tires. No living man can build a better. Book on "Wheel Sense" free.
Electric Wheel Co. Box 95, Quincy, Ill.

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Did you know that within one hundred miles of me are over three-fourths of the bee-keepers of Michigan? Are you one of them? If so you will find it to your advantage to write for my new catalog. A full line of Root's Goods at Root's Factory Prices. Hilton's double-walled hives are used more than any other in my State. It has stood the test of thirty years. . . . . I ship goods promptly. Wholesale or retail. . Cash or exchange for beeswax at all times.

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NOW is the Time to Order Your

BEE-SUPPLIES

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IT will cost you only one cent for a postal card to get our **delivered prices on Dovetailed Hives, Sections, Section-holders, Separators, Brood-frames, Foundation, Smokers, Extractors, Shipping-cases, etc.** It may mean a saving to you of many dollars. It is the natural advantage we have over others that enables us to make you the Best Price. There are no better goods than ours, and we GUARANTEE SATISFACTION or REFUND your MONEY.

We MANUFACTURE and keep in stock all standard Bee-goods, and can ship promptly.

MINNESOTA BEE-KEEPERS' SUPPLY COMPANY

NICOLLET ISLAND, No. 20. (JOHN DOLL & SON, Props.) **MINNEAPOLIS, MINN.**

BINGHAM BEE-SMOKER AND KNIFE.

What catalogs say:

The A. I. Root Co., Medina, Ohio: "The cone fits inside the cap so the liquid creosote runs down inside of the smoker."

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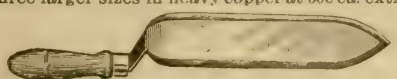
The Bingham Smokers and Honey-knives have been the standard in America and every European country 29 yrs. There is no *smoker* so *old*, so *new*, so *perfect*. Accept thanks for 30 yrs. liberal patronage.

BINGHAM SMOKERS. Name.	Size of barrel.	Price of 1	Price of 3	Postage.
Smoke Engine	4-inch	$1 25	$3 45	25
Doctor	3½ "	85	2 40	25
Conqueror	3 "	75	1 95	25
Large	2½ "	65	1 65	25
Little Wonder	2 "	50	1 35	15

Three larger sizes in heavy copper at 50c ea. extra.



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TO THE

BEE-KEEPERS OF CANADA.

WE are pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we do not offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

E. GRAINGER & COMPANY,

Deer Park,

Toronto, Ontario, Canada.

CANADIAN AGENTS FOR
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

North Texas . .

. . Bee-keepers

will find Dallas the best point from which to purchase supplies. We have a carload of ROOT'S GOODS IN STOCK, and sell them at the Factory Prices. Don't forget that we can furnish any thing in the way of Field or Garden Seeds, Plants, and Poultry Supplies. Our large illustrated catalog for 1907 free on application. Mention GLEANINGS when you write. . . . . .

Texas Seed and : Floral : Company

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JOBBERS FOR
Central Pennsylvania
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ROOT'S GOODS.

TRY THE DANZ.
COMB-HONEY HIVE

The Danzenbaker hives I got last season have given splendid satisfaction; in fact, I have kept my bees outside this winter, which is seldom attempted in Manitoba, and up to date they have come through in splendid shape. I think the hive did it.
Yours truly, LAURENCE C. CLARKE.
Morden, Man., March 5, 1907.

Send for catalog. Best shipping facilities in the State.

Frank W. Prothero

Dubois, : : : Pennsylvania

WHY NOT?

ISN'T it worth while to save a nickel, dime, or quarter when you can? You can just as well save this in freights by ordering

Root's Goods FROM ZANESVILLE

one of the best shipping centers in the whole country. Then look at the time you will save; for I get out goods with the utmost promptness, and our many railway and steamboat lines do the rest. No matter where you live, "*If You Want Best Goods Quickest, Send to Peirce.*"

Catalog free.

E. W. PEIRCE, Zanesville, O.

Bee-Supplies

It is not how much one boasts of himself, but it's what others say that counts in this world.

If you want the best goods made, promptness and accurateness in the execution of orders, and be your own judge in *A Fair and Square Deal all the way through*, send to us at once. Catalog free.

C. M. SCOTT CO., 1006 E. Wash. St., Indianapolis, Ind.

ROOT'S BEE-SUPPLIES New Goods. Free Catalog.

AT SPRINGFIELD, MASS.

F. R. DANIELS,

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DOVETAILED HIVES, SECTIONS, ETC.

of best quality (JOHN DOLL & SON'S MAKE). Extra low prices quoted on all supplies. Let me figure on your order. I can save you money. BERRY BASKETS AND BOXES in stock. Send for 32-page catalog free. **W. D. SOPER, Jackson, Mich.**

SWARTHMORE QUEEN-REARING OUTFIT

Prices of Complete Outfits:

Outfit No. 1--Experimental

POSTPAID, $1.50

1 Cell-bar, 1 Holding-frame,
16 Waxed Flange Cups, 12 Transfer-cages.

Outfit No. 2--Amateur

POSTPAID, $3.50

2 Cell-bars, 1 Holding-frame,
35 Waxed Flange Cups, 18 Transfer-cages,
1 Needle, 1 Cell-stick.

Outfit No. 3--Professional

BY FREIGHT OR EXPRESS, $7.50

2 Blank bars, 2 Cell-bars,
3 Holding-frames, 1 Incubating-cage,
1 Cage-pocket, 1 Grace Cell-compressor,
1 Grafting-plug, 100 Flange Cups,
2 Double mating-boxes, 2 Swarth. nursery-cages,
1 Bar-holder, 24 Transfer-cages,
1 Swarm-box with lid, 1 Needle, 1 Stick.

Prices of Separate parts:

		post. extra
Bar-holder	$ .10	.04
Blank Bar	.05	.04
Bottle Feeder	.10	.05
Bulb Filler and Feeder	.75	.08
16-hole Cell-bar	.10	.02
Cage-pocket	.25	.09
Flange-cups, unwaxed, 1c each; per 100.	.75	.09
Flange-cups, waxed, 2c each; per 100	1.75	.14
Grace Cell-compressor, each	1.75	.14
Grafting-needle, each	.15	.01
Grafting-plug, each	.10	.01
Grafting-stick, each	.10	.01
Holding-frame, each	.10	.05
Incubating-cage, each	.35	.07
Double Mating-boxes, complete, $1.00; 10	7.50	
Nursery-cages, complete, waxed cell-cup	.35	.05
Nursery-cages, no cups	.25	.04
Swarm-box, with lid	1.00	
Swarm-box, lid only	.25	
T Stands, each	.10	.06
Transfer-cages	.10	.02

FOR SALE BY ALL DEALERS IN BEE-KEEPERS' SUPPLIES

Northwestern Bee-keepers!

We are headquarters for the ROOT supplies for the States of Montana, Minnesota, the Dakotas, and Western Wisconsin.

You can save freight by ordering from this branch. A complete line of bee-keepers' supplies always in stock.

Secure a catalog at once.

BEES and QUEENS.—Your orders will be attended to.

The A. I. Root Company

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1024 Mississippi Street, St. Paul, Minn.

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On a Line

to all points in the South and Middle West.

Send for our free illustrated catalog of

Root's Bee-supplies

We sell at factory prices.
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Beeswax Wanted.

Blanke & Hauk Supply Co.

DEPT. B,

202-204 Market St., **St. Louis, Mo.**

Manufacturers and Jobbers of Dairy, Creamery, Ice-cream, and Poultry Supplies.

ITALIAN

QUEENS

AND NOTHING BUT ITALIANS

A superior improved strain. Northern-bred, are hardy, and vigorous; always come out strong in the spring. Our stock is well known, and not necessary to say more here. :: :: :: :: :: :: ::

Send for circular and list of testimonials.

Prices of Queens after July 1.	1	6	12
Select queens	$ 75	$4 00	$7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	5 00	
Straight five-band breeders	5 00		
Two-comb nuclei, no queen	2 25	12 00	22 00
Three-comb nuclei	3 25	17 00	32 00
Full colony on eight frames	5 00	25 00	

Add the price of queen wanted to nuclei or colony.
Can furnish Danzenbaker or L. frame.
We employ 500 swarms in our business.

QUEENS NOW READY!
SAFE ARRIVAL AND PURE MATING GUARANTEED.

Address all orders to

QUIRIN-THE-QUEEN-BREEDER
Bellevue, Ohio.

BEES and SUPPLIES
— FROM —
NEW YORK CITY.

For fourteen years we have been furnishing every thing the Eastern bee-keeper needs. Our office and warerooms are at the same old stand—105 Park Place, New York. Full colonies Italian bees in new hives, $9.00. Catalog free.

Apiaries, Glen Cove. L.I. I. J. STRINGHAM.

ROSE LAWN QUEENS

ABHASIANS: In order to distinguish our superior Caucasians of the genuine imported Abhasian stock from the common dark Caucasian, we have termed them "ABHASIANS." These are the YELLOW CAUCASIANS and possess all the valuable characteristics of the race in addition to their color, which commends them to the lover of bright color.

Untested queens, $1.50; tested, $2.00.

BANATS: The backward season renders it impossible to ship these before July. Choice untested queens from imported stock, at $2.00.

ABHASIANS OR BANATS imported direct to customer, $6.00.

Golden and red-clover Italians ready for shipment.

ROSE LAWN APIARIES, College View, Neb.

ITALIAN QUEENS and BEES

I can supply select untested Queens at 75 cts. each; $7.50 per dozen. Orders for early delivery will receive careful attention.

David S. Hurst, Box 102, Letohatchee, Ala.

QUEENS!

Caucasians, Italians, Cyprians, and Carniolans. Prices in April, May, and June: Caucasian, one extra-select best breeding-queen, $3.00; one imported direct from Caucasus, $4.00. Italian and Carniolan: one best extra-select breeding-queen, $2.00; one imported Italian or Carniolan queen, $2.50. Cyprian: one extra best select breeding-queen, $2.50; one imported direct from Cyprus, $3. Prices in July, August, and September, 50 cts. less than in May and June. Special prices for 50 and 100 queens. Caucasian, Italians, Cyprian, and Carniolan queens bred—the best imported breeding-queens. The addresses must be plain, payments by postal money-orders. Queens guaranteed to arrive in good condition, U. S. or Canada. 1000 Nuclei.

ERM. HAUNSCHILD,
Weissbach b. Pulsnitz i. Sa., Germany.

MINNESOTA QUEENS

Nothing Better. Try Them.
Three-band and Golden Italians.

We warrant our bees free from disease of any kind, and guarantee safe arrival of all queens. We want your orders and will fill them promptly on and after June 1st, at 75 cts. untested, and $1.25 for tested of either strain. A postal will bring you a circular. Send your orders to

MENNIE & FENTON,
Pine Island, . . Minnesota.

Taylor's Strain of Italians is the Best

Long tongues and goldens are the best of honey-gatherers; 18 years a specialty, breeding for the best honey-gatherers. Untested, 75 cts. each, or $8.00 a dozen; tested, $1.00 each, or $10.00 a dozen; select tested, $1.50 each. Breeders, the very best, from $3.00 to $5.00 each. Carniolans same price as Italians. Try them. We sell nuclei and full colonies. Bees in separate yards. Safe arrival guaranteed. Send all orders to

J. W. TAYLOR & SON, Beeville, Bee Co., Texas.

A BARGAIN

200 strong 2-frame nuclei, each nucleus containing a fine young Italian queen of this season's rearing—price $2 00 each. Fine tested queens, this season's rearing, $1.00. Nothing but tested queens will be sent out for the present; will begin shipping queens and nuclei about June 25; safe arrival guaranteed.

L. H. ROBEY, Worthington, West Va.

Caucasian and Long-Tongue Italian Queens.

1905, '06 Queen-breeder in Apiary of Dept. of Agriculture, Washington, D. C.

	Before June 15.			After June 15.		
Both Races.	1	6	12	1	6	12
UNTESTED,	$ .75	$4.25	$8.00	$ .60	$3.35	$6.50
SELECT "	1.00	5.50	10.00	.75	4.00	7.50
TESTED	1.50			1.25		

Satisfaction Guaranteed. Descriptive Cir. free.

LESLIE MARTIN,
Birdcroft Apiaries, Lebanon, Tenn.

CARNIOLANS and BANATS

OUR SPECIALTIES.

CARNIOLANS.

THIS is our 22nd year in breeding this race of bees, and, by careful selection, we claim to have the finest *Line-Bred* Carniolans to be had. They are very gentle, hardy, prolific, great honey-gatherers, and builders of white combs. We have wintered 500 queens for early orders. One untested queen, $1.00; six for $5.00; 12 for $9.00. Tested, $1.50; best breeder, $3.00; best imported, $5.00. Golden and leather Italians same price. One L-frame nucleus, $1.00; two, $1.75; three, $2.50. Add price of queen wanted to nucleus. No foul brood here. Bees and queens guaranteed to arrive in good condition.

BANAT BEES, from Hungary.

THIS wonderful new race of bees takes the lead over all others, all points considered. Are great honey-gatherers and builders of very white combs; gather very little propolis; do not breed out of season and use up their honey when none is to be had; are very gentle and quiet on combs; are not inclined to swarm, even with their hives boiling over with bees, but keep right at work while other races are swarming. We consider this race of bees a model one for producing fancy comb honey. Have wintered a choice lot of queens for early orders. One untested queen, $2.00; tested, $5.00; best breeding and imported, $8.00.

F. A. LOCKHART & COMPANY, LAKE GEORGE, NEW YORK.

Queens that Please are not always "just for looks." Hear what one of my queens has done, and that before April 15 of the present season. "*Dear Sir:*—The queen I purchased of you last fall has already given me over 200 lbs. of honey this season. I think that is good for so early in the season. Have your bees done as well? M. A. SALAZER, Falfurrias, Texas." I breed the Leather or Red-clover stock of Italians; also the Holy Land and Carniolan races in separate yards. Of the Red-clover stock I can safely say there are none better. I have a few left of those extra-fine breeding queens. If you are going to requeen your apiaries, one of these breeders will be of untold value. Remember, I place a guarantee behind every Laws queen. Price of queens each, $1.00; six for $5.00. Breeding queens, $3.00 to $10.00. Circulars free.

W. H. LAWS, Beeville, Bee County, Texas.

Italian Queens

Fine young prolific three and five banded Italian queens by return mail. Untested, only 60 cts.; tested, 75 cts.; extra fine queen, $1.00. Full colonies in eight-frame new hive with queen, $4.75. Three-frame nuclei, with queen, $2.75.

J. L. FAJEN, ALMA, MO.

NONE BUT THE BEST

QUEENS

are sent out by our firm; should any prove unsatisfactory, we promptly replace them. Try our strain of three-band Italians; they will not disappoint you. Tested queens, $1 each; untested, 75 cts., $8 per doz.

J. W. K. SHAW & CO., LOREAUVILLE, IBERIA PA., LA.

Golden Italian Queens

Ready for points where weather permits reception. Untested, $1.00; dozen, $9.00—after March, $8 00; selects, 25 cts. extra; tested, $1.50; select, $2.00; breeders, $3.00 up. Circular free; 17 years' experience.

J. B. CASE, Port Orange, Fla.

Better than an Island

This place is just as good as an island for breeding queens, for there are no other bees within five miles, and so pure mating is guaranteed. It is better than an island when you order queens, for the fastest trains stop here, and hence queens are not away from the colony long enough to impair their usefulness. Safe introduction is guaranteed if you follow my special directions. I consider the Banat Caucasian bees the best and gentlest in the world. Banat Caucasian bees are bred here; other races in outyards. Queen-breeders should secure their breeding-queens from this pure stock. Order now. Banat Caucasian queen, $3.00. Caucasian queen, $1.50. Golden Italian, 75c. Tested queens, one year old, double these prices.

Dele Collins, Ph. D., Emporium, Pa.

Moore's Long Tongue and Golden

Queens

Fine select untested queens, $1; 6, $5; 12, $9. Tested, $1.50; 6, $8. Breeders, $3.50. Safe arrival gar'd.

W. H. RAILS, - ORANGE, CAL.

Yellow from Tip to Tip!

My Adel bees and queens are very handsome. Every queen a breeder, and guaranteed to produce golden queens and beautiful bees; non-swarmers, very gentle, and hustlers for honey. Each queen, $1.00. Catalog ready. **H. ALLEY, Wenham Mass.**

Red-clover and Caucasian Queens

Ready now. My red-clover strain do good work on both red and white clover. Untested, 75c; tested, $1. Dovetailed Hives, $1 each; and all kinds of supplies. Give me your bill. Plenty fine queens ready. Circ'l'r.

G ROUTZAHN, . BIGLERVILLE, PA.

GOLDEN QUEENS

Balance of season at 70 cts. each, three for $2, or six for $3 50. Goldens only. Safe arrival, perfect satisfaction.

R. O. COX, Rt. 4, Greenville, Ala.

DOOLITTLE & CLARK

Have a fine lot of Italian Breeding-queens ready for immediate delivery. They are also booking orders for 1907 queens.

	1	*3*	*12*
Untested	$1 00	$2 50	$ 9 00
Tested	1 50	4 00	14 00
Tested last year's rearing.	2 50	....	....
Select breeding	5 00	....	....
Extra select breeding	10 00	....	....

BORODINO, ONONDAGA CO., NEW YORK.

Westwood Red-clover Queens.

No better hustlers flying; will get honey where other bees fail. Try them and be convinced. Nuclei a specialty. Also full colonies of ten frames each. Safe arrival guaranteed. Price list sent on application.

HENRY SHAFFER, 2860 Harrison Ave., Station L, Cincinnati, Ohio.

3-BANDED ITALIAN BEES.

The best all-round bees on earth. My stock is composed of selections from my own strain of 3-banded Italians that were awarded diploma at the Pan-American Exposition, and The A. I. Root Co. clover stock.

Tested queens, $1.50; select tested queens, $2.00; fair breeding queens, $3.00; extra select breeders, $5.00—ready to go promptly. Untested 1907 queens, $1.00; select untested queens, $1.25—ready early in March. Yours for a prosperous 1907.

W. O. VICTOR,
Queen Specialist, HONDO, TEXAS.

QUEENS of MOORE'S STRAIN OF ITALIANS

Produce workers that fill the supers, and are not inclined to swarm. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Mr. W. Z. Hutchinson, editor of the *Bee-keepers' Review*, Flint, Mich., says: "As workers, I have never seen them equaled. They seem possessed of a steady, quiet determination that enables them to lay up surplus ahead of others. Easier bees to handle I have never seen."

My queens are all bred from my best long-tongued three-banded red-clover stock (no other race bred in my apiaries), and the cells are built in strong colonies well supplied with young bees.

PRICES: Untested queens, $1 each; six, $5; doz., $9. Select, untested, $1.25 each; six, $6; doz., $11.

Safe arrival and satisfaction guaranteed.

Descriptive circular free. Address

J. P. Moore, Queen-breeder, Rt. 1, Morgan, Ky.

ITALIAN QUEENS

Bred from the best stock this country can produce. Bright golden and 3-banded queens; ready May 20th. I am now booking orders, which will be filed and filled in rotation. After May 20th, all orders will receive prompt attention. Untested queens, 60 cts.; six for $3.35., or $6.50 per doz. Tested, $1.00, or six for $5.50. Two-frame nuclei (Danzenbaker or Hoffman frame), with young queen, after June 1st, $2.00.

Geo. W. Barnes, Box 340, Norwalk, O.

Italian Queens

Golden, Three-banded, or Leather-colored. Write for circular to-day. . Prices right. . Queens all right.

Robt B. McCain, Rt. 1, Oswego, Ill.

Queens from 65 Cents Up!

Bred from Root's Imported Italians. Write for prices, stating wants. . .

C. M. Church, Arnold, Pa.

MILLER'S RED-CLOVER ITALIAN QUEENS

From IDEAL and GREEN VALLEY Apiaries.

Guaranteed to please or money refunded; bees roll the honey in; no better hustlers. 10 per cent discount on all orders. Write for circular and price list.

I. F. MILLER, . REYNOLDSVILLE, PA.

Golden and 3-band Italians, Honey-getters—one for . . . 50c

$6.00 per dozen. Twenty years a queen-breeder. Safe arrival.

W. J. FOREHAND, Fort Deposit, Ala.

ITALIAN QUEENS

Golden or dark; untested, $1.00; tested, $1.50.

C. D. BENTON, . . AKIN, N. Y.

MOTT'S LONG-TONGUED IMPORTED QUEENS!

Also Goldens. Nuclei a specialty. Untested, 75 cts.; tested, $1.25. Write for prices. Postal-orders drawn on Decatur, Mich. **E. E. MOTT, Glenwood, Mich.**

QUEENS! and NUCLEI!

Circulars free. D. J. BLOCHER, Pearl City, Ill.

DEWEY AUTOMATIC FOUNDATION FASTENER.

"Your automatic starter-fastener is all you claim for it—the best on the market."—DOOLITTLE & CLARK.

$5.00 reward. I will pay the person securing the greatest number of starters, in 15 minutes, this reward to establish a record. Write for particulars and testimonials.

E. H. DEWEY, Great Barrington, Mass.

NEW IMPROVED BEE-SUPPLIES.

Hives, L. size; improved covers, adjustable slide at entrance; can be put on any standard hive. Supers can use five different-size sections; brood-frame—use comb for starters; smoker—no valve, central draft; feeder—used on any kind of hive or box. Send for catalog. **L. RIEBEL, Chariton, Iowa.**

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Most Practical Poultry Journal Published. Devoted to Profitable Farm, Poultry, and the allied Interests of the Farmer and Ruralist, their wives and children.

26th year. Beautifully printed and illustrated. Up-to-date and helpful. Best known writers; show how to succeed. Specially edited for women and children. **50 cents per year. Special introduction offer to new annual subscribers until Sept. 1, 1907.** Only 25 cents, or for 30 cents we will include a large illustrated poultry book invaluable to every one interested. Stamps accepted. Sample copy free. Don't miss this offer.

AMERICAN POULTRYMAN,
Department B. C. Springfield, Ohio.

METAL MOTHERS.

Complete fireproof Hatching and Brooding plant for $7.50; 2 qts. oil will hatch and brood the chicks. Our nest system is the latest discovery. Full line poultry supplies. Lowest prices. Free catalog. Write to-day.

CYCLE HATCHER CO.
Box 223. Elmira, N. Y.

Classified Advertisements.

Notices will be inserted in these classified columns at 20 cents per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Help Wanted.

WANTED.—An apiarist accustomed to large apiaries. State age, experience, and wages.
DR. GEO. D. MITCHELL & CO., Ogden, Utah.

WANTED.—Young man to help with bees at once. Write age, lowest wages, and experience.
E. F. ATWATER, Box 37, Meridian, Idaho.

For Sale.

FOR SALE.—Opaline honey-jars, all kinds; send for price list. HAROLD E. SHORE, Germantown, Pa.

FOR SALE.—Fine job-printing outfit.
C. A. STEBBINS, Broad Creek, Va.

FOR SALE.—15 honey-barrels at 25 cts. each; used once. H. C. AHLERS, West Bend, Wis.

FOR SALE.—Ten extracting combs in L. supers, $1.75 in 5 lots. Other new and used supplies
J. E. THOMPSON, Carpentersville, Ill.

FOR SALE.—Alexander wire bee-veil, guaranteed to protect the face from any stings, 75c each, or 3 for $2.00 post paid. FRANK ALEXANDER, Delanson, N. Y.

FOR SALE.—A quantity of Hilton chaff and other hives in the flat, cheap to close out. In quantities to suit. A. G. WOODMAN CO., Grand Rapids, Mich.

FOR SALE.—One Root-German wax-press and one No. 15 Cowan honey-extractor. JAMES L. HOWARD,
Box 79, R. D. 2, Sta. D., Milwaukee, Wis.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1907 send your name and address to FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE.—Best Wisconsin sections, per 1000, $4.00; No. 2, $3.40; plain, 25 cts. less. Discounts on Danz. hives and other Root's goods; also berry-boxes. Italian bees for sale. H. S. DUBY, St. Anne, Ill.

KODAK and Camera users, send us your developing and finishing. Send for price list. A full line of Kodaks, films, and all Photo Supplies.
FURNAS & MADDOX, 552 A, Louisville, Ky.

FOR SALE.—Snap: 350 8-fr. and 10 Dovetailed supers, painted white, with sections 4¼x1⅞, section-holders, separators, all made up, painted, for 10 and 12 cts. each. Some never been used; the rest only one year; worth 75c each. A. LANE, Wasco, Kern County, Cal.

FOR SALE.—The following foundation-mills. Wish to dispose of them at once. Write for sample if interested, and fuller information will be given about any mill.

Mill No. 1—14-in., old-style high frame, in perfect order, price $15.00.

Mill No. 2—6-in., old-style high frame; has had a pin run through the rolls, otherwise is in good order; price $8.00.

Mill No. 3—12-in. new style, large rolls, used but very little, in perfect order: price $25.00.

Mill No 4—12-in. blank rolls, used but little, in perfect order; price $20.00.

Mill No. 5—6-in. mill, new style, in perfect order, used but little; price $12.00.
W. W. BLISS, Duarte, Cal.

Real Estate for Bee-keepers.

FOR SALE.—Good bee and farm range, about 130 acres, 2½ miles southwest Escondido, San Diego Co., Cal. Price $2600. FRIEDRICH HASSE, Escondido, Cal.

FOR SALE.—Orange grove with good house and out-buildings and 50 colonies of bees, in Sorrento, Lake County, Fla. Also 15 colonies in Ohio. Good reason for selling. Address C. W. MCCOLLEY,
Tontogany, O.

FOR SALE.—568 acres at $5.00 per acre; 100 acres bottom-land, mostly cleared; 75 acres highland, mostly cleared, and 400 acres timberland. Small house, and some out-buildings. B. F. AVERILL,
Howardsville, Va.

FOR SALE.—90 acres, fenced good; 3-room house, outbldgs., 2 good wells, windmill; 20 acres fine diversified crop; horses, wagon, buggy, cows, hogs, chickens, bees, farm-tools, furniture. All new. Fine climate; 3 mi. from Kerrville. $2500. ROY D. TAIT, Kerrville, Texas.

FOR SALE.—Bee-keepers, attention. I have a 100-acre farm with house, barn, and some fruit, situate about 5 miles from Delanson, N. Y. I want a good tenant. If I can get a desirable tenant, will give FREE rent the first year. Here is a good chance for a live man, not afraid of hard work, to establish a home and business.
F. C. SAUTER, 391 6th St., Brooklyn, N. Y.

FOR SALE.—Seven-room house with cellar—two-story; stone-basement barn, 36x48; three acres of good land with plenty of fruit-trees and grapevines, located on Canada St., Munnsville, Madison Co., N. Y., in the Stockbridge Valley—a very desirable location for a bee-keeper, with plenty of basswood timber, clover, buckwheat, etc. Several years ago my brother kept a large stock of bees here and was very successful; located on the O. & W. R. R., nine miles south of the city of Oneida. Price $1800, with $800 cash, and balance on long time at 6 per cent if desired. Any further information will be given by
R. H. WOOLVER, Munnsville, N. Y.

FOR SALE.—On account of age I wish to sell my ranch of 163 acres, 8 miles back from the Pacific coast, at Del Mar. It is nearly all fenced and cross-fenced; 100 acres under cultivation, the rest pasture; is as near frostless as any place in Southern California; small house 500 feet above sea-level, giving a fine view of the Pacific Ocean; stable, well, and other improvements; Lusardi P. O., with tri-weekly mail service at my house. Besides home consumption I have sold $1000 produce yearly, and am not able to cultivate more than half the tillable land any year. Through exceptional opportunity I know it is the best bee location within a radius of more than 20 miles. At all times from January to November there is something more or less plentiful for bees. In May and June I get a surplus of white honey from sage, than which none is finer, five or six weeks longer, a surplus of darker honey from other sources. My honey-house and bee-yard are the most convenient and easiest worked I know of. I am not anxious to sell the apiary, because it is profitable, and I can and *like* to handle bees; but if it will promote the sale of the land, which I can't handle, for I am in my 68th year, I would sell part or all the apiary. For further particulars address
A. J. BURNS, Lusardi, San Diego Co., Cal.

Bees and Queens.

FOR SALE.—Bees in Danzenbaker Hives, $7.00 per hive. NORMAN B. MATTSON, Chester Heights, Pa.

FOR SALE.—Queens from bees that gather honey: also full colonies of bees. HAROLD HORNOR,
Jenkintown, Pa.

FOR SALE.—Virgin queens from pure Italian or Carniolan mothers. Write for prices.
LOUIS F. WAHL, Chili Center, R. F. D. 22, N. Y.

FOR SALE.—Italian queens, hustlers. Untested, 65 cts.; tested, $1.00. Select tested, $2.00. Breeders, $3.00 each. MRS. J. W. BACON, Waterloo, N. Y.

FOR SALE.—Bees, queens, and bee-keepers' supplies (Root's goods), at factory prices.
F. W. VAN DEMARK, Mehan, Okla.

FOR SALE.—Caucasians and golden Italians. Untested, 75 cts. each after June 20; four-frame nuclei, $3 each. HOLLY VALE APIARIES, Lewisburg, Miss.

FOR SALE.—Twenty colonies bees in newly painted Danzenbaker hives—young queens; extra fine stock; gentle, and honey-gatherers; $4.00 a hive.
M. C. LONG, 421 Cypress St., Kansas City, Mo.

FOR SALE.—Mechanic Falls, Me., branch of The A. I. Root Co. will ship full colonies, nuclei, and queens of same grade direct from Mechanic Falls, Me., at regular catalog prices. Safe arrival and satisfaction guaranteed.

FOR SALE.—200 hives Italian bees at $2.00 each, strong and healthy; also 6 good farms, $5 to $20 per acre; good houses, good water; schools, churches, and railroad handy; some of this land will produce 75 bushels of corn per acre; 1½ bales of cotton; some is good for fruit. Write for full particulars.
F. C. MORROW, R. F. D., Blevins, Ark.

Poultry Offers.

FOR SALE.—Mated homer pigeons. Inquire North Wilcox, Northside Farm, Royal Oak, Mich.

FOR SALE.—Homers for squab-breeding; mated birds. MISSOURI SQUAB CO., St. Louis, Mo.

FOR SALE.—Indian Runner, Mallard, Rouen, Cayuga duck eggs, $1 doz. Black, white, Partridge Cochin Bantams, $2 doz. Pheasants. Wanted.—Light or dark Brahma Bantam eggs. H. S. LITTLE, Newbury, Mass.

RAISE SQUABS! Start right! Get Willcox's champion homers. Mated and registered.
NORTH WILCOX, Northside Farm, Royal Oak, Mich.

FOR SALE.—Eggs for hatching, from prize-winning W. Wyandottes; Duston strain; best layers, fine large birds, pure white—scoring 90 and above at Michigan shows. 15 eggs, $2 00. Discount on large orders.
WESLEY C. RICHARDS, "Brookside Farm,"
R. F. D. 2, Carleton, Mich.

FOR SALE.—Eggs for hatching from my celebrated strain of S. C. Brown Leghorns; line bred for winter layers; greatest layers on record; farm range; fertility guaranteed; $1.00 per 15. Incubator eggs at reduced prices. Prompt shipment.
J. E. HAND, Rt. 1, Birmingham, Ohio.

Wants and Exchange.

WANTED.—Feathers. What have you to sell? Mail samples. BANGOR MATTRESS CO., Bangor, Me.

WANTED.—Bees. State what kind, on what frames, and price. H. H. JEPSON, 182 Friend St.,
Boston, Mass.

WANTED.—ROOTS AND HERBS. The season is at hand for the collection of these goods, and we buy large quantities of all kinds. They have to be gathered and dried before they are ready for the market. We issue a price list and also a book giving information as to weeds used in medicines, which we send upon receipt of the necessary postage, 5c. In writing, mention this advertisement. J. L. HOPKINS & CO.,
100 William St., New York City.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To sell drawn combs (extracting combs) standard size, from healthy bees. Going out of business. Write for prices.
D. S. JENKINS, Las Animas, Colo.

WANTED.—Western bee-keepers, notice! Two carloads of Root's bee-supplies. Write us for prices, stating goods wanted. Would also like to quote distant bee-keepers delivered prices.
SUPERIOR HONEY CO., Ogden, Utah.

Honey and Wax Wanted.

WANTED.—Comb and extracted honey in any quantity; state quality, quantity, and price f. o. b.
THE WAXELBAUM-HEARD PRODUCE CO., Macon, Ga.

Honey and Wax For Sale.

FOR SALE.—California extracted honey, all grades; case or car load lots.
RAYMOND E. FAIRCHILD, Redlands, Cal.

FOR SALE.—800 pounds of pure beeswax for sale. Refuse from wax-extractors wanted. Will pay cash.
W. L. COGGSHALL, Groton, N. Y.

Bee-keepers' Directory.

QUEENS.—Clover stock. Experience and methods count. Write me. H. G. LARUE, LaRue, Ohio.

ITALIAN queens bred for honey, untested, $1.00 each.
GEO. H. PLACE, 816 No. 49th St., Omaha, Neb.

Extra honey queens and choice mountain honey.
Francis J. Colahan, Bernardo, San Diego Co., Cal.

QUEENS.—Pure Gold, Red-clover, Caucasian, Banat.
ROSE LAWN APIARIES, College View, Lincoln, Neb.

ITALIAN QUEENS.—Golden and leather, 60c each; worth $1.00. G. W. BARNES, Box 340, Norwalk, O.

Bee-keepers' supplies, Italian queens. Send for a free catalog. ARTHUR RATTRAY, Almont, Mich.

ITALIAN BEES and queens—Red-clover strain imp'd mothers. A. W. YATES, 3 Chapman St., Hartford, Ct.

ITALIAN BEES, queens, and Root's bee supplies.
E. SCOGGIN, Carlsbad, N. M.

I club a high-grade Italian queen with GLEANINGS, new or renewal. W. T. CRAWFORD, Hineston, La.

WANTED.—500 colonies of bees in Texas, Arizona, or California. N. E. MILLER, Box 373, Logan, Utah.

ITALIAN BEES and queens—red-clover and golden strains. E. A. SIMMONS, Greenville, Ala.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York City.

ITALIAN bees and queens bred for honey; price list free. B. F. YANCEY & SON, Angleton, Tex.

FINEST Golden and red-clover queens, Caucasian and Carniolan. DANIEL WURTH & GRANT, Pitkin, Ark.

ITALIAN AND CAUCASIAN bees and queens of best quality; price list free. A. E. TITOFF, Ioamosa, Cal.

MAPLEWOOD APIARY.—Choice comb honey, Italian bees and queens. GEO. H. REA, Reynoldsville, Pa. R. 2.

ROOT'S SUPPLIES at factory prices; wholesale and retail. ANTON G. ANDERSON, Holden, Mo.

ITALIAN BEES, queens, and bee supplies. H. H. JEPSON, 182 Friend St., Boston, Mass.

ITALIAN BEES, queens, nuclei, and bee-keepers' supplies. A. T. DOCKHAM, Rt. 1, Box 95, Eagle Bend, Minn.

ITALIAN BEES, queens, beeswax, honey, and bee-keepers' supplies. M. E. TRIBBLE, Marshall, Mo.

FOR SALE.—Bee-keepers' supplies. Write for catalog. Lengst & Koenig, 127 S. 13th St., Saginaw, Mich.

FOR SALE.—Golden and red-clover Italian queens. WM. A. SHUFF, 4426 Osage Ave., Philadelphia, Pa.

ITALIAN BEES and queens—red-clover and golden strains. E. E. MOTT, Glenwood, Cass Co., Mich.

SWARTHMORE Golden-all-over, Caucasian, Banat, Carniolan, Cyprian queens. E. L. Pratt, Swarthmore, Pa.

QUEENS. Free list giving safe method of introducing, ready Feb. 15. E. E. LAWRENCE, Doniphan, Mo.

ITALIAN BEES, queens, honey, and ROOT'S bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

FOR SALE.—Root's bee-supplies, wholesale and retail; factory prices; catalog free. Beeswax wanted. W. E. TRIBBETT, Staunton, Va.

Improved Carniolans always winter best, breed up strongest early in the spring; the finest comb-honey builders. (Italians for those preferring them.) Catalog free. W. W. CRIM, Pekin, Ind.

GOLDEN-ALL-OVER Caucasian Banat bees and queens. We book orders for early queens from our best imported breeding stock for honey, with 600 twin mating-boxes. THE SNYDER APIARIES, Lebanon, Pa.

QUEENS.—Improved Red-clover Italians bred for business; June 1 to Nov. 15, untested queens, 60c; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

IMPROVED ITALIAN QUEENS now ready; nuclei and colonies about May 10, Danzenbaker or L. frames; 20 years a queen-breeder; 500 colonies to draw from. Circular and testimonials free. QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

ANGEL'S GOLDEN BEAUTIES and his bright three-banded Italian Queens have but few equals and no superiors. A fine large queen of either strain for $1.00; an extra select breeder for $2.50. I have had 12 years' experience at queen-breeding. Address SAMUEL M. ANGEL, Route 1, Evansville, Ind.

JAPANESE BUCKWHEAT.

We have a very limited supply of Japanese buckwheat seed. If any one reading this knows of a stock of choice seed for sale we should be pleased to hear of it. Until further notice we shall have to make our price, including bag to ship in, 40 cts. per peck; 75 cts. per ½ bushel; $1.40 per bushel; $2.50 for two bushels.

SECOND-HAND 60-LB. CANS.

We have on hand from 100 to 200 boxes of good second-hand 60-lb. honey-cans, two in a box. The cans are free from rust on the inside, and very little on the outside. The boxes are repaired and in good condition. We offer these in 5-box lots or over at 40 cts. a box; 25 boxes at 35 cts. a box; 50 boxes at 30 cts a box. These prices are for shipment from Medina only.

HALF-POUND TUMBLERS.

In making up the two pages of honey-packages in our catalog this year we omitted the half-pound tumbler. We have these packed 32 dozen to the barrel at $5.50 per barrel, or packed in partitioned cases of four dozen each, ready to reship when the tumblers are filled with honey, without additional packing; parchment or wax-paper discs also included; $1.00 per case; 10 cases at 95 cts.; 25 cases or over at 90 cts.

BUSINESS IMPROVING.

As we go to press we are having the first real summer weather since the latter part of March, and prospects are much improved in consequence. Those bee-keepers who have looked after their bees to see that they were not allowed to starve for lack of feed are hopeful of a honey crop, as the season is fully three to four weeks later than usual in many localities. Orders are doing very well considering all the conditions. We are in position to serve you promptly.

ONE AND FIVE GALLON CANS.

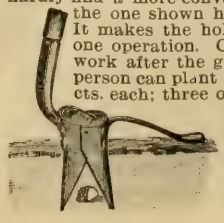
We have an extra large stock of one and five gallon cans which we offer, to reduce stock, for shipment from Medina only, at the following prices: One-gallon cans, with 1¾-inch screw-cap, $10.00 per 100; 500 or over, at $9 00. Packed 10 in a case at $1.30; 10 cases or over, at $1.20. Five-gallon (60-lb.) cans packed two in a case, 75 c. per box; $7.20 for 10 boxes; 25 boxes or over at 70 cts. This offer is for only a limited time to reduce stock, and you should mention it in ordering.

FURTHER DECLINE IN BEESWAX.

From quotations received from wax-dealers we note a decline of 2½ to 3 cents per lb. in the last six weeks. The light demand for foundation during the same time (due to unfavorable weather) leaves us with a large stock—more than we shall need for the next six months—of light demand. We therefore mark our prices down to 28 cents cash, 30 cents trade, for average wax delivered here or at our branch offices. We offer for sale about 5000 lbs. Santiago Cuban beeswax, unrefined, at 34 cents; 100-lb. lots or more at 33 cents; Calcutta East India wax, about 200 lbs. to case, at the same price.

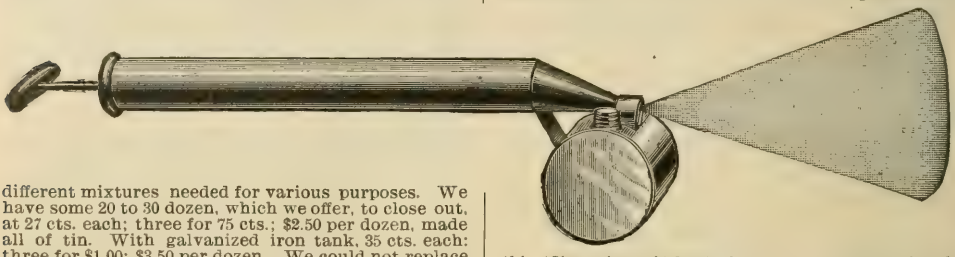
ACME HAND POTATO-PLANTER.

The time is here for potato-planting, and you will hardly find a more convenient tool for planting than the one shown here, especially in light soil. It makes the holes, and drops and covers at one operation. Once over the field does the work after the ground has been fitted. One person can plant two acres in a day. Price 55 cts. each; three or more at 50 cts.; a crate of one dozen for $5.25. We also have special bags fitted with straps for holding the potatoes while using the planter, which we can furnish at 50 c. each, or $4.50 per dozen.



FAULTLESS SPRAYERS.

This is one of the most useful little implements ever invented, and this is the time of year when it is needed to spray shrubs, plants, and especially potato-vines, to kill the bugs. It is also used as a kerosene sprayer on cattle to keep off flies. They are so cheap that you should have several, each loaded with the different mixtures needed for various purposes. We have some 20 to 30 dozen, which we offer, to close out, at 27 cts. each; three for 75 cts.; $2.50 per dozen, made all of tin. With galvanized iron tank, 35 cts. each; three for $1.00; $3.50 per dozen. We could not replace this stock to sell at these prices. Some of our dealers also have a supply on hand.



A B C OF BEE CULTURE.

Our stock of the last (1905) edition of the A B C of Bee Culture is getting very low, and we have been cutting down on all large orders for some time to make the stock last as long as possible. We have got fairly started on the new edition; but with the great amount of work necessary to complete it we shall hardly have any ready to furnish before September at least, and it may be later. If any dealers or agents or others have extra copies which you are not likely to dispose of before the new edition is ready, will you kindly notify us, and we will furnish orders for them.

The new edition is being printed on enameled book paper, and will be about one-fourth heavier than any former edition. It will be by all odds the finest edition ever issued. It will cost us more than 25 per cent more to produce it, and we have decided to increase the price to $1.50 postpaid, or $1.25 shipped with other goods. Orders already booked for the new edition at the old price will, of course, be filled. The wholesale and jobbing price is also advanced in proportion.

SPECIAL BARGAINS IN OLD-STYLE STOCK.

We are making some special offers on some old-style goods at some of our branches, which we desire to close out. There are some who prefer some of these older patterns to those adopted since, as we frequently find. To such this is an excellent chance to secure some goods of your choice at special prices.

At our Washington branch we offer:

77 eight-frame covers, Danz., flat metal-bound, which were standard three or four years ago. They are put together, all ready for use when painted. Price 25 cts. each; 10 for $2.20, or the lot at 20 cts. each.

197 ten-frame size, same style, at same price.

60 eight-frame bottom-boards, Danz. style of 1903, with metal-bound tilting floor-board—very convenient for cleaning. Price of either size, 20 cts. each; $1.70 for ten, or 15 cts. each for the lot.

50 hive-stands with slanting front, not now listed in our catalog. Price 12 cts. each; $1.00 for 10.

25 hive-stands of an older pattern, without slanting front. Price 10 cts. each; 80 cts. for 10.

At our Philadelphia branch we offer:

89 eight-frame and 500 ten-frame Danz. flat covers, metal bound on ends, same as those at Washington. Price 25 cts. each; $2.20 for 10; $20.00 for 100.

10,000 thick-top staple-spaced frames, with end and bottom bars ⅞ wide by ¼ inch thick; otherwise they are just like our present style. Price $2.25 per 100; $10 per case of 500.

Of our regular pattern, all-wood frames, we have an overstock, which we offer, to reduce it, at $1.75 per 100; $7.50 per box of 500.

An overstock of regular B. bottoms, ten-frame size, not reversible, 20 cts. each; $1.80 for 10; $17.00 per 100.

Overstock of 10-inch 4-row shipping-cases, with 3-inch glass, at $8.00 per crate of 50; hold 24 sections, 4¼ x1⅛ plain; also of 10-inch 2-row shipping-cases, with 3-inch glass, at $4.50 per crate of 50.

We have at Chicago several hundred slotted section-holders, nailed, which have been used and taken back in exchange for other style of fixtures. These new cost $2.00 per 100 in the flat. We offer these nailed, ready for use, packed for shipment, at $1.25 per 100, while they last. While they are somewhat stained with propolis from use, they are a bargain at this price to any one needing this style of section-holder.

We have in stock in Ogden, Utah, to dispose of, 300 thick-top staple-spaced frames at $2.50 per 100; 300 all-wood frames at $2.00 per 100; 2 No. 4 Novice extractors at $8.50 each; 1 bee-tent at $1.75; 250 folding cartons for 4¼ x 1⅞ sections, $1.25; 1000 cartons, wrappers, labels, etc., for brick honey, at $10.00. These goods are offered free on board at Ogden at catalog prices as above, less 10 per cent discount for prompt cash order to close out the stock quick.

Special Notices by A. I. Root.

DWARF ESSEX RAPE—ADVANCE IN PRICE.

I am sorry to tell you that dwarf Essex rape has advanced so much in price that we can not now buy it—that is, a good article — for the price we have offered in our seed catalog. The best price we could make at present would be, 1 lb., by mail, 20 cts.; 50 lbs., by freight or express, 7 cts.; 100 lbs. at 6 cts. It can be shipped either from here or Chicago. It may be sown in June, July, or August. A leaflet in regard to its value will be mailed on application.

FIGHTING RATS.

We are pleased to receive from the Department of Agriculture Bulletin No. 297, entitled, "Methods for Destroying Rats." I have several times petitioned for something of this kind from our experiment stations or the Department at Washington. I learn from the bulletin that rats sometimes gnaw through lead pipe, thus flooding buildings. They also eat the insulation from electric wires, thus causing disastrous fires, besides disseminating contagious diseases. They breed from three to six times a year, and the females breed when about three months old. The average litter is about ten. Particular emphasis is given in this bulletin toward constructing rat-proof buildings—those of concrete, etc. The bulletin is sent free, on application to the Department of Agriculture, Washington, D. C.

THAT $5.00 POULTRY-BOOK WITH ITS $5.00 SECRET; SEE PAGE 733.

Since my notice the author has informed us that the book will be sold in the future for only $1.00. The remainder of the $5.00 may be paid in 90 days or the book returned. My impression is that most people will think $1.00 is *enough* for a 50-cent book. The author also claims that what is said about sprouting grains, in the poultry-books and agricultural papers, has appeared only *since* he made his "great discovery." But I shall have to remind him that in the first edition of Stoddard's "Egg Farm," *published about 35 years ago*, he especially emphasized sowing oats every few days around the houses on the egg-farm, letting the chickens scratch them out whenever the grains are sprouted enough to suit them.

THE EVAPORATION OF APPLES.

The above is the title of an exceedingly valuable farmers' bulletin, No. 291. This spring, apples are worth $1.50 to $2.00 a bushel, and are of poor quality at that, and yet thousands of bushels—and I do not know but I might say a million—of beautiful apples went to waste last year because the market in that particular locality was glutted. The handsomest Duchess I ever saw lay rotting on the ground in Northern Michigan because the price offered was not sufficient to warrant the farmer for gathering them up. Now, evaporated

apples are good and wholesome, and I believe they seldom fail to bring a satisfactory price. If somebody in all the apple localities would make it his business to gather them up and dry out just enough of the water, they can be saved from waste and kept in good condition. This bulletin of 38 pages, full of nice pictures, tells all about the whole business; and, like all other farmers' bulletins, the information is given by somebody who has no apparatus to sell and no ax to grind except to help the fruit-growers of our land. Just tell the Secretary of Agriculture, Washington, D. C., that you want this bulletin and you will get it.

THE SPENCER SEEDLESS APPLE — MORE ABOUT IT.

One of our subscribers has mailed us a half-tone print of the seedless apple, showing it is not only seedless but that it has no core nor any sign of one. He also writes that he has some apples in a jar of alcohol, cut in two, showing no core whatever. I forwarded this letter and circular to the *Rural New-Yorker*, and the editor explains the matter as follows:

Dear Mr. Root:—I have one of their jars containing samples of the apples here in the office. It appears that they take these apples and cut out about half an inch or more of the center—thus, of course, entirely removing whatever core there might be; then they put the two ends into alcohol, and then, of course, they don't show any particular core whatever. The same thing could be done with a Baldwin or Northern Spy by cutting out a portion of the center of the seeds, and thus show a practically coreless apple. This is the way, as I understand it, that these samples are prepared, and this scheme has been exposed a number of times already at fruit-growers' meetings. The whole thing is a great humbug, and it seems impossible to make it clear to the people how great a humbug it is.

New York, June 4. H. W. COLLINGWOOD, *Ed.*

There, friends, what do you think of a man or company that resorts to such methods to sell their apple-trees at $2.00 each?

PERNICIOUS BOOKS AND MAGAZINES.

We clip the following from the *Home Herald* for June 12:

There are more than seventy books, which, on the score of their contents, can not be carried in the United States mail. Tolstoi's "Kreutzer Sonata" and all of Zola's works are among them. An attempt is now being made by the W. C. T. U. to eliminate from the mails "books in which the hero, heroine, or any character presented as worthy of admiration is pictured as an habitual user of liquors and cigarettes without condemnation of such habits.

Now, if there is any thing I can do to help the W. C. T. U. in the above undertaking I am ready to act. Furthermore, I want to put in a plea to eliminate from the mails all magazines that uphold the use of cigarettes and the habitual use of liquors in their stories as something for boys and girls to aspire to — that is, giving place to stories that mention these things, as the W. C. T. U. expresses it, "without condemnation of such habits."

THE WRIGHT BROTHERS AND THEIR AIR-SHIPS.

All the information we have at present is contained in the following, which we clip from the *Woman's National Daily*. The statements may be true, or they may be only a newspaper item:

PARIS, June 5.—Wilbur Wright, the American inventor, who is visiting here, refuses to talk about his aeroplane. He says he is merely visiting Europe for pleasure. He will have an opportunity to see Santos Dumont's air-ship, No. 16, which is ready for its trials.

BERLIN, June 6.—The Wright Brothers, of America, are here making arrangements for the construction of a number of air-ships for the German government.

Since the two above extracts were put in type a subscriber sends us a newspaper clipping which is evidently taken from the Baltimore *News* of June 8:

WRIGHTS SELL AIR-SHIP.

(Paris Cable Dispatch in New York *Times*.)

BALTIMORE, June 8.—The Wright Brothers, whose negotiations for the sale of their airship to the German government were announced exclusively in the cables of the New York *Times*, left Paris to-day for Berlin to conclude arrangements for the construction of a number of air-ships. It is understood that they will be paid $10,000 for each machine constructed by them. While in Paris they purchased several light motors of 24 and 40 horsepower.

THE INDIAN RUNNER DUCKS ONCE MORE.

Just as we go to press, June 13, two of these ducks, two weeks old to-day, weigh twelve ounces each. Somewhere I read that this strain of ducks might, under favorable circumstances, double their weight in a single week Well, ours almost *trebled* their weight the first week after being hatched, and have exactly trebled it during the second week.

RADIUM STILL RADIATES.

Mr. Root:—How is your radium—still shooting stars? You have not mentioned it for a long time.

Fredericktown Mo., May 12. JAS. BACHLER.

Friend B., after receiving your card I took my specimen of radium into a darkened closet, and I found it still pouring forth its streams of shooting stars. It makes one think of the burning bush that Moses turned aside to see—burning but not consumed. I have been watching the scientific journals, but there does not seem to be much progress made in furnishing radium at a lower price or in utilizing it for any thing more than a scientific curiosity. But it is certainly one of the wonders of the age—a wonder that is outside of and beyond any thing heretofore discovered in this world of ours—a veritable perpetual motion that continues day after day, week after week, month after month, and year after year to pour forth energy and light without diminution and without being consumed. It was a calamity to the world and a calamity that we ought to be ashamed of, that the man who had so much to do with giving the world this wonderful thing, radium, should have been allowed to lose his life by a piece of ignorant stupidity. Prof. Curie was driven over and killed by an ignorant cartman. One of his friends who knew him best said he feared some such calamity would occur, because he often became so absorbed in his scientific meditations that he was oblivious to every thing going on around him. This sad event may have had something to do with the fact that we have no recent developments in regard to radium and radio-activity.

SUDDEN DEATH OF AN IMPORTANT MEMBER OF OUR OFFICE FORCE.

Just now our factory, especially the office part of it, has been made very sad by the sudden and unexpected death of Mrs. H. B. Harrington, Mrs. Root's only sister. The older readers of GLEANINGS are more or less familiar with the name of "Neighbor H.," the man who married the deceased about 35 years ago.

For more than 25 years this youngest sister of Mrs. Root has been more or less intimately connected with the Home of the Honey-bees and this journal. When our business assumed such proportions that I could no longer open our letters, we began to look about for a trusty and faithful clerk to fill that important office. In our business, as in almost any other, disputes occasionally come up as to the contents of a letter. This happened oftener years ago than just now. Occasionally in settling difficulties of this kind a customer will say, "Mr. Root, if you opened all the letters yourself I should be perfectly certain that there was no fault at your end of the line," etc. But when I replied to all such complaints that the mails were all opened by Mrs. Root's *own sister*, I believe all such patrons were satisfied; and certainly any one who knew her, even for a little while, would be satisfied that no one would suffer from carelessness on her part or any thing else. She opened the mails as usual on June 3d; but on the 10th, with friends all about her, she ceased breathing as quietly as a babe going to sleep.

Her name was Mary; but her particular friends had shortened it to "Mate;" and the children very soon made it "Aunt Mate;" and for years past, just the *name* "Aunt Mate" has suggested something bright, cheery, hopeful, and animating. May God bless her memory; and, in fact, he has already abundantly blessed the good, pure, upright life she led. Even though she has been taken away so suddenly, the memory of that good life remains. "Their works do follow them."

"KIND WORDS."

It has been for a good many years our custom to publish every now and then some kind words in regard to GLEANINGS from our old friends. Now, to be fair to our readers I suppose we should in like manner publish criticisms when they come, although, to confess the truth, they do not come very often. Here is one from a brother who evidently objects to the space occupied by the Home Papers, and he certainly is entitled to a hearing like the others.

Gentlemen:—Some time ago I sent you $1.00 for GLEANINGS IN BEE CULTURE, thinking of course that it was a bee-paper, not the report of some Methodist prayer-meeting. Any further than that I will not be responsible. Discontinue it or it will be left at the postoffice. J. C. JORGENSEN.

Grand Haven, Mich., May 28.

PHOTOGRAPHIC - COMPETITION

We are pleased to announce another series of prizes for the best photographs submitted to us, as described below, in two series, American and foreign, under the following conditions:

FIRST.—The competition opens January 15th and closes October 1st, 1907. All photographs intended for this competition must be in our hands by the last-named date.

SECOND.—Competition for these prizes is limited to bee-keepers or some member of the family. Entries may be made for as many different classes as may be desired.

THIRD.—A photograph entered in one class can not be entered in any other class.

FOURTH.—Each photograph should be marked on the back with the name and full address of the sender, and the class in which it is entered. This is important.

FIFTH.—In judging the photographs, the general appearance, neatness, etc., of the apiary or exhibit or yard will be taken into consideration. Photos may be sent unmounted. We rather prefer them this way, and in a solio or reddish-brown tone if possible. However, send such as you can get most easily.

SIXTH.—With each of the photographs submitted we would like a brief statement of the conditions under which the apiary was photographed or honey produced, or similar information regarding the photograph. This should be limited to about one hundred words.

SEVENTH.—All photographs and correspondence regarding the same should be addressed to Advertising Department, GLEANINGS IN BEE CULTURE, Medina, Ohio.

EIGHTH.—We reserve the right to limit the number of awards or make no awards in any class if there are no suitable entries for that class.

AMERICAN COMPETITION — Including Canada and Mexico.

The following are the classes in which entries may be made:

CLASS A.—Photographs of any apiary in village, town, or city.

CLASS B.—View of an apiary not exceeding six hives in town or city.

CLASS C.—Apiary in town or country of not less than six hives or more than fifty hives.

CLASS D.—Apiary in town or country of fifty hives or more.

CLASS E.—Photograph of comb honey produced by a single colony of bees; not less than ten sections, and this preferably in plain sections.

CLASS F.—Photograph of a bee-keeper's home showing some view of the apiary if possible. The apiary need not be prominent in the picture, however.

CLASS G.—Photographs of a crop of honey from any number of colonies, six or more.

CLASS H.—Photographs of any apiarian exhibit of bees, supplies, or honey taken at fairs or shows of any kind.

CLASS I.—Photographs of any work in the bee-yard, such as hiving swarms, extracting, or any other operations with the hive.

CLASS J.—Photographs of any other subject relating to bee-keeping not classified above.

FOREIGN COMPETITION — same as the American.

PRIZES

	Value, Postpaid
FIRST.—One leather-bound "A B C of Bee Culture," 1907 English edition, or cloth-bound French or German..	$2.00
SECOND —One half-leather "A B C of Bee Culture," 1907 English edition..	1.75
THIRD.—One "How to Keep Bees" and any two Swarthmore books.....	1.50
FOURTH.—One full cloth-bound "A B C of Bee Culture," 1907 English edition	1.20
FIFTH.—One "How to Keep Bees," by Anna Botsford Comstock.....	1.10
SIXTH.—One No. 1 bee-veil, all silk...	.80
SEVENTH.—One No. 2 bee-veil, silk face	.50
EIGHTH.—One illustrated book, "Bee Culture in Foreign Countries".....	.50
NINTH.—One Bee Model Queen (see Special Notices)	.50
TENTH.—One Bee Model Drone (see Special Notices)	.50

Ten prizes are offered for each class: Ten for Class A, Class B, Class C, etc.—one hundred prizes for each contest, American and Foreign, two hundred in all if that number of entries are received, the prizes offered being identical for each class for the American competition and for the Foreign.

If the winner of any certain prize has already the prize offered, we will, on request from him, furnish a selection of other items from our catalogs, of equal value.

ADDRESS ALL CORRESPONDENCE TO

Advertising Department, Gleanings in Bee Culture

The A. I. Root Company, Medina, Ohio, U.S.A.

A New Factory

and also a new firm name, but in the same place with the same management. We have just put in a complete

Weed Process Comb Foundation Factory

of the very latest type, and we are now ready to work up wax for western beekeepers at low prices. . . We want several thousand pounds of beeswax at once, and will pay top market price for same. Let us hear from any one having wax to offer. .· .· .·

Buck & Wilson, Augusta, Kan.

Butler County

PROMPT SHIPMENTS

If you are in a rush for supplies at present, send us your orders. We have a large stock of

Root Co.'s Supplies

on hand to fill orders promptly. Also a fine lot of Italian

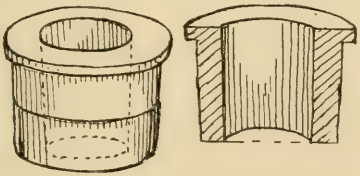
Queens and Bees

in one, two, and three frame nuclei and full colonies. Send for our forty-page catalog, etc.

John Nebel & Son Sup. Co.

Montg. Co. :: High Hill, Mo.

SWARTHMORE INNER SHELLS



SWARTHMORE HOLDING SHELLS

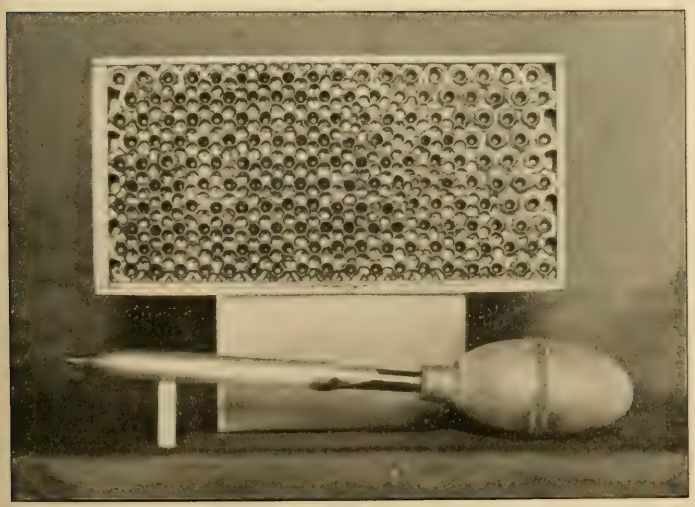
SWARTHMORE DIE FOR INNER SHELL

We are now prepared to furnish these items at following prices:

	Unwaxed per 100	Postage
Inner Shells,	65c	5c
Holding Shells,	65c	5c

If waxed, add $1.00 per 100

Die for Inner Shell, . 35c



SMALL FRAME FILLED WITH CUPS

The A. I. Root Company

Medina, :: Ohio

We are Not in a Trust!

Bee-hives, Sections, Brood-frames, Extractors

Every thing that bee-keepers use at LOWEST PRICES.
Quality the Highest. We've been making them 25 years.

American Bee-keeper

A profusely illustrated practical bee-journal which we have published for 17 years. 50c year. Sample copy and our 1907 illustrated catalog and price list free. Address

The W. T. Falconer Mfg. Co., Dept. C, Jamestown, N. Y.

New Goods - Big Stock

New Warehouse : Root's Goods : Prompt Shipment : Low Freight

Everything for the Bee-keeper at Savannah, Georgia

We are prepared to furnish promptly a full line of supplies; choice new stock just from the factory. BEES and QUEENS. We have large apiaries of fine stock. Book your orders at once, as there will be a heavy demand this season. Catalog sent free. Correspondence solicited.

Howkins & Rush, 241 Bull Street, Savannah, Georgia

Dadant's . . . . . Foundation

We guarantee it absolutely satisfactory every way.

Ask any dealer who handles our make along with any other, and he will say, "Of course, Dadant's is the best." Ask a bee-keeper who has used our make and he will tell you the same thing. WHY? Because we make the manufacture of foundation our SPECIALTY. We devote our time and energies to making THE VERY BEST COMB FOUNDATION that CAN BE MADE.

It will cost you no more than any other make. Send for free catalog and prices. Early-order discounts on all kinds of goods for the bee-keeper now.

We work beeswax into foundation.
We buy beeswax at all times.
Prices sent on application.

Dadant & Sons, Hamilton, Ills.

Root Goods

for the West

Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS.

My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

Write for estimate with liberal discount for orders sent in now.

Jos. Nysewander, Des Moines, Iowa

565, 567 West Seventh Street

Gleanings in Bee Culture

XXXV. JULY, 1, 1907 NO. 13

THE
A. I. ROOT CO
MEDINA
OHIO

ENTERED AT THE POST OFFICE, MEDINA, OHIO, AS SECOND CLASS MATTER

TASTY LABELS FOR HONEY PACKAGES

No. 81.—Wording in black changed to suit. 250, $1.00; 500, $1.50; 1000, $2.25.

Complete catalog of 40 different labels sent on receipt of five cents in stamps.

No. 85.—Wording in black changed to suit. 250, 75 cts.; 500, $1.25; 1000, $1.75.

Send your orders to
The A. I. Root Co., Medina, Ohio.

No. 86.—Wording in black changed to suit. 250, 75 cts.; 500, $1.25; 1000, $1.75.

No. 77.—250, $1; 500, $1.25; 1000, $2.

C. H. W. WEBER

Headquarters for . . .

BEE-SUPPLIES

Distributor of Root's Goods Exclusively at Root's Factory Prices

GIVE ME your orders for the **Best Goods Made.** You will be pleased on receipt of them. You will **save money** by ordering from me. My stock is complete; in fact, I keep **every thing** the **bee-keeper** needs. **Cincinnati** is one of the best **shipping-points** in the Union, **particularly in the South,** as all freight now **goes through Cincinnati.** Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly **free.**

A SPECIAL DISCOUNT ON EARLY ORDERS

I will buy your Honey and Beeswax

I pay **cash on delivery;** or, if you are in **need of honey,** write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of **extracted** or **comb honey.** I guarantee its purity.

Queens and Nuclei

Let me book your orders for queens. I breed the finest **Golden Italians, Red-clovers, Carniolans, and Caucasians.** Can furnish **Nuclei** beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White Sweet-scented Clover, Alfalfa, and Alsike.

C. H. W. WEBER

Office and Salesroom, 2146-48 Central Ave.
Warehouse, Freeman and Central Avenues.

CINCINNATI, OHIO, U. S. A.

Honey Markets.

GRADING RULES.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

The prices here quoted are wholesale, or what the honey brings on arrival.

KANSAS CITY.—The demand for comb honey is good; receipts very light. New comb has made its appearance, and $3.75 per case of 24 sections is asked. The receipts of extracted are light; demand light. We quote: White comb, No. 1, 24 sections, $3.50; white and amber, No. 2, 24 sections, $2.50 to $2.75; extracted white, light, $8.00; extracted amber, light, $7.00. Beeswax, light, 25 to 30. C. C. CLEMONS & CO.,
June 20. Kansas City, Mo.

ST. LOUIS.—The honey market is unchanged, and the arrivals very light. We quote: Fancy white, 17; No. 1, 15 to 16; light amber, 14 to 15; broken and inferior, less. Extracted light amber, California, 8; Spanish-needle, 8 (all in 5-gallon cans). Southern, in barrels, from 5½ to 6; same quality in 5-gallon cans, ½ to 1c higher. Beeswax firm at 31 for choice pure. All impure and inferior, less.
R. HARTMANN PRODUCE CO.,
June 20. St. Louis, Mo.

DENVER.—This market is in good shape for the new crop of white comb honey, as old stock is entirely cleaned up. There is no change in price of extracted honey since our last quotation, and supply of this is ample to meet demand. We now pay 24 to 26 for clean yellow beeswax.
THE COLORADO HONEY PRODUCERS' ASS'N,
June 15. Denver, Col.

CINCINNATI.—The market on fancy white comb is entirely bare. No. 2 is selling slowly at 12; extracted, light amber, brings 5½ to 6. Beeswax is selling here at $32 00 per 100 lbs. C. H. W. WEBER,
June 18. Cincinnati, O.

INDIANAPOLIS.—There is a strong demand for fancy white comb and best grades of extracted honey, but at this writing the market is practically bare. Evidently a new scale of prices will be established on arrival of new crop. Beeswax is plentiful, and in fair demand at $35.00 per 100 pounds.
WALTER S. POUDER,
June 19. Indianapolis, Ind.

ZANESVILLE.—There is an increasing demand for honey, consumers turning, of necessity, to extracted, there being no comb on the market. I quote pound jars at $2.20 per dozen wholesale. For good quality of beeswax I pay 33 f. o. b. Zanesville, in exchange for bee-supplies. EDMUND W. PEIRCE,
June 19. 136 W. Main St., Zanesville, O.

ST. PAUL.—No quotations made at present on honey of any kind. None on the market and no demand.
W. H. PATTON, Sec'y Board of Trade,
June 20. St. Paul, Minn.

CHICAGO.—A few consignments of the crops of 1907 are on sale, bringing 16 cents per pound for good white grades; amber, about 12; extracted, 7 to 8. Beeswax, 32; sells promptly. R. A. BURNETT & CO.,
June 20. Chicago, Ill.

PRAISE FROM HIGH AUTHORITY

This Man Knows a Good Thing When He Sees It

The MUTH IDEAL BEE-VEIL is a Good Thing

(All rights reserved)

MR. FRANK RAUCHFUSS, wearing a MUTH IDEAL BEE-VEIL

HAVE A LOOK AT MR. RAUCHFUSS' LETTER:

THE FRED W. MUTH CO., Cincinnati, Ohio. Denver, June 7, 1907.

Gentlemen:—Your Muth Ideal Bee-veil has come to hand. I have given the same a trial, and will state that it is comfortable to wear, easy on the eyes, well made, and a sure preventive of bee-stings about face and neck. Yours very truly, FRANK RAUCHFUSS, Mgr. Colorado Honey-Producers' Ass'n.

Everybody knows Mr. Rauchfuss; and he wouldn't recommend any thing in such strong terms if it wasn't the **real** thing in every particular. It costs you only 75c postpaid. Unless you enjoy being stung while handling bees, send for this veil **to-day.** Send for our catalog; free.

The FRED W. MUTH CO., The Busy Bee-Men 51 Walnut St., Cincinnati, O.

WANTED.—Fancy Comb Honey. State how much you have to sell. We pay promptly upon receipt of shipment

PHILADELPHIA.—This hot weather has come on us so suddenly that it has stopped the sale of comb honey entirely, and extracted honey has been moving very slowly in the last ten days. We quote extracted honey, dark, in barrels, 6 to 7; light, 7 to 8, in 60-lb. cans, according to quality and quantity. Beeswax, 30. We are producers of honey ann do not handle on commission. WM. A. SELSER,
June 25. 10 Vine St., Philadelphia, Pa.

BUFFALO.—No good white No. 1 white-clover honey in our market now. Occasionally a few cases arrive, but it sells quick at 16 to 17. More could be sold if we could get it. There is some demand for No. 2 white, if good color, but slow sale at low prices when the comb shows yellow. Good No. 2 white is 13 to 14; No. 1 buckwheat, 10 to 11, and very slow sale; No. 1 white extracted, 7 to 8; No. 2 white extracted, 6 to 7; dark, 6 to 6½; beeswax, 32 to 33. W. C. TOWNSEND,
Buffalo, N. Y.

LIVERPOOL, England.—Chilian honey, 3⅛ to 6¼; Peruvian, 3⅛ to 6¼; California, 5⅛ to 8½; Jamaican, 3¾ to 6¼. Beeswax, Chilian, 30 to 31, and West Indian, 29½ to 30½. TAYLOR & CO.,
7 Tithebarn St.

PARIS, France.—Extracted honey, finest, 9 cents; second quality, 8; Brittany buckwheat, 7½; farmers' beeswax, 31 to 33.

HAVRE.—Some foreign honey at 4½ cents at the custom-house. Beeswax, 31½ to 33.

MARSEILLES.—Beeswax, 30 to 30½ for Madagascar; 31½ for Morocco; and Abyssinia, 32.

BORDEAUX.—Beeswax sells from 33 to 34 cents.

EVANS & TURNER

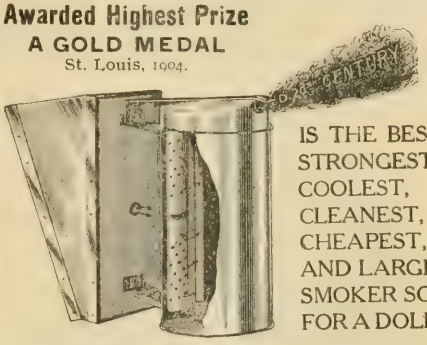
COLUMBUS, OHIO

WANT TO BUY 1907 CROP COMB HONEY

Write us immediately, naming price on different grades. We want to hear especially from Michigan and Wisconsin Producers

The Danzenbaker 20th Century Smoker
Pat. Oct. 3, '05, June 4, '07.

Awarded Highest Prize
A GOLD MEDAL
St. Louis, 1904.



IS THE BEST, STRONGEST, COOLEST, CLEANEST, CHEAPEST, AND LARGEST SMOKER SOLD FOR A DOLLAR

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to **CLOG WITH SOOT.**

ALL THAT IS CLAIMED.—N. E. France, Platteville, Wis., General Manager of the National Bee-keepers' Association says:

I have given your 20th Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

SURPASSES ALL OTHERS.—Mr. Grant Stanley, Nisbet, Pa —"After giving the Danzenbaker 20th Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until the fuel is all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker."

BEST IN TWENTY YEARS.—M. D. Andes, Bristol, Tenn. —"I have used the 20th Century Smoker one season. It has given me entire satisfaction. In my twenty years of bee-keeping I first used the old stand-by Clark smoker, and I believe I have tried all the different makes, as I am always looking for the best, and will say that your smoker beats them all up to date."

NEVER TOO HOT TO HOLD.—Dr. Reginald Munson, Washington, D. C.—"I am well pleased with the 20th Century Smoker. It keeps fire well without getting too hot to hold on continuous use, and makes smoke enough to satisfy the most critical."

Price Dan-ze, Large 3½-inch Smokers:
Postpaid—one, $1.15; two, $2.10; three, $3; five, $4.50.
By Express or freight—one, $1; six, $4.20.

"Facts About Bees," a sixty-four-page pamphlet, sent free on request. Send also address of your bee-keeping friend for same.

F. DANZENBAKER, NORFOLK, VA.
(Jamestown Exposition Sta. Money-orders on Norfolk.)

WE WILL BUY AND SELL

HONEY

of the different grades and kinds.

If you have any to dispose of, or if you intend to buy, correspond with us.

We are always in the market for WAX at highest market prices.

HILDRETH & SEGELKEN,
265-267 Greenwich St. 82-86 Murray St.
NEW YORK.

Established 1873
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72 pages, semi-monthly
$1.00 per year

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

Published by
THE A. I. ROOT CO., Medina, Ohio

J. T. CALVERT, Business Manager

POSTAGE IS PREPAID by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian postage is 30c per year. For all other countries in the Postal Union add 60 cents per year postage.

CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old address must be given. The notice should be sent two weeks before the change is to take effect.

DISCONTINUANCES.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

HOW TO REMIT. Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of The A. I. Root Company, Medina, Ohio. Currency should be sent by Registered Letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

Foreign Subscription Agents.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents. at the prices shown:

PARIS, FRANCE. E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid.* 7½ *fr.*

GOODNA, QUEENSLAND. H. L. JONES. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid,* 6/.

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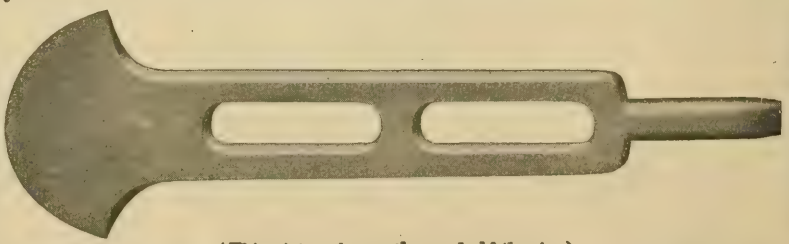
The Weekly American Bee Journal is in its 47th Year

Something New=The Ideal Hive-Tool

Bee-keepers have long needed a Tool with which to work among the hives during the bee-season. The Tool shown here was invented by Wm. Muench, a Minnesota bee-keeper, some years ago, but it was not on the market before. We have lately bought this Tool, and all rights, from Mr. Muench's widow, and have had the first lot made. They are ready for delivery now.

Best Hive-Tool



Only 30c, by mail

(This picture is exactly one-half the size.)

DESCRIPTION.—The Ideal Hive-Tool is made of high-grade malleable iron, much like wrought iron, 8⅛ inches long. The middle part is 1 1-16 inches wide and 7-32 thick. The smaller end is 1⅞ inches long, ½ inch wide, and 7-32 thick, ending like a screw-driver. The larger end is wedge-shaped, having a sharp semi-circular edge, making it almost perfect for prying up covers, supers, etc., as it does not mar the wood.

What Dr. Miller and Miss Wilson Say of It:

In the first edition (1903) of Dr. Miller's "Forty Years Among the Bees," page 58, he says: "Of all the hive-tools I have tried, I like best the Muench tool." On Jan. 7, 1907, he wrote us saying he thought "just as much of the tool as ever."

Miss Wilson, Dr. Miller's assistant, says this of the Ideal Hive-Tool: "It is an ideal tool. In fact, I don't see how it could be improved upon. I am sure we would feel utterly lost in the apiary without it.....You will have to try one yourself if you want to know its worth."

The Ideal Hive-Tool Free to a New Subscriber.

To a **new** subscriber to the **Weekly Bee Journal** for one year (at $1.00), we will mail an Ideal Hive-Tool **free**; or we will mail the Hive-Tool alone for 30 cents (stamps or silver, if more convenient). Sample copy of the Weekly American Bee Journal sent on request; **or a 8 months' "trial trip" for only 20 cents.** Address,

GEORGE W. YORK & CO., 334 Dearborn Street, CHICAGO, ILL.

The Oldest and Only WEEKLY Bee-Paper in America

The Pearl Agnes Bee-hive

FIG. 1.

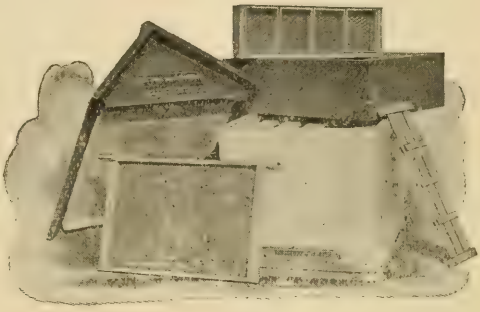


FIG. 2.

The body of the hive has five frames with a total comb capacity of five-sixths of two full-sized Hoffman frames—that is, each is exactly one-third that of a full frame (16⅞×8 inches interior). The frame itself has somewhat the appearance of a large section 5⅜×8 inches. It is supplied with full comb foundation, or with a starter across the end as may be desired. The length (8 inches) of these small sections is the same as the depth of the interior of a Hoffman frame, and the depth (5⅜ inches) is one-third the length of the Hoffman, so that three may be fitted into the length of the Hoffman, if placed side by side and on end.

The super is fitted with sections 2⅛ inches deep by 2 inches wide—that is, one-fourth the size of the Danzenbaker 4×5 section, and hence it may be used, if desired, in the regular Danzenbaker super as "toy" or "sample" sections (Fig. 2). These little sections, when filled either in the Pearl Agnes hive or the regular full-sized super, are convenient, dainty, attractive, and, to the young folks, "just too cunning for any thing." They may be used as sale samples, or novelties for the table, or as gifts to friends and to visitors at the apiary. The fences of the super are in the same form, but of smaller size than the regular fences. The cover is shaped like a gable and roof, so that, together with the fanciful painting of the three parts in three different colors gives the whole a pleasing effect. And it is further enhanced by the feeding-bottle (with perforated cap) which extends down through the roof, and is of the proper length to project far enough to have the aspect of a chimney.

THE A. I. ROOT CO., Medina, O. Malden, Mass., June 11, 1907.

Gentlemen:—The three-frame nucleus and tested queen came duly to hand, and I at once installed them in my observation hive bought of H. H. Jepson, 182 Friend St., Boston. They prospered finely in spite of the cold weather. I also bought of Mr. Jepson a Pearl Agnes hive for my baby Ruth (ten years old), the first Pearl Agnes hive sold in Boston by Mr. Jepson, and into six of my frames I put eighteen Pearl Agnes frames. On looking at them this morning I was surprised to find brood hatching out, and I am in a rush to transfer, so I am wiring you for a red-clover queen, select untested, to be mailed to-day sure, and I hope you will receive my message in time to ship her majesty to-day. Yours very truly, EDWIN E. HARRINGTON.

Prices

A complete little hive. Just right for teachers of small schools, and others who want to study the bee for a short time at little expense; with five brood-frames 5⅜x8, and super holding twenty sections 2x2⅛x1⅛, with necessary fences, complete with foundation at the following price: each, nailed and painted, $2.50; in flat, $1.75 ten in flat, $15.00. ¶ Filled with bees and untested Italian queen, this hive can be sent at low cost by express. Price of complete hive with bees and queen, with smoker, veil, and book of instructions, $5.00.

The A. I. Root Company, Medina, Ohio

Gleanings in Bee Culture

E. R. ROOT, Editor — A. I. ROOT, Editor Home Department — H. H. ROOT, Ass't Editor

Department Editors—DR. C. C. MILLER, J. A. GREEN, PROF. A. J. COOK, J. E. CRANE, LOUIS H. SCHOLL, G. M. DOOLITTLE, R. F. HOLTERMANN, "STENOG."

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THE JOS. HORNE CO.

We know the lady readers of GLEANINGS will be delighted to know that the Joseph Horne Co., of Pittsburgh, Pa., has announced elsewhere in these columns its annual summer clearance sale. This supplies the economically minded house-keeper with an opportunity to supply her household wants at the lowest prices obtainable for new goods.

This firm is desirous that its out-of-town customers should make their annual visit now to this great establishment, and they think money can be saved by so doing; and the twin cities of Pittsburgh and Allegheny are well worthy of a visit to persons who have never been there before. In this way customers may keep in touch with a great firm of suppliers of nearly every thing required for the household.

HATS FOR BEE-KEEPERS.

At this season of the year bee-keepers are on the outlook for a soft easy-fitting hat to which they wish to attach a bee-veil for use on all occasions. Nothing comes nearer to filling the bill than a Mexican palm-leaf hat, such as is offered regularly in our columns by the Francis E. Lester Co., of Mesilla Park, New Mexico. For summer wear, these hats are almost ideal, as they are easy on the head, and protect the neck and face from the sun. These hats are made by the native inhabitants of our Southwest, where the sun beats down as fiercely as it does anywhere on earth; hence their long experience has evolved something which exactly suits the demands of a tropical summer. The Francis E. Lester Co. make a specialty of native work of all kinds—Indian carpets, pottery, drawn work, blankets, etc. It is needless to say these things are interesting and instructive to all who take an interest in our native American races. These Indians have an ideal of beauty which is quite artistic, and, needless to say, they use no shoddy materials in any thing they make. The latter point is worth considering.

MICROSCOPES FOR BEE-KEEPERS.

Many bee-keepers would like to know more about the honey-bee and its anatomical make-up, but have been deterred by the high price of a microscope suitable for such work. At present most bee-keepers take on faith what the text-books say about bees, and are quite unable to prove any thing for themselves. This deficiency has been met by Dr. Lyon, of Rye, N. Y., who is himself a bee-keeper, by his portable microscope, expressly constructed for bee-keepers' use. This is not a toy but a full size microscope, such as is used by physicians and scientists, and has standard size objectives. This enables one to become closely acquainted with the beautiful pollen grains of flowers, etc. For a person who has had no experience with modern microscopes, this is just the thing, for a compound microscope costing a lot of money requires a great deal of skill to manipulate, and really requires the services of an expert instructor. Dr. Lyon claims his microscope is vastly simpler to use, and powerful enough for all practical purposes, to a bee-keeper. It may be noted that the instrument is guaranteed on the 20th-century plan, so that a dissatisfied purchaser may have his money back. See ad. on page 885.

ROOTS AND HERBS.

Many of our readers are so situated that they can readily secure medicinal roots and herbs. For them there will be considerable interest in the advertisement of J. L. Hopkins & Co., 100 William St., New York. This firm has a factory for the grinding and preparation of roots and herbs into medicine, and therefore our readers who have done business in this line will have the privilege in future of dealing direct with the manufacturer. If you do not have any thing on hand to offer them, write any way, enclosing 5 cents, and acquaint yourself with their requirements. Probably something grows in your locality, from which money can be made. We ask particularly that our southern and tropical readers take particular notice of this advertisement, as there is an almost endless list of medicinal plants.

JOSEPH HORNE CO.
PITTSBURG, :: PENNSYLVANIA

Women who read GLEANINGS are hereby notified that Hornes, of Pittsburg, use July as a month for

Clearance Sales

These Clearance Sales constitute a channel for CLEARING UP ALL SORTS OF SUMMER GOODS—piece goods and ready-made garments—and the prices at which these Summer goods are sold in July

Are ⅔, ½, and ⅓ Under Regular Prices.

It is the season of the year when women all over the country take advantage of our clearance prices to lay in a supply of all sorts of goods. This July we will have an added feature, which we contracted for months ago, nothing more nor less than

Manufacturers' Sample Lines of Summer Goods.

These will be sold UNDER THE SAME ADVANTAGEOUS PRICES as the goods for clearance. Write us for any thing you want, or, better still, make the trip to the city and save enough out of your purchases TO PAY YOUR EXPENSES.

Only Sand, Cement, and Water are used in making Concrete Building Blocks

No Experience Necessary

Only common labor required. With our instructions, the beginner can make as good blocks as an experienced mechanic.

Own a Factory

There is big money in their manufacture. Start with one or two machines and make them pay for a big equipment. We outfit you with the best machines at reasonable prices, on easy terms.

Send for our new catalog. It tells all about mixing.

Medina Concrete Machinery Co.
22 Court Street Medina, Ohio

WHY NOT?

ISN'T it worth while to save a nickel, dime, or quarter when you can? You can just as well save this in freights by ordering

Root's Goods FROM ZANESVILLE

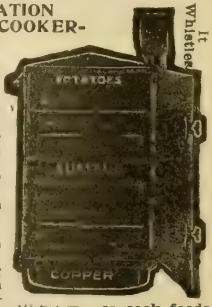
one of the best shipping centers in the whole country. Then look at the time you will save; for I get out goods with the utmost promptness, and our many railway and steamboat lines do the rest. No matter where you live, "*If You Want Best Goods Quickest, Send to Peirce.*"

Catalog free.

E. W. PEIRCE, Zanesville, O.

$53,700 Made by O-HI-O Cooker Agents in 1905 Selling the

O-HI-O COMBINATION STEAM COOKER-BAKER.



We have many agents making $5 to $10 daily. Write us and we will give you names of agents near by who are making at least $5 daily. We can easily prove that the "O-HI-O" is the best money-maker you ever heard of, and will make you more money than anything you ever sold or are now selling. *Write us at once and we will prove it.*

Guaranteed to save 50 per cent in fuel, labor, time, and provisions. A whole meal cooked over one burner on any style stove. It assures you deliciously cooked hot meals; *30 days' trial.* No intermingling of odors or tastes. Fine for use in summer cottages. A necessity every day of the year. The only healthful way to cook foods and breadstuffs. :: *Handsomely illustrated catalog free.*

"O-HI-O" COOKER CO., 908 Jefferson Ave., Toledo, O.

50c Hand-woven by Mexicans in Mexico, from palm fiber; double weave, durable, and light weight, with colored design in brim. It retails at $1; sent postpaid for 50c to introduce our Mexican hats and drawn-work. Same hat plain, 40c; both for 75c. Large, medium, and small sizes. Fine for fishing, camping, seaside, and gardening. Hat booklet free.

The Francis E. Lester Co., Dept. A A, Mesilla Park, N. M.

FARMERS HANDY WAGON

Low steel wheels, wide tires, make loading and handling easier. We furnish Steel Wheels to fit any axle, to carry any load. Straight or staggered spokes. Catalogue free.

EMPIRE MFG. CO., Box 91 F Quincy, Ill.

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Our Advertising Rates.

Twenty cents per agate line, flat.
Fourteen lines to inch.

SPACE RATES (To be used in one issue)

One-fourth page.....$11.00
One-half page..... 21.00
One page..... 40.00

Preferred position, inside pages, 30 per cent additional.
Preferred position, inside cover pages, 50 per cent additional.
Outside cover page, double price.
Reading notices, 50 per cent additional.
Cash-in-advance discount, 5 per cent.
Cash discount, if paid in 10 days, 2 per cent.
Bills payable monthly.
No medical or objectionable advertising accepted.

"A Square Deal."

We believe that every advertisement in this paper is backed by a responsible person. But to make doubly sure we will make good any loss to paid subscribers sustained by trusting any deliberate swindler advertising in our columns, and any such swindler will be publicly exposed. We protect subscribers against rogues, but we do not guarantee to adjust trifling differences between subscribers and honest responsible advertisers. Neither will we be responsible for the debts of honest bankrupts sanctioned by the courts. Notice of the complaint must be sent to us within one month of the time of the transaction, and you must have mentioned GLEANINGS IN BEE CULTURE when writing the advertiser.

LABELS.

Please note that The A. I. Root Co's catalog is now ready for distribution. If you are expecting a crop of honey this year, this is just the right time to get your labels printed. It is not wise to leave this matter to the last minute. Please note the sample labels on the inside cover page. We make many fancy labels besides these, however; and by ordering a catalog of them you may be able to select one which just suits your business. Send now. Don't wait. We are at your service for labels.

MUTH'S IDEAL BEE-VEIL.

The Fred W. Muth Co., of Cincinnati, O., have recently put on the market a bee-veil which looks like a improvement over the ordinary kind. It is largely composed of a fine light wire cloth which does not interfere with the eyesight, and yet very effectually keeps the bees away.

One of the men who have tried it is Mr. Frank Rauchfuss, of Denver, Colo., who is as likely as any one to know when a bee-veil is all right, and he is very enthusiastic in its favor. We think it is probable that Messrs. Muth will secure many orders for these bee-veils from bee-keepers who wish to secure something which will very thoroughly protect the head from the attacks of angry bees while strenuously at work in their apiaries.

BICYCLES.

This is the season of the year when a good bicycle is in order. During the "dog days" every one does not care to do much walking, and yet one wishes to make even more little trips than usual. This is particularly true of bee-keepers, especially those who possess out-apiaries. For the latter a bicycle is almost a necessity, even when they have a rig. In our experience we find a great many bee-keepers own a bicycle. For them the advertisement of the Mead Cycle Co., of Chicago, Ill., will have a peculiar interest; for, like every thing else, bicycles wear out, and it does not pay to fuss with an old one when once it commences to go.

If you have not purchased a bicycle lately, write to the Mead Co. and get their prices on the latest improved styles. You will be astonished at the low prices at which modern wheels are sold. This concern has an excellent reputation, and does business in bicycles with the remotest corners of the world. Our foreign readers who desire to secure a light American wheel for little money can not do better than write for the Mead catalog.

We will esteem it a special favor if you will mention GLEANINGS when writing, and the cycle company will be equally well pleased.

The Bee-keepers' Review

For March has for a frontispiece one of the most beautiful winter-scenes that it has been my lot to witness. It is the apiary of Mr. F. J. Miller, of London, Ont., Canada, who tells how he makes a success of hauling honey home to extract it, using a gasoline-engine as power to run the extractor. Mr. Miller says that with his system of management he can manage 500 colonies alone.

Mr E. F. Atwater, of Idaho, tells how he successfully managed an apiary 36 miles from home, warming up the last batch of honey in a 12x16 honey-house before extracting it.

The April issue shows how to protect a hive with tarred felt by tying it on—only the work of one minute, and one man can do the work alone.

Mr. Townsend is continuing his series of articles on "Helpful hints for Extensive Bee-keeping," and he makes the articles very seasonable, and very helpful.

The foregoing are only a few of the good things that may be found in these issues of the Review; but they show the character of the reading that may be found in the Review.

There are still a few sets of the Review for 1906 on hand, and, as long as they last, a set will be sent free to each subscriber for 1907.

The book, Advanced Bee Culture, is $1.20; or with the Review, only $2.00 for both.

W. Z. Hutchinson, Flint, Mich.

BY EXPRESS

Sections and Foundation

THE SAME DAY
ORDER IS RECEIVED

The A. I. Root Co.
Syracuse . . New York

Our discounts on **BEE-SUPPLIES** are still in effect.

WE furnish EVERY THING needed in practical bee culture, at lowest prices. We make the DOVETAILED, LANGSTROTH, and ALTERNATING HIVES. The most practical, *up-to-date* hives are the MASSIE HIVES. We make them. Have you seen them? Have you received our new 1907 catalog? It is surely the easiest catalog to order from you ever saw. It is so easy that you can not make a mistake in your orders; a child can order from it as well as an adult. It is something new and entirely different from any you have ever seen. Write us a postal card for it to-day. It is free.

Address Kretchmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa. :: Trester Supply Co., 103 S. 11th St., Lincoln, Neb.

Catalogs issued in German and English.

A Four-per-cent Investment.

WITH the money absolutely safe and always available is an ideal disposition of individual savings. This bank accepts deposits in any amount, and pays four per cent interest —compounded every six months.

Our booklet describes our methods and management, and explains the advantage of our simple banking-by-mail system.

Write for the Booklet To-day

Assets over One-half Million

THE SAVINGS DEPOSIT BANK COMPANY

MEDINA, OHIO

A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.
E. B. SPITZER, Cashier.

NOTICE

Free Lecture and Demonstration on Bees, Season 1907, Tuesdays and Fridays, 10 to 12 o'clock, A. M., 10 Vine Street, Philadelphia, Pa.

So great has been the interest, and so numerous the calls, to see our bees, from parties who have not the time to visit our Jenkintown apiary, that we have arranged our plans to set aside Tuesday and Friday during the season of May and June, from 10 to 12 o'clock, to give a public demonstration for any one, whether a customer or not, to call and have explained to him the marvelous work of the honey-bee.

While our apiary, of some forty or fifty colonies, has always been open to inspection, yet the calls to see the bees coming at all hours of the day, many times when we were rushed with other work, were necessarily hurried and unsatisfactory, and were confined mostly to our customers. We now invite the general public, and a much more complete and general demonstration will be given. By giving us your name and address on entering the office, veils will be furnished you and your friends, so there will be no danger of being stung.

P. S. Our Jenkintown apiary is always open by appointment to visitors. Ask for

WM. A. SELSER, Mgr.

The A. I. Root Company, Philadelphia, Pa.

Telephone 181 W. Ogontz.

NOW READY

to fill your orders for hives, supers, sections, and foundation of all grades, We now have a large stock of these goods on hand and can supply your wants for regular goods without delay.

We are booking orders for BEES and Queens, and to assure early shipment you should send in your orders now.

Price list free upon application.

W. W. CARY & SON, Lyonsville, Mass.

1884 1907

New 64-page catalog for the New Year now ready

FOR YOU

Twenty-two successful years manufacturing bee-supplies and raising Italian bees and queens. . . . . Root's Goods in Stock.

J. M Jenkins

Wetumpka, : : Alabama

Northeastern and New England

BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine

MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

SAVE EXPRESS!
SAVE FREIGHT!
SAVE TIME!

by ordering your supplies in **Boston**

H. H. JEPSON,

182 Friend St. Phone Haymarket 1489-1

LOFTIS SYSTEM **Diamonds** on Credit

YOU CAN EASILY OWN A DIAMOND OR WATCH, or present one as a gift to some loved one. Whatever you select from our beautiful catalog, we send on approval. Pay one-fifth on delivery, balance in 8 equal monthly payments. Your credit is good. As a pure investment nothing is safer than a Diamond. 20% annual increase in value. Written guarantee of quality and value. Catalogue free. Write for it today. *Do it now.*

LOFTIS BROS. & CO. Dept. G637 THE OLD RELIABLE ORIGINAL DIAMOND AND WATCH CREDIT HOUSE, 92 to 98 State St., Chicago, Ill.

Bee-keepers and Bee-students, Look!

You Want this High-Grade Microscope to Study Bee-Life!

This is not a toy, but a high-grade Microscope such as I use in my bee-investigations.

With it you can see the thousands of eyes which each bee has—the sting, the tongue, the wings, and legs of the bee seen through this microscope are simply wonderful. With it you can examine the flowers of the field, and see the pollen and nectar producing systems. Seeds, cloth, soil, water, and a hundred different things can be tested with it. This Portable Microscope is all brass, and comes in a velvet-lined imitation-alligator case. I have had a lot of these Microscopes made for me by one of the foremost opticians in the country. Price $10 each. Each instrument guaranteed or money refunded. This is the first time a high-grade Microscope has been offered at this price. What it reveals is simply marvelous.

Remit only by post-office money-order to

D. EVERETT LYON, PH. D., RYE, N. Y.

If you are a nature-student, this is what you want.

H. M. Arnd, Prop'r York Honey and Bee-supply Co. (NOT INC.)

Long-distance telephone, North 1559. CHICAGO, ILL. 191-193 East Superior Street.

Carries a full line of new Lewis Bee-supplies, Hershiser Wax-presses, etc. Slightly damaged Poultry and Bee Supplies at greatly reduced prices while they last. Send for 1907 catalog and fire-sale list. Beeswax wanted. Italian Queens, Nuclei, and full colonies in up-to-date hives for sale.

NORTHERN NEW YORK BEE-KEEPERS.

BUY your supplies where you can buy to the best advantage. Save freight charges and time. Large stock of new goods. "Root's goods." Cash paid for beeswax. Send for catalog and price list.

A. H. REEVES & CO., Watertown, N. Y.
17 Morrison St. Phone 1296.

A NEW BEE-SUPPLY HOUSE AT LITTLE ROCK, ARK.

I am prepared to furnish you the best of bee-supplies, manufactured by The A. I. Root Co. Let me send you my catalog of bee-keepers' supplies. Also have for sale the very best strain Italian queens and nuclei or full colony. Satisfaction guaranteed. **W. J. LITTLEFIELD.**

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1000 60-lb. honey-cans, A No. 1 condition, packed two in a case. Cases also first class. Will sell them cheap.

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Twenty-five Years' Practice.

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Patent practice in Patent Office and Courts.
Patent Counsel of The A. I. Root Co.

"If goods are wanted quick, send to Pouder."
Established 1889

Have You a Good Memory?

By the Bee Crank.

Although some people have short memories, most business men have good ones, and the writer of this letter is one of them.

Laotto, Ind., May 27, 1907.
WALTER S. POUDER,
Indianapolis, Ind.
Dear Sir:—Your catalog of bee-supplies to hand. A few years ago I bought some of your goods and found them better than I could get elsewhere for the same money. Kindly fill the inclosed order.
Truly yours,
DICKERSON KUGLER.

I discovered long ago that it pays to reckon with this faculty on the part of my customers. If I gave them poor service, they would be morally certain to remember it, and when I treat them right they are apt to remember that too, and when the time of ordering comes around again they will show good business judgment if they act upon it. I am willing to take my chances on the outcome if the bee-men of this country will compare their experiences in the past and place their orders where they have found that they got the best goods, most carefully packed, delivered the most promptly, and in the most satisfactory manner all around. This sort of service is the rule and not the exception with me, and I am growing more cranky every day about continuing it.

ROOT'S GOODS AT ROOT'S PRICES, Danzenbaker Hives, Section Honey-boxes, Metal-spaced Hoffman Frames, Bee-smokers, Bee-veils, Pouder Honey-jars, etc.

I pay the highest market price for beeswax. Catalog for postal request.

Send $1 for a select untested Hoosier-Italian queen—get her by return mail.

Walter S. Pouder

513-515 Massachusetts Avenue, Indianapolis, Ind.

GLEANINGS IN BEE CULTURE

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STRAY STRAWS
by Dr. C. C. MILLER

ABBE PINCOT (*L'Apiculteur*, 52) says that larger cells give larger workers, and that cells measuring 4.57 to the inch are the largest that Italians accept for worker brood.

NURSE BEES, during the care of the brood, consume more than the brood itself, says Dr. Bruennich (*Leipz. Bztg.*, 68). From this he argues the immense advantage there is in having long-lived bees, allowing a large population with a small brood-nest.

J. E. HAND, p. 843, is emphatically right in saying that superseding queens in spring is a loss. Generally better pinch the head of any spring-reared queen — at least in this locality. Fortunately, it is a rare thing that bees supersede a queen in spring, that business being attended to by them later in the season.

E. BOHM (*Leipz. Bztg.*,52) says it is a plausible theory that a colony made queenless will start queen-cells from too old larvæ; but the actual fact is that, in a colony in the height of its vigor (and no other should be used for starting cells), with few exceptions always the youngest brood is chosen for royal cells. From these proceed just as good queens as if the egg had been from the beginning destined for a queen.

COMBS OF BROOD with adhering bees may be used to strengthen a weak colony; but the queen of the weak colony must in that case be caged, says G. Muths (*Leipz. Bztg.*, 54). For many years I have practiced this plan, having used thousands of such combs, and never caged a queen. But I am careful to give only in proportion to the strength of the colony, so that the strange bees may not be in the majority. When more than one comb is given it is safer to have each comb with its bees from a different colony. [You are correct, according to our experience.—ED.]

C. P. DADANT) *L'Apiculture Nouvelle*, 143) thinks my plan of breeding from best workers without regard to purity of blood is not the best plan. May be; yet I'm confident I have increased my crops by it. Still, the question is left whether I might not have increased crops just as much by selecting only from pure bloods. At any rate, if I had it to do over again I'd stick to pure blood, if for no other reason than to avoid such demons to sting.

A QUEEN-BEE at $1.00 is probably about as common as a bull at $50.00. May 30, at T. H. Cooper's sale, a bull was sold to A. B. Lewis for $11,500. That's 230 times $50.00; and 230 times $1.00 is $230. Is there any thing more unreasonable in valuing a queen at $230 than in valuing a bull at $11,500? [We once had a queen that we valued at $200; and it is no exaggeration for us to say that we would give $500 for her to-day if we could get her back.—ED]

JUNG KLAUS, the bright and useful picker-up of items for *Deutsche Imker aus Boehmen*, has an unfortunate prejudice against things American which sometimes leads him astray. He says, p. 94, that Herr Schenk, of Brazil, who lately visited Europe, sings a different song from that of the gentleman in the north. Dear Jung Klaus, this country is about as far from Brazil as Germany from Central Africa, and the countries have about as much to do with each other. Please don't charge to our account the backward condition of bee-keeping in Brazil; and be a little patient if we do some cackling before the eggs are laid. Some of these days we'll learn from Germany to sober down, just as we have learned many other good things from there.

J. J. WILDER, a Georgian, thinks a hive-cover with an air-space best for hives exposed to the sun, saying: "I have lost some colonies, many combs, and no small amount of honey from the heat of the sun, but I have never lost any combs under these covers"

(*American Bee Journal*, 486). And please don't forget that these non-conducting covers are just as much warmer in winter as they are cooler in summer. [Why not go one better, and have the deep telescope cover? They not only protect the thin inner cover, but the sides of the hive clear down two-thirds of its way as well. This protects the hive against the sun, cool summer nights, and bad weather in a backward spring. It costs more, but it will pay for the extra cost in one season.—ED.]

C. KRUEGER, himself a countryman of Dzierzon, says (*L'Apiculteur*, 3), "It is not correct, as the Germans say in all their manuals of apiculture, that Dzierzon was the father of mobilism; his part in that was more modest. But, on the other hand, he wielded a most facile pen, and from 1845 he wrote in the two bee-journals then existing, and for more than a half-century he ceased not to make a propaganda for mobilism, but for mobilism *as he understood it*, and which has nothing in common with that of Langstroth-Dadant so universally adopted. . . His hive was approved by only a very limited number of friends, whilst Langstroth had the satisfaction of seeing his own generally adopted. But that which will immortalize the name of John Dzierzon is the discovery of *parthenogenesis in 1853*." Delightful it is to find on the European continent a tendency to give Langstroth his tardy meed of praise. *Per contra*, let us hope that in this country bee-keepers in general shall learn to *know* more of their debt of gratitude to the grand old bee-master Dzierzon. [Huber invented the first movable-comb hives about the year 1789. Bar hives were in use long before that time, particularly in Scotland. I can show you illustrations of very good bar and frame hives which were in use long before Dzierzon was old enough to have any bees.—W. K. M.]

FOR SOME YEARS I had been breeding from my best gatherers without regard to color, and my bees were hustlers. But they were cross, and no mistake. Last year a certain editor insisted in a rather toplofty manner that I could have just as good workers of pure stock, and not get so many stings. I challenged him to furnish the queens of pure stock, and I'd give them a fair comparison. He seemed inclined to flinch, but finally came up to the scratch, and I now have 18 colonies headed by queens of his choosing or their royal progeny. An inventory of the strength of colonies the first week in June showed the new stock to have a larger acreage of brood than the old stock. Now crow, Mr. Editor. No, don't crow just yet; wait till I tell you how they compare as to amount of honey stored when the harvest is over. Remember that the most prolific queens and the largest crops don't always go together. [We shall be greatly interested in the further performance of these bees. You are right. It is the honey-gathering qualities that should count. But plenty of good brood at the right season of the year is a good omen.—ED.]

NEW JERSEY now has a pure-food law which takes effect October 1, 1908. It corresponds with the national law on the same subject. It may seem odd that the law is dated so far ahead of time; but New Jersey has a food law now in force, passed in March, 1901. The new law does not supersede the old one, but brings it in line with the United States law. As early as 1886 the State had a law to prevent the adulteration of butter, and the regulation of butterine and margarine.

THE LACK OF PURE-FOOD LEGISLATION IN THE SOUTH.

WE have had no good news from the South regarding the passage of pure-food laws calculated to help the producers of genuine foods. Practically the entire tier of northern States has wheeled into line under the pure-food banner, and the honey-producers and others are now well protected against an insidious enemy who threatened to destroy our industry. We can not feel entirely safe till the South has joined us. A pure-food law is practically self-enforcing—at least the actual cost of administering it is small, and the amount received in fines reduces the cost to a mere trifle.

NAILS IN NAIL-SPACED FRAMES A NUISANCE IN UNCAPPING.

REFERRING to a footnote to a Straw on p. 754, Mr. Leslie Burr, of Berthoud, Col., refers us to the illustration on page 765 of GLEANINGS for 1903, where is shown a very fat nail-spaced extracting-comb taken from an eight-frame extracting-super where only six frames were used. The illustration shows how the capped comb had gone clear over the nail spacers, and Mr. B. very pertinently asks whether the nails would interfere in uncapping *such* a comb. We shall have to acknowledge, in this case, he has the best of the argument. But there are very few who believe it would be good practice to run six extracting-frames to an eight-frame super. Mr. Holtermann, who uses metal spacers, has no trouble.

In this connection it might be well to ask whether the honey in these very fat thick combs is as well ripened as that in thinner ones. We should be glad to learn the experience of all practical honey-producers on these points.

NOT ALL EXTRA-YELLOW BEES LACKING IN HARDINESS.

DOOLITTLE & CLARK, who are doing quite an extensive business in queen-rearing, in referring to a recent editorial on the hardi-

ness (or rather lack of it) of five-banded or extra-yellow bees, write:

Mr. Root:—We notice in an editorial in May 15th GLEANINGS that you give our grade of bees a rap, stating that they spring dwindle more than others. Ours don't bother us that way. We placed about 100 colonies in the cellar last fall, and have lost but one of them to date, and that one was a strong one when taken from the cellar, but starved to death during the cold spell about April 1. We also wintered in the cellar 52 nuclei, and they are alive to-day, and building up strong. In addition to these we had nine colonies wintered out of doors, and they are all alive and strong. Our bees are holding their own, and some of the colonies have brood in eight frames out of ten. DOOLITTLE & CLARK.

Borodino, N. Y.

We are glad to place this before our readers, as we have reason to believe their stock was not reared from the same ancestry as the ordinary yellow bees. We did not intend to convey the impression that *all* yellow stock was hard to winter or spring, but that a good deal of it that had come under our observation would seem to be very frail and short-lived.

EXPERIMENTS WITH MOLASSES AND SYRUP AS A FOOD.

THE Louisiana Sugar-planters' Association is just now engaged in an experiment with a squad of negro prisoners in an effort to determine the value of molasses as a food for mankind. Thus far the experiments tend to show that the feeding of both molasses and syrup are useful foods.

But what renders these experiments largely useless is the fact that only the very best grade of either syrup or molasses is being used in the test. Most people are fairly well satisfied that a high grade of either is good eating; but what the general public would like to know is the value of the other grades, particularly the lower ones, on the human system. For this reason the experiments now being conducted can have but little value, for the Department of Agriculture would not be justified in giving ordinary syrup or molasses a good character because the highest quality stood a test. It would be better for us all if low-grade molasses and syrups were entirely eliminated from the markets of this country.

SUGAR AND ITS DANGERS.

A GERMAN scientist of high repute, Dr. von Bunge, in the *Journal of Biology*, has just published an article, "The Increased Consumption of Sugar and its Dangers." This German *savant* says it is well known that children who eat much sugar have bad teeth, and are pale, and this is undoubtedly due to the lack of phosphates—iron and lime. This information comes from Germany, where the price of sugar is very high and the consumption limited. It is in Great Britain, where the consumption of sugar is far higher than in any other country, that sugar diseases, notably *diabetes*, are more common than elsewhere. It has been observed that in cane-sugar-producing countries, on the other hand, the negroes employed are fat and healthy, yet this does not alter the case any, because these laborers never use our white sugar, and, in fact, are in the habit of extracting the juice of the sugar cane by means of their own teeth. In using sugar they much prefer raw sugar made by a simple process similar to our method of producing maple sugar in the woods.

As a remedy, Dr. Bunge proposes that the German government largely increase the revenue tax on beet sugar produced in the empire of Germany.

THE APPOINTMENT AND JURISDICTION OF INSPECTORS IN ONTARIO, CANADA.

VARIOUS conflicting reports appeared as to the appointment of inspectors and their jurisdiction in the province of Ontario. Desiring to get the facts we wrote to the Minister of Agriculture, at Toronto, for an official statement. This has been received, and we take pleasure in presenting the same herewith.

Toronto, Ont., June 14.

Dear Sirs:—I beg to acknowledge your enquiry of the 11th inst. as to the jurisdiction of the Inspectors appointed in Ontario under the Foul-brood Act. The names of the Inspectors and the districts for which they are to act are as follows:

J. Alpaugh, Dobbinton, Ont.—Wellington, Waterloo, Perth, Huron, Grey, Bruce.

James Armstrong, Cheapside, Ont.—Norfolk, Brant, Oxford, Elgin, Kent, Essex, Lambton.

James L. Byer, Mount Joy, Ont.—Ontario, Victoria, Peterborough, Durham, Northumberland, Hastings, Prince Edward.

Matthew B. Holmes, Athens, Ont.—Lennox & Addington, Frontenac, and all points east of those counties.

William McEvoy, Woodburn, Ont.—Wentworth, Lincoln, Welland, Haldimand, Middlesex.

H. G. Sibbald, Claude, Ont.—York, Peel, Halton, Simcoe, Dufferin.

The position occupied by Mr. McEvoy, who has hitherto acted as Provincial Inspector, is precisely similar to the other Inspectors, except for an arrangement whereby he may be sent into other districts to deal with exceptional cases. This, however, will be done only under specific instructions from the Department and will in no sense interfere with the work of the other Inspectors. NELSON MONTEITH,

Minister of Agriculture.

"THE PUBLIC HAVE A RIGHT TO KNOW."

IN the *American Grocer* for June 5, under the editorial caption of "The Public have a Right to Know," the following paragraph concerning Dr. Wiley appears:

At the recent convention of the Cotton-seed Crushers' Association, at Jamestown, Dr. Harvey W. Wiley reiterated his oft-expressed opinion that honesty and publicity were potent to build up and not tear down demand for an article. Referring to glucose, he said: "The disadvantage under which glucose labors to-day is due, in my opinion, to the persistent and determined efforts to distribute it among the citizens of this country under some false name."

We have already spoken of the good work that Dr. Wiley was doing. The moneyed interests vested in some food products have no use for him. He will tell what he thinks, and his recommendations go a long way in the Department of Agriculture. Yes, he is a big thorn in the flesh of those food concerns that have been putting out adulterated or misbranded goods. The glucose people especially are opposed to him, and no wonder, for he says things that hurt. If these interests would be content to sell their product for what it is, and not attempt to palm it off under new and well-sounding names,

the lovers of good and pure food would not have much of which to complain. Dr. Wiley has evidently hit the nail on the head and we hope he will keep on driving his spikes until he has spiked the guns of all the enemies of pure food.

ANOTHER PURE-FOOD SHOW; AN OPPORTUNITY FOR BEE-KEEPERS.

BOSTON is not going to allow Chicago to monopolize the pure-food-exhibition business, and has decided to hold what it calls a "Food Fair and House-furnishing Exposition;" and as the bean city is the avowed center of the universe it ought to be a great success.

Every available foot of space in Mechanics' Building, including Grand Hall and Exhibition Hall, with the lower floor and balcony of each, and second balcony of Grand Hall, Banquet Hall, Paul Revere Hall, and Talbot Hall, comprising over 200,000 square feet of space, has been leased.

This seems to us a very favorable opportunity for New England bee-keepers to show to the world that honey is the best food known to mankind, requiring no cooking, spices, condiments, or other manipulations to make it palatable, and, what is more important, that comb honey can not be counterfeited successfully, and also that, under the national pure-food law, extracted honey is protected from adulteration, and honey is honey. There is also a work to be done in educating the public in the matter of distinguishing the different flavors of honey. We have made a great gain when a customer has learned there is a kind of honey that exactly suits his or her palate.

REQUIRING COMMISSION MEN TO GIVE BOND FOR THE FAITHFUL PERFORMANCE OF THEIR DUTY TOWARD CUSTOMERS.

THE State of Washington is making an experiment which will be watched with considerable interest in all parts of the country. A law was recently passed by the legislature of that State, compelling all commission houses to file a bond. Houses not rated at more than $20,000 have to put up $3000 for the faithful performance of their duty toward those who ship goods to them. Another provision is that an account-sales must be sent to the shipper within 48 hours after the receipt of the goods.

The object of the law is to drive irresponsible houses out of the business, and in this respect the law will have a salutary effect. The idea of setting a time-limit for sales does not seem to be wise; at least, 48 hours is rather too short a time to effect sales. The principle of compelling these houses to file an iron-clad bond seems to be good, and will probably be imitated by other States.

The commission business is all right in itself; but it has been greatly injured by some irresponsible parties who have neither capital nor honesty to back up their promise of a square deal to the shippers. We don't let such people into our Honey Column if we know it.

CUTTING ALFALFA BEFORE IT IS RIPE—A DANGEROUS PRACTICE.

"IT is well known also that *immature* alfalfa is much more apt to injure stock when cut for hay than well-manured well-cured alfalfa." So says Prof. A. M. TenEyck, of Kansas Experiment Station. No man in the United States is better authority on the subject of alfalfa than Prof. TenEyck, and yet he unreservedly condemns the cutting of immature alfalfa. He wrote the above opinion in answer to a correspondent of the *Kansas Farmer*, who mentioned the loss of a young horse by eating a few mouthfuls of alfalfa hay cut before the blooming period. Some one attributed the loss of the horse to the fact that the hay had been frost bitten. Prof. TenEyck, however, says alfalfa cut before blooming would have this effect, and frost had naught to do with it.

Some time ago the Colorado Experiment Station, in a valuable bulletin (Bull. 35) showed that, by cutting alfalfa before blooming the net loss was about 38 per cent.

In the light of these facts it seems strange that many ranchers persist in cutting this crop before it has reached its blooming period. Apparently they have no good reason for a practice that seems to be a distinct loss to all concerned. Bee-keepers would do well to help disseminate this truth. There was a time when we feared that early cutting would become a general practice, and, if so, the output of alfalfa honey would be correspondingly reduced.

THE DOG IN THE MANGER; DESIRABLE LOCATIONS FOR BEE-KEEPERS IN NEW TERRITORY.

EVERY now and then we receive requests for information as to the best places to keep bees. Many of the inquirers state that, owing to ill health, it is necessary for them to move to a warmer climate, such as, for example, that of Texas, Arizona, or California; what points in any of the States would we advise?

As a general rule the desirable locations in the Western States where alfalfa is grown have all been taken up. In some places the territory is greatly overcrowded; and for one more bee-keeper to move in is like adding the "straw that breaks the camel's back;" that is, it makes the business of honey production unprofitable for all.

On page 690 of our issue for May 15th we gave a list of localities that the government was about to irrigate. In most of these regions proposed to be watered, the land is cheap, being practically a desert; but with the advent of the one thing needful, *water*, and plenty of it, alfalfa will be grown by the thousands of tons. This will necessarily create fine bee pasturage.

Those who have any notion of changing their location should get in close touch with the places about to be irrigated; then, after learning whether the soil is suitable for growing alfalfa, be the first one to set bees in the territory, or at least among the first. The

immense irrigation projects that are already under way and in prospect will mean some fine bee territory not now occupied.

This country is so large that there will be room for all; but in taking up these new bee-ranges, bee-keepers both in fact and in prospect should endeavor to abide by the golden rule—that is, to be careful about overlapping the other fellow's bee-range. Do not get nearer than three miles, and four miles between the yards of bees would be better. It will be well if the new settlers could so agree; and in nearly every case, if not all, the first bee-keeper on the ground should have the the undisputed possession of the territory in range of his bees. Let the rule of "live and let live," rather than "get all you can, whether it hurts the other fellow or not," be the guide.

While it is true that, legally, one will have just as much right to a given bee range as another, yet when one bee-keeper can make a fair living off a given bee range, and three would starve to death, why should not one (the first on the field) be allowed to make that living? There should be, and need be, no dog in the manger about this business.

NEW HONEY-PRODUCING TERRITORIES THAT WILL BE MADE AVAILABLE FOR BEE-KEEPERS.

We have already referred to the great irrigation works now being constructed by the United States government, and which form only a part of the vast amount of land now being recovered from the desert, and which, when it has been planted, forms excellent opportunities for bee-keeping on a profitable basis. To give some idea of what a beneficent government can do in this respect we may instance the fact that recent maps of Idaho show a new lake (Walcott), which is 35 miles long, and, at its deepest, 300 feet. The largest warship in the world could steam over it in safety, and at a medium speed would take two hours to cover the distance. A similar lake will also be created in New Mexico, and much larger ones are contemplated.

The effect of these vast improvements is to render bee-keeping a safe and profitable business in the localities affected. On the other hand, it is estimated that 60,000,000 acres of really valuable land may be recovered from swamps in this country by drainage. This will be of great material benefit to the bee-keepers by allowing a good class of honey-plants to grow where sedges and canes formerly held the ground.

There is also another sort of land which is bound to be reclaimed at an early date. This is overflow lands subject to inundation at times. California has a considerable quantity of such land. It is good bee territory except for the risk of losing one's all by a flood. In most cases a simply constructed levee would protect such lands and render them perfectly safe.

There is considerable prospect of much land being deliberately planted out in forests, and these, in most cases, will be formed of honey-producing trees. This has been referred to before. It is true, much of our forest land is being ruthlessly cut down; but in Michigan, Minnesota, and Maine, when the white-pine forest is cut over, the fireweed or willow herb and the raspberry, both of them splendid honey-plants, take complete hold of the soil.

In the South, on the other hand, when the yellow pine forests are cut, the gallberry bush (another exquisite honey-plant) takes full possession at once.

Then also the modern farmer is more inclined than ever to use leguminous plants, which are honey-yielders in nearly every case. Moreover, we have the new pure-food laws which give stability to honey prices and prevent scheming men hammering the price of pure honey down to a point where it does not pay the producer.

There is no exaggeration in presenting these facts, hence it is safe to say the outlook for the bee business was never better.

HIVE-LUMBER SITUATION.

Bee-keepers have been greatly exercised for some time over the high price of hives and other bee-supplies made of wood, and some have flattered themselves that in time prices would come down. There does not seem to be much hope for this consummation; on the contrary, all signs point the other way, for, according to a recent bulletin issued by the Forestry Bureau at Washington, we are using up the white-pine forests at least three times as fast as we ought to, though at present we are using only half as much as we did in the latter eighties.

At the annual meeting of the Northern Pine-manufacturers' Association in Minneapolis, January 22, 1907, the secretary, J. E. Rhodes, made this statement:

"Since 1895, 248 firms, representing an aggregate annual output of pine lumber of 4½ billion feet, have retired from business, due to the exhaustion of their timber supply. Plants representing approximately 500 million feet capacity which sawed in 1906 will not be operated in 1907." It may be argued that we might use some other lumber—for example, cypress or Douglas pine; but this would hardly help us, for the freight rates on either are very high, as one is produced in the extreme south and the other in the extreme northwest.

Of course, we might use substitutes; but, unfortunately, these are dearer in the end than good white pine. It must be borne in mind, also, that bee-keepers demand the very best lumber in their hives.

Luckily the ordinary bee-keeper uses only a small amount of lumber each year.

THE DIFFERENCE BETWEEN SYRUP AND MOLASSES PRODUCED IN THE TROPICS.

The two sweetening agents above mentioned come into open competition with honey to a very considerable extent, and yet the average consumer in the North can not distinguish between syrup and molasses, though

he may be in the habit of buying both. Corn syrup most Americans know to be glucose made from starch—that in the United States being made from hydro-chloric acid (or sulphuric) and corn starch. Strictly speaking it is not "corn syrup," as a syrup can be made from the juice of the corn. Sorghum syrup, with a good deal of justice, might be termed "corn syrup." It is because glucose has acquired such a bad reputation that the makers of it now wish to fool the public by giving it a name that would suggest sorghum. The U. S. Pure Food Commission ought to make a ruling on this point. It would make a difference to consumers if glucose were labeled glucose—exactly what it is.

Most people are aware what maple sugar looks and tastes like—at least they will have the chance this year. But many are not so well aware that a syrup almost as good is made from the sugar-cane plant. This industry is almost confined to Florida, Porto Rico, and Georgia, where the cane-farmers make a nice syrup by a simple process. Lately they could not resist the temptation to adulterate their product by adding glucose in large proportions, chiefly with a view to lightening its color. They probably did this to please the dealers who imagined that, the lighter the color, the better it would sell. A good many are using lime and sulphur to clarify and lighten the color of the syrup; but Dr. Wiley condemns this practice, for neither agent is wanted in a product intended for human consumption.

Probably most of the cane-farmers will return to the old method of simple evaporation. This leaves the flavor of the sugar cane unimpaired. A sugar similar to maple sugar is made in this way. A fine syrup can also be made by taking yellow cane sugar and reducing it by the addition of water.

Molasses, on the other hand, is a by-product of sugar manufacture. The old-fashioned way of getting it was to store the wet dripping sugar into bags and allow these to drain out the molasses into a vat. In fact, the process was not very nice for spectators to look at; but as a rule the consumers did not know how it was made; and "where ignorance is bliss 'tis folly to be wise." But the newer processes produce a much worse article, not fit for human consumption, and even of doubtful value for domestic animals, since it contains large quantities of powerful chemicals used in refining the sugar. It can be made into alcohol, and that is all it is fit for.

At present the American market is bare of both syrup and molasses—at least none is actually quoted. This is probably due to the action of the pure-food laws, as retailers and dealers are afraid of being caught by food-inspectors. There is a considerable amount of genuine syrup now used by the glucose-factories who are obliged to add from 10 to 35 per cent of cane sugar to their starch syrup to make it palatable. The more cane syrup it contains, the better it tastes.

The American people are extremely fond of liquid sweets, and would consume enormous amounts of a really good article if they could get it. At present many make their own syrup by adding water to sugar. In the next few years the makers of genuine cane syrup will reap a harvest, as there is not nearly enough made to supply the demand.

ALSIKE CLOVER AND ITS INTRODUCTION IN THIS COUNTRY.

THE following significant passage occurs in the *American Bee Journal* for December, 1866. Notice the date.

"We claim credit for having first brought to notice, in this country, the Italian bee and the Swedish (or alsike) clover, and urged the introduction of each as likely to prove a valuable acquisition."

It is not generally known that we owe the *successful* introduction of alsike to the founder of the *American Bee Journal*, Samuel Wagner.

We mention this to show what bee-keepers can do to improve the honey resources of the country. Nowadays Wagner is forgotten; but alsike clover is now considered a very important crop in many parts of the country, and a combination of timothy and alsike is considered by many the best for hay this country produces.

Sweet clover came later, and the prejudice against it has not yet been overcome. Had it not been for bee-keepers it might have been outlawed as a noxious weed. But it is steadily winning its way as a soil-renovator. We can easily remember when alfalfa was practically unknown east of the Rockies. Now it is known in every State. Sainfoin would probably do bee-keepers more good than any of these plants, but the problem is to get the farmers to give it a fair trial and study its nature and requirements. With these four plants growing in more or less profusion we need not fear the bee industry will cease to pay.

As this form goes to press, June 22, the weather throughout the United States is ideal for honey, and has been for about a week. In many places this good weather came too late to do any good; but in the great majority of northern localities it comes just in the nick of time. The ground is saturated; and where the clovers were not killed out by previous bad weather there will be a good flow of honey. Basswoods promise well everywhere. Some unofficial reports from California would seem to indicate that we may yet get a crop from that State. Many colonies of bees over the country have starved, and others are in a greatly weakened condition; but the bee-keeper who is progressive, and looks ahead, will have had his bees in fine condition; and if this favorable weather should continue he is going to get a fine crop of honey. There will be fewer bees and bee-keepers to produce honey this year. There will be no glucose concoctions masquerading under the name of honey as before. The result will be good prices for those bee-keepers who have had faith in their bees.

I like that picture of Benj. Paine's apiary, p. 403. The wife as well as himself is in it. No wonder he makes a success of bee-keeping. Where a man and woman both get interested in any work, look out for success.

Louis Scholl makes some good points about painting hives, p. 388. The best is the cheapest, every time. For roof paint for hives I have found nothing to equal the B. P. S. paint. It lasts longer than any other I have ever used.

I believe Mr. Alexander's view of the effects of weather upon the yield of honey are sound, especially thunder-storms, p. 392. I hope that, after a time, we may have more certain knowledge of the influence of weather and soil upon the flow of honey.

That closed-end top-bar frame of D. S. Hall, p. 416, it seems to me, has some advantages over many; and if I were to adopt a self-spacing frame I believe it would be this in place of any other. I expect to try one or two hives of them the coming season.

The short biographical sketch of the life of A. F. Baumer, page 386, is full of inspiration to all who are engaged in business. Perhaps in nothing, aside from honey, has adulteration been practiced more than in wax; yet by honest methods this man made a success of his business.

That new-idea honey-package by Howard C. Mills is worth trying, p. 405. I suppose the time will come when, if one inquires at a grocery for honey, the clerk will ask which is preferred—comb, extracted, or granulated—with much less difference in price than at present between them.

Dr. Miller's head is pretty level on the bottom-starter business, p. 383; but I find that, as a rule, my combs are well fastened at the bottom. I use starters or foundation in sections so as to come down to about ¼ inch of section bottom, and it either sags or the bees almost always seem to build it down in a very satisfactory way. I don't remember ever using bottom starters Doesn't the strain or breed of bees make some difference? We bought some comb honey last fall that had a good many sections that were not built down to the bottom of the sections. The honey was made by black bees. I have noticed, too, that when only a very small starter was used, sections were not so well fastened at the bottom, and would be improved by a bottom starter.

A good deal is being written these days about whether it is safe to depend on bee-keeping alone for a livelihood, or whether it should be combined with some other business. Now, I see no reason why a little good reason should not be applied to this subject as well as to others. To expect a man to succeed in raising wheat on the hills of Colorado, or peaches in Minnesota, or in lumbering on the prairies of Illinois is on a par with expecting a man to succeed in bee-keeping where little or no honey is to be had. Of course, he must have a location that is fairly well adapted to his business.

Again, why should we expect a man to succeed in producing honey before he has thoroughly learned the business than to expect a wheelwright or carpenter or glass-blower or merchant or manufacturer, until he has thoroughly mastered his own kind of business?

We find in all trades and professions those who fail as well as in bee-keeping—those who meet with moderate success as well as those who have achieved enviable success.

The fruit-grower, the farmer, as well as the merchant or manufacturer, have their poor years when it is difficult to make both ends meet. The same is true of the bee-keeper. Ability counts in this business the same as in all other lines of effort. It is certainly true that a man can keep a few bees, a little dairy, and some poultry, and not meet with as great extremes as with any one kind of business; but I doubt if he can make all of them pay as well as if only one kind is followed.

If the venerable and kind-hearted Quinby were living to-day with all our improved modern appliances I very much doubt if he would advise any very large mixture of other kinds of business with his bee-keeping. The only kind of business I would add would be "more bees."

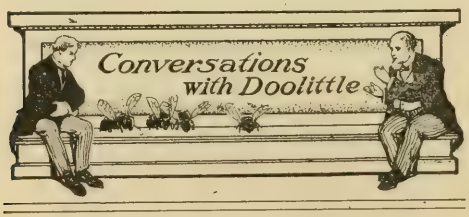
You make some pretty good points, p. 384, Mr. Editor, in reply to one of Dr. Miller's Straws with regard to commission-men. I'm afraid conditions are not always just as they should be. A year or two ago we were looking around for some choice extracted honey, and found one large dealer quoting such honey lower in his city than others were quoting in other cities. My son wrote, asking if he could supply us at those prices. The reply we received was somewhat surprising. He wrote that they took it all themselves, and there was no more than they needed for their business. Of course, if there is but one wholesale dealer, and he is willing to give only a certain price, or if there are several and they agree on a certain price to quote honey, and it is quoted at the price agreed upon, that, of course, is the going price, and it is not lying to say in print that such and such are the prices. After all, there seems to be something very unsatisfactory about it to

producers. Where there are but a few persons engaged in any one line of business, as the handling of honey, it is easy for them to control the price of honey to a considerable extent. There is usually a way out of difficulties, and I think we shall find one for this if we look carefully.

Honey is fast becoming a staple; and wholesale as well as retail grocers must have it if they carry a complete line of groceries. The number of wholesale merchants is very large as compared with those who make a specialty of honey. With a little assistance from the producer they would quite as soon buy of him as the honey-merchant, and will, on the whole, give better prices than the commission men.

Another way is the generous advertising of what you have to sell in any or all of our bee-journals. Let me illustrate.

Suppose I wished to buy 10,000 pounds of clover honey. Mr. B., living in Western New York, has just this amount, and he tells me so in a little advertisement costing him, perhaps, a dollar. How much better for him and myself for me to buy of him direct than for him to ship to New York and pay the freight, cartage, insurance, commission, etc., and then, perhaps, get no more, or but a trifle more, than I would pay him, and have it shipped direct to me! Thus with the increasing number of purchases the chance of getting all our produce is worth is very sensibly increased.



SUPERSEDURE QUEENS.

"I should like to have a little talk with you, Mr. Doolittle, about queens which are about to be superseded a little time before the honey harvest. This past spring I found that some of my older queens had hard work to keep up the strength of the colony. A part of these colonies would build supersedure queen-cells, and, although not very full of bees, several of them would swarm on these cells unless prevented."

"About what time in the spring did this happen, Mr. Sweet?"

"A large part of these colonies mothered by these queens would endeavor to supersede in May or June, and, although not by any means as strong in bees as those mothered by younger queens, quite a lot would swarm on these cells."

"What course did you pursue with these colonies?"

"I had started in to control swarming. Every queen that seemed able to do reasonable service till the flow should come was retained, and the cells cut out. To do this I handled over the brood-combs of the entire apiary (for I could not tell just which ones would try to supersede their queens), once in ten days to two weeks."

"What has been the result?"

"So far the colonies with these aged queens do not seem to be doing nearly as well as the others."

"Why did you not take the old queen away and let a young queen take her place?"

"Because I did not consider it better to requeen in that way. It was a hard time to rear queens, and to have these colonies rear young queens would get no more brood for the flow than to keep just the old queens a while longer."

"And so you kept cutting out these cells?"

"Yes. By frequent overhauling of the brood-nests, and cutting out the cells, I was able to keep down this supersedure swarming."

"The same making you lots of work with the prospect of poorer returns in the end?"

"Yes."

"Say, Bro. Sweet, did you mean to give yourself away on this superseding business?"

"No."

"Well, if you did not you have done it all the same."

"How do you make that out?"

"You go on and tell me how the bees reared queen-cells to supersede those old queens, and how they swarmed with those cells, or the queens which emerged from them, and then tell me that you kept all of these old queens possible, because it was a hard time to rear queens. Didn't you do this?"

"I guess I shall have to admit that I did."

"Then you told me that, to have these colonies rear young queens, would get no more brood for the flow than to keep just the old queen a while longer. Is that right?"

"I guess it is."

"So you just worked and worked to keep down supersedure swarming?"

"That is right. I see you intend to give me a pounding so I might just as well own right up."

"Thank you. Now let me say that the queens which would have emerged from those supersedure cells would have been as good as any queens you ever had."

"But there was little or no honey coming in when these cells were being built and the larvæ fed."

"I do not care for that."

"I know. But don't the bee-papers and books tell us that good queens can be reared only when there is plenty of honey and pollen coming in from the fields?"

"Yes; but that is when man is forcing the bees to rear queens. When the bees do this of their own accord, when their old mother is present right in the brood-nest with them, rest assured that they make no mistake. I guess I can prove this to you."

"I hope you can; for if this is so, I will be on the lookout for such cells in the future."

"In cutting or pulling these supersedure

queen-cells off the combs, what did you find in them—plenty of royal jelly or very little?"

"I guess you are going to prove your point, for I noticed that there seemed to be more jelly in them than in any queen-cells I ever pulled off, unless I except some extra heavy colonies which had swarmed very late one season."

"Yes. That royal-jelly business proves to your own mind that only the best of queens could have come from cells so well supplied. Therefore it was not a *hard* time to rear queens, for the bees reared them themselves, without any *hard* work on your part at all, and fed the larvæ in those cells, calculating to have the best of a mother from the one they saved. Now, why did you not take every cell you could find, but one, from the first colonies which built cells, and put one of those cells in each colony which you thought would try to supersede its queen later on?"

"I guess I was more bent on stopping this supersedure swarming than on studying up on this matter."

"If you had done this you could have superseded those old queens without any swarming, any cutting of cells, or *any expense* of brood-rearing, and done the whole at one stroke, for the old queen would have kept right on laying just the same for all the cell or the young queen emerging therefrom, till she got ready to die."

"Don't you think she would have tried to swarm from the giving of the cell?"

"No, not if given before a lot of cells had been started. It was the plurality of young queens in their cells which caused your weak colonies to swarm as you told me about. If you had given the cells as I have told you, you would have had all the brood you would have gotten from the old queen in any event, till this queen began to lay, when she would have boomed the brood with little danger from swarming during the whole season; for in the superseding of any queen before the honey harvest, the swarming fever seems to be satisfied, unless the colony swarms from a plurality of queens in the cells before a young one gets to laying."

"Well, this is entirely a new thought to me."

"If you will follow it out you will find it to be a good thought, for this has been the way I have managed with superseding cells coming early in the season, and I have found there is no work in the apiary which pays me better than that saving all supersedure cells."

Gleanings from Foreign Fields.

BY W. K. MORRISON.

The average American bee-keeper is anxious to know how his own country measures up against other countries in the matter of bee-keeping; but it is hard to give an answer. The United Kingdom certainly uses the nicest hives, quite possibly because most of them are made in this country. They spend more money than we do on hives, and get a good article. Americans would not care to pay as much. They also go to more pains than we do in inserting full sheets of foundation in the brood-frames. In sections the foundation is fastened on all four sides, which produces better-finished section honey. The Britisher has the time to do things well, and he does them. No nation in Europe does better bee-keeping than old Ireland.

France is very scientific in all that it does, and bee-keeping is no exception to the rule. We might expect this in the mother-land of Réaumur, the founder of experimental apiculture. The hives of France are largely on the Dadant order, with deep frames for extracted-honey production; but American hives with Hoffman Langstroth frames and sections are making considerable progress. A French edition of GLEANINGS, published independently in Paris, is doing much to make French bee-keepers familiar with American methods of apiculture. No other country in Europe is so quick to appreciate our ideas as France, for the people generally are ardent admirers of the American republic, and the social and political systems of the two nations are much alike. France has always taken a prominent position in apiculture, and at the present time maintains about a dozen bee-journals. The system of movable combs has practically full sway, and we need not wonder at this since the French are a truly scientific people in all respects, always ready to accept something better.

Switzerland, small as it is, occupies a high position in the bee-keeping world; and, being the home of Huber, we need not marvel at it. It is also the homeland of our so-called Italian bees, for our leather-colored species comes from a part of the Swiss republic in and around Bellinzona. The Swiss bee-keepers maintain two bee-papers—one in German and the other in French. The one in German is a model bee-journal, handsomely illustrated, and quite scientific. The Swiss have some very prominent scientific men connected with the bee industry—notably the Goeldi family, two of whom started the fine museum at Para, Brazil, now presided over by Prof. J. Huber, a descendant of the great Francois Huber. Prof. Bourri, of the University Zurich, is a distinguished authority on bees, notably on foul brood and parthenogenesis.

Belgium stands well to the front in bee-keeping, maintaining six French bee-papers and one in Flemish. The bee-keeping industry is here pushed to its utmost limits.

Netherland has two bee-papers, and the industry is well looked after. It ought to be, in Swammerdam's country.

Germany and Austria maintain about 30 bee-papers at present, some of them very creditable productions. This shows the importance of bee-keeping in countries speaking the German tongue. Some of the best of these papers are published in Austria (Vienna), Bohemia, and Moravia; Switzerland,

and Luxemburg; but the bulk are actually published in Germany proper.

The bee-keepers in these countries are splendidly organized, and, as a rule, inclined to be scientific. But the hives in general use are not equal to those of Britain and France. Of late they have started to copy our hives, and some dealers are selling an exact counterpart of the Dovetailed and the Danzenbaker.

In wax-extractors they excel. Deep-cell foundation is used by some, but it is safe to say no American bee-keeper would use it, for it is both very heavy and expensive. Their honey-extractors are also inferior to ours. One bee-journal, however, does nothing but advocate American methods, though this must be regarded in the light of "Can any good come out of Nazareth?"

The German, Austrian, and Hungarian bee-keepers meet this year in August at Frankfort on the Main. Next year they meet at Bukawina, at the extreme end of the Austrian-Hungarian empire, bordering on Russia. They muster in great numbers at these meetings.

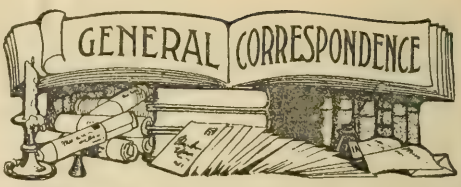
Hungarian bee-keeping is well to the front, and compares with Austria very well. Denmark, Norway, and Sweden have bee-papers copying largely from our American journals. Russia does a great deal in bee-keeping, and maintains several bee-journals gotten up in good shape. They turn some of their letters upside down, so we shall not read what they say.

Italy maintains two good bee-papers, but does not do as much as we should naturally expect from so favorably situated a country. In North Italy the industry is well developed, however.

Spain and Portugal are backward in apiculture, and neither has a bee journal at present. So is Greece. Roumania has or had a bee-journal. Servia patterns after Hungary.

Algeria and Tunis are prominent bee countries. The former, until lately, had a bee journal; but this was given up in favor of Mr. Bondonneau's paper, *Apiculture Nouvelle*. Tunis still keeps up its paper; and the bee-keepers' society there is quite wide-awake. They stick up for the Punic bee on all occasions, and probably it suits their conditions as well as any. Africa may be considered the homeland of the bee known to science as *Apis mellifica*, and bee culture is a successful industry over the entire continent. Even the Sahara has its apiaries located on the oasis where the date palm is the leading honey-plant. Egypt keeps its bees as of yore when the Pharoahs ruled the land. According to Schweinfurth the bees over a large part of Africa greatly resemble our hybrids in color, and according to some travelers their temper is about the same.

Quite possibly it would pay to make an investigation of the bees of Africa, but it would be a rather expensive business for an individual in any event. We know that there are several distinct species of bees in Africa and its islands, but our information as to their real value to us is next to nothing.



MAKING INCREASE VS. BUYING COLONIES.

Buying Bees in Hives of all Kinds and Shapes a Bad Plan; Danger of Bringing in Foul Brood; How to Make Early Increase.

BY E. W. ALEXANDER.

This question is of considerable importance to those who have but few colonies and are anxious to secure a larger number as soon as possible. If we could buy good Italian bees at a fair price in the same kind of a hive we use, filled with good worker combs, then it might be as well to buy part of our increase as to make them from the colonies we already have; but this we can seldom do unless we buy of a supply-dealer. Then we can get a good standard hive with good combs and as choice a queen as we care to pay for.

If you want to buy bees I think, when all things are considered, this is the better party to buy from.

If we get our bees of some one who has never kept more than a few colonies and is anxious to go out of the business, then we usually get hives of but little value except for kindling-wood, and combs fit only for wax, with queens from one to five years old, of all grades, from fairly well-mated Italians down the line to the blacks.

But sometimes it is best to buy these almost worthless colonies in order to get them where their drones can be destroyed. In this case you had better Italianize them as soon as possible, then set on top one of your standard hives filled with combs, one of which contains brood; then put their queen on this frame of brood and put a queen-excluder between the hives so as to keep the queen in the upper hive; then in 21 days take out the under hive and use it as you see fit. Your almost worthless colony will now be Italianized and nicely transferred to your standard hive. This we find is the most practical method of disposing of those undesirable colonies which were in hives of all forms and sizes.

If your circumstances are such that you can hardly afford to sacrifice a part of your surplus in making increase, then you must be careful and make only such increase as will add to your surplus. This is an easy thing to do where the principal harvest comes in August; but if it is in June, then it requires the most thorough knowledge of the best methods of rearing queens and dividing colonies that have ever been practiced, in order to make it a success.

Those of us who produce extracted honey

can make our increase much cheaper and easier than those who produce comb honey. With us we can divide our colonies in almost any way without seriously affecting our surplus. We always make rather more increase in June than we expect to put into winter quarters in the fall; then when a colony loses its queen, or is not what it should be, on the eve of our harvest we unite it with another. At this time we like to have every colony as strong as possible, and we care but little for weak colonies.

DANGER OF DISEASE.

One of the most serious objections to buying bees here and there around the country is the liability of bringing diseased colonies into your apiary. This we should ever bear in mind, and never take any chances that we can prevent. Then the trouble of finding bees for sale, and the expense of bringing them home, many times is no small matter. I have been all over this part of the business, and I don't care to try it again.

In regard to making our increase, it can now be done very easily since we can rear queens with so little trouble that it is easy to have all we care to use ever ready at almost any time. Then by stimulating breeding by feeding so as to have strong colonies ready to divide as early as our young queens commence to lay, we can certainly make our increase much cheaper than to buy undesirable bees; therefore I can not advise you to buy bees only in exceptional cases, but I do advise you to study well all the latest improved methods of rearing queens and making increase.

IMPORTANCE OF STARTING RIGHT.

You are the architect of your business—yes, of your whole life; so let no opportunity for improvement pass unimproved. Before entering upon bee-keeping or any other line of business, be sure you start right. My friend, did you ever realize the importance of those two words, "start right"? Teach your little children to study them; and when you see those poor drifting wrecks of humanity wandering up and down your highways in their abject poverty, tell your children that those poor souls which are now fairly steeped in vice and crime are the result of starting wrong in this life, and that only God knows what the result will be in the life to come.

Please pardon me in so often drifting from my subject; but when I think of that short sentence it seems as if I could write a whole volume on its importance.

THE RIGHT WAY TO MAKE INCREASE.

There are various ways of making increase. We prefer to build up the colonies to be divided until they are very strong in bees and brood; then when the division is made and the queenless part is given a laying queen, we soon have two good colonies ready for the harvest. We think this is a much better way than to build up nuclei. Let the same rule apply to making increase, as all other work in the apiary, which should be a harmonizing with your knowledge and the natural instincts of your bees. This is quite important in order to secure the best results. If we adopt methods according to their natural instincts then surely we shall secure better results than if we try to force them into unnatural conditions, which to quite an extent soon causes them to become discouraged.

IMPROVING THE APPEARANCE OF THE APIARY.

We are now on the eve of another busy season; and while we are intent on securing all the surplus we can, let us not overlook the importance of improving our apiary, both in appearance and real value. A coat of new paint on many hives will add much to their general appearance, and a few choice queens of some valuable strain of bees not related to those we have will often add many dollars to its real value. In this way, at a small expense we can make our business more attractive and profitable, each of which has much to do with our success; and when we can catch the fleeting thoughts of to-day and weave them into practical methods for to-morrow, then let us not stop but continue our work until, through the medium of our journals, they are given to the world for the help of man.

A SEASON'S WORK WITH SECTIONAL HIVES.

Swarm Control and Comb-honey Production; Why the Sectional Hive is Superior to its Older Rivals.

BY J. E. HAND.

[The reader should understand at the outset that the weather conditions mentioned in the subjoined article are those for *last* year, not this year. Mr. Hand speaks of the conditions of the season as they occurred in order that he may show how to meet those conditions. While the season this year is materially different, the principles here laid down can be made to apply just the same. The reader must keep clearly in mind that Mr. Hand's colonies are divided into three groups as explained in his article in the last issue, and as shown in diagrams on the following pages. —ED.]

The fruit-trees are now in full bloom, and the happy hum of the honey-bee is sweet music to our ears, for the honey supply in some of our hives is getting rather low, owing to the immense quantities of brood that our mammoth colonies have been rearing of late, and visions of the possible sugar-barrel in the not distant future had begun to loom up before us; however, with favorable weather for a few days all our anxieties along this line will be dispelled, for our strong colonies will soon fill their hives with the rich nectar from the everywhere abundant fruit-blooms. As explained in the last article, our colonies are divided into three different classes of fifty each. The diagram, Fig. 1, shows one of each class.

The weather at this time is all that could be desired, and every thing looks favorable for a good flow of nectar from fruit bloom; and as our colonies are all very strong in bees we will place on each colony a super of

sections filled with foundation by our new process that we will explain in our next article. We do not expect to get any surplus honey from fruit-bloom, and our object in putting the sections on at this time is to get the foundat on partly drawn out so as to get the bees at work in the supers at the very beginning of clover-bloom.

THE BAIT SECTION OF PARTLY DRAWN COMB NOT ADVISED.

Some advocate the use of 12-bait sections in each super to coax the bees to begin work in the sections. However, since such baits, when finished, are invariably off-grade, and

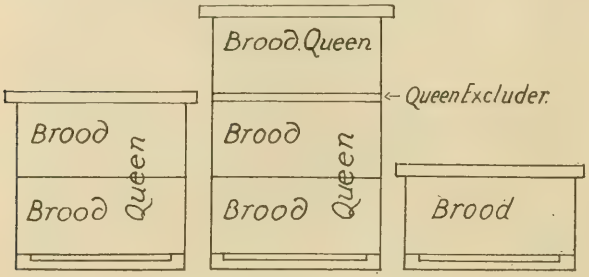


Fig. 1. This represents the apiary which consists of 150 stands divided into 3 groups as shown.

12 second-quality sections in each super would seem like rather expensive bait, we prefer to render our bait sections up into wax, and use full sheets of foundation freshly drawn out into combs during fruit-bloom by our mammoth two-queen colonies. With our extra-strong colonies, and our bees being accustomed to passing freely from one brood-section to another of our hives, no coaxing is necessary in order to get our bees to begin work in the supers. This is the least of our troubles.

May 30.—Fruit-bloom is over, and our bees have put in good time. Our extra-strong colonies have stood us in good stead, as the hives are all well supplied with honey, which, together with what they will gather from locust-bloom and tulip or poplar, will keep up brood-rearing finely until clover blooms, which will be in about two weeks. We will now remove the supers of sections. We find that we have got 150 supers in which the foundation is more or less drawn out. This will give the bees a fine start when clover opens.

PUTTING ON FIRST EXTRACTING-SUPERS INSTEAD OF COMB-HONEY SUPERS.

June 10.—Clover is beginning to bloom, but it has been very dry for a long time, and the outlook for a crop of clover honey is very discouraging; however, if we get rain soon we may even yet secure a partial crop of clover honey. As a little honey is being gathered we will place a super of extracting-combs on each of our hives, first placing on each hive a queen-excluding honey-board. Why do we put on extracting-combs if we are going to produce comb honey? Why not put on the sections at once? The reason is this. Although the bees are gathering a little honey, yet there is not enough of a flow to warrant putting on the sections, and only the very strong colonies are making any gain, and bees are not yet building new combs; and, though they will store considerable honey in the extracting-supers, yet they would not do satisfactory work in the sections, and would only daub them with propolis, and gnaw holes in the foundation. Our reason for putting on the extracting-combs at this time is to coax the bees to store the honey above as fast as it is gathered, so that the queens can fill the whole brood-chamber full of brood, which they will quickly do since the fertility of the queens is in excess of the room in all our brood-chambers.

ALL BROOD AND NO HONEY IN THE BROOD-CHAMBER.

We want a *brood*-chamber for *brood*, and of such a size that the average queen can fill it with brood. If *one* can't do it we will use two, for our brood-chambers must be kept full of brood, and queens cost nothing, and brood-combs cost money. If we use a full-depth single brood-chamber of a size to develop fully the fertility of the best queens, as some advocate, the average queen will not be able to fill it; hence the brood-chamber becomes a store-house for honey, and swarming and poor work in the sections is the result. The most satisfactory work in the supers, as a rule, is done by the colonies that store the least honey in the brood-chamber. If we would get the best work that our bees are capable of doing we must keep the brood-chamber practically free from capped honey. This is also right along in line with perfect swarm control.

We will now go to our cell-building-colonies and get a batch of queen-cells which we will place in West cell-protectors, and push down between the combs of our 50 nuclei, and also of the two colonies that were queenless.

June 25.—The bees have been storing a little honey in the extracting-combs right along, but not enough to warrant putting on the sections. We have had no rain during this month, and every thing is pretty well dried up, and we have given up all hopes of even being able to put on the section supers before basswood blooms; however, the basswood-trees are loaded with healthy buds that bid fair to open at an early date, and we are yet hopeful of being able to secure a little surplus from basswood. This is our last resort, for we do not get any surplus from fall flowers in our location, and we consider ourselves in luck if our bees gather enough from this source to carry them through the winter.

Our three-deckers at this time are fairly boiling over with bees, and the extracting-supers are nearly full of honey, and the brood-combs are whitened a little along the top-bars, which tells us to be ready with the section-supers at the opening of basswood-

bloom, so we will bring out the section-supers and pile them up in the apiary so that we can put them on at short notice. Although our three-deckers have an inch block under each of the four corners of the hives, and a half-inch piece under the back end of the covers with a good shade-board over every hive that is at all exposed to the sun, yet the bees of these hives are hanging out on the outside of the hives; and as our other colonies are bunching out we will tip them all up and put an inch block under each front cover; also a half-inch block under the back end of the cover.

July 2.—We have had a fine rain, and the bees are beginning to work a little on basswood-bloom; and, although it is nearly dark, yet the bees are leaving their perches on the outside of the hives and making a bee-line to the timber.

July 3.—We were out at half-past four, but the bees were out before, and the droning of the heavy-laden bees gladdened our heart and also quickened our steps to get those sections on the hives. It becomes necessary at this time to have 50 brood-sections full of newly drawn combs, for purposes which will be described later; so we will place a brood-section having full sheets of medium brood foundation in brood-frames on each of the 50 extracting colonies next to the brood-chamber, where the foundation will be quickly drawn out, and filled with eggs. See Fig. 2.

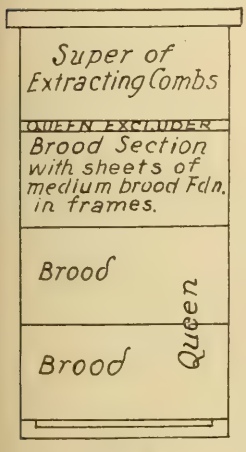


FIG. 2.

PUTTING ON THE SECTION-SUPERS.

We will now go to the 50 nuclei, all of which at this time contain laying queens, and remove the covers, placing on each hive a queen-excluding honey-board, after which we will go to one of the 50 two-queen colonies, and remove the extracting-super, which is now full of honey, and with our hive-lifting device, to be described later, quickly swing the hive clear from the bottom-board and place directly on the bottom-board the extracting-super full of uncapped honey, and drop the hive back in position now on the extracting-super. We will now remove the top brood-section with the queen, placing it on one of the nucleus hives having the queen-excluder in place and put on the cover. We will proceed in like manner with the other 49 colonies having two queens, after which we will place on each of these colonies a section super of drawn foundation that we had started on fruit-bloom, first removing the top brood-section after driving the bees down, so as not to get the queen, and place the queen-excluder on the lower brood-section, and on this place the section-super, and on the top of the section-super we will place the top brood-section, thus placing the section-super in the center of the brood-chamber, where the bees will immediately begin work on the partially drawn combs in the sections as shown in Fig. 3.

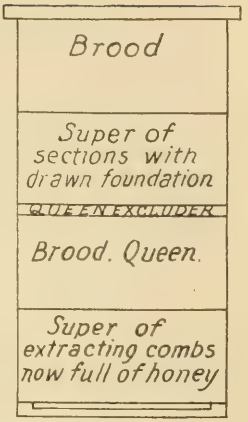


FIG. 3.

Why did you place the extracting-super full of uncapped honey below the brood-chamber? It is pretty generally understood by those who are at all familiar with the habits and instincts of bees that they will not allow honey to remain for any length of time below their brood. Taking advantage of this instinct of the bees we place the extracting-supers full of uncapped honey below the brood, knowing that such honey will be quickly removed and placed above the brood, which in this case will be in the sections, since the top brood section is full of brood clear to the top-bar, it having been up to this time the bottom brood-section.

HOW AND WHY THE SECTIONAL HIVE IS SUPERIOR TO THE OLD-STYLE ONE-BROOD-CHAMBER HIVE.

Reader, compare this with other methods in which the honey is placed at the sides of the brood-chamber. Although bees will quickly remove any and all honey that is placed below their brood, yet they are often very loath to remove honey from the sides of a deeper one-brood-chamber (especially is this true of the Italians), since bees always store honey at the sides of the brood but never below it.

This proves the truth of our statement in a former article, that the manipulations of the sectional hive enable the apiarist to turn the instincts of the bees to his own account in solving the most perplexing problems of successful apiculture. Compare our lightning methods of hive manipulations with the old-fogy methods of handling brood-frames and dummies! What is your opinion regarding the expediency of building up a colony of bees by adding one frame at a time, and closing up each time with a *dummy*? Have you seen any place anywhere in any of our manipulations where it would have been at all desirable to handle brood-frames? and have we not proven thus far that the handling of brood-frames as a business is a waste of time and energy, not mentioning the disturbance of the bees caused by overhauling the combs every little while, and often improperly spacing them? We are telling you

just how our apiary was worked during the season of 1906 as nearly as we can tell it from memory.

Birmingham, Ohio.

SOME YORK STATE BEE-KEEPERS.

Fourteen-frame Hives for the Production of Extracted Honey; Reducing the Swarming Tendency.

BY D. EVERETT LYON,
Field Correspondent for Gleanings.

Just across the Hudson River, not far from the Catskill Mountains, is the town of Hudson. Residing here is one of the up-to-date bee-keepers of New York — James McNeill, a man who is fully abreast of the times.

His home apiary, consisting of about 300 colonies, was a model. The grass was cut, and sweet clover, with a slight trace of basswood. I can certify to its rich ripe flavor, for I sampled it liberally.

At the time of my visit Mr. McNeill had already extracted over 17,000 lbs., and the prospect was for about 25,000 lbs. in all, and that in a not very favorable season.

I was not surprised to find that Mr. McNeill, after much experimenting, was beginning to put his colonies into 14-frame hives, using the standard frames; and there is no denying the fact that these big hives do certainly produce the goods, and are not as much inclined to swarm.

I was much impressed by the fact that, in several yards I visited last year, many bee-keepers who were producing extracted honey were inclining more and more to larger hives.

With the Ferris plan of two queens in a hive before the honey-flow, in these large

FIG. 1.—JAS. MCNEILL'S APIARY AT HUDSON, N. Y.; GRASS ALL CUT, AND HIVES ARRANGED IN ROWS.

while the hives were arranged in order by rows, as seen in Fig. 1, all being run for extracted honey, and producing an average of 75 lbs. per colony.

Mr. McNeill began bee-keeping in 1880 with two colonies; and, though busy with other lines, of course, he has kept increasing his colonies until at the time of my visit he had about 450 in three different yards.

The opening of last season found him with 275 colonies, which had been increased to 450; and it was his intention to continue increase further until the number should reach 500 or 600..

Although located near Albany, Mr. McNeill's bees have access to little or no buckwheat, the principal crop being from white hives, there are possibilities in bee-keeping yet to be realized.

Mr. McNeill is an ardent Prohibitionist, being the county chairman; in fact, there was a meeting of the county executive committee at his house at the time of my visit.

Rye, N. Y.

DO NOT SPRAY BLOSSOMS.

BY PROF. H. A. SURFACE, STATE ZOOLOGIST OF PENNSYLVANIA.

Occasionally we hear of persons spraying blossoms, and are surprised to know that, in this time of advanced knowledge concerning spraying and fruit-growing, any person who

FIG. 2.—A PART OF MR. McNEILL'S APIARY IN THE ORCHARD.

owns only a single tree would be so blind to his own interest as to attempt to spray that tree while in bloom. The first and primary reason for not spraying while in bloom is that the spray liquid is quite liable to fall upon the very delicate and tender pistil, or central part of the flower, and destroy it. Thus it would kill the young fruit, just as would severe frost coming at the same time.

If the person should anticipate a crop of fruit that would be entirely too heavy, and should desire to thin it, he might use the spray-pump to aid in so doing, but this would be a very undesirable and inadvisable method of attempting to thin fruit.

The second reason for not spraying while in bloom is that, by so doing, the bees and other insects which are depended upon to carry pollen from flower to flower are liable to be killed by such spray. At the base of petals or showy parts of a flower are the nectar-glands for the purpose of secreting nectar and attracting insects of various kinds. Their function, in turn, is to carry the yellow "flower dust," or pollen, from one flower to another and thus insure cross-fertilization. In many flowers there are conditions by which self-fertilization is entirely impossible, and no seed nor fruit would be produced were it not for the agency of such insects as the bees. Thus, even if a person be not a bee-keeper, it becomes quite important for him as a fruit-grower to preserve the bees that are flying about the blossoms of the fruit-trees, and avoid any action that might destroy them.

The third reason for not spraying while in bloom is that there is no pest for which to spray at this particular time. It is too early to spray for the codling moth or curculio, and there will be no decidedly beneficial results to come from spraying at such time. It is by all means best to wait until just after the petals or showy parts of the flower drop, and then spray with the Bordeaux mixture,

FIG. 3.—McNEILL'S LARGE HIVE HOLDING 14 FRAMES OF LANGSTROTH SIZE.

to which is added Paris green or arsenite of lead. The Bordeaux mixture is made by dissolving four pounds of bluestone or sulphate of copper in fifty gallons of water, and adding six pounds of lime, slaked, and made into a milk of lime and strained. To this fifty gallons of the Bordeaux mixture add either one-third pound of Paris green or two pounds of arsenite of lead. Spray well over the trees just after the blossoms fall, and you will kill the codling moth, which is the insect that causes the wormy quinces, pears, and apples, and also the curculio, which punctures plums, cherries, and other fruits. Repeat this spray in about ten days, and no other spray will be necessary for the codling moth.

Harrisburg, Pa.

FIG. 4.—A LARGE WELL-MADE SOLAR WAX-EXTRACTOR IS A NECESSITY IN ALMOST ANY APIARY.

BEES IN A CITY A PLEASURE AND A PROFIT.

Honey for Home Use.

BY CORA JUNE SHEPPARD.

Our reason for keeping bees is that in these days of adulteration we wish to produce on our acre of land all that we eat. To get things fresh from nature seems the only way to get pure food.

When the snow was still on the ground last winter, my husband purchased two old box hives full of bees. The price paid was $3.00. A northwest windbreak was made for them (Fig. 1), and we commenced to read every thing that came our way which related to bees. By May, the month for swarming, we felt confident to care for the swarms the old hives would send out. Two new Danzenbaker hives had been purchased, and the bees were eagerly watched. At last the swarm came forth and alighted on the apple-tree over the hives. A limb was soon sawed off and the bees carried to the new hive (Fig. 2). It was the work of a very short time.

A swarm in May is worth
a load of hay;
A swarm in June is worth
a silver spoon;
A swarm in July isn't
worth a fly.

We felt rich to have ours swarm in May. A few days later the other old hive sent out a swarm, and they likewise settled in the old apple-tree. Swarm number two was also easily captured. Then we felt rich indeed, with four hives of bees working early and late to fill our larder for the win-

FIG. 1.—NORTHWEST WINDBREAK OVER BOX HIVES.

ter. In ten days supers were placed on the new hives, and when they were filled we protected ourselves with veil and gloves, and, armed with a smoker, took up the honey. There is now a large supply put away for winter use.

Shiloh, N. J.

CLOVER.

Why it Does not Always Secrete Nectar.

BY JAMES M. PULLEY.

On page 1484, last year's volume, in your footnote to one of Dr. Miller's Straws you write: "It is not that nature is less lavish than she used to be in secreting nectar, but rather that there are too many bees for the pasturage," and so account for the fact that clover fails to yield a crop of honey in localities that have previously given satisfactory yields.

My own opinion, based greatly on observation, is that not clover alone but all other vegetation has favorable as well as unfavorable seasons in growth and nectar yield, and which I am not inclined to lay either to the lack of lavishness of nature or to the overstocking of a given territory as suggested by the editor, but to other causes.

First of all, and touching the question strongest, I would suggest that certain elements of soils have been exhausted by continuous cropping on one variety of crops—for instance, crops that produce *white straw* are known to impoverish all soils to a great degree, as are plants of the mustard family—so much so that, in the preparation of leases in several sections in England, a paragraph is inserted prohibiting the growth of a white-straw crop on the same land but once in four years, while certain other restrictions are placed upon the growth or cultivation of mustard. *White* mustard may be grown under certain conditions and restrictions, probably so as not to draw the rein too tight on the tenant, as this crop is a good paying one on light to moderate loam soils with experienced husbandry.

From the foregoing deductions it may be drawn that I consider it has been man's lack of method in treating the land under cultivation that has made the clovers and perhaps some plants probably less free in the secretion of nectar, which would seem to be borne out from the fact that, the longer land has been under cultivation and the influence of the white man, the less likelihood is there of being a flow of nectar from clover. This is particularly instanced by the scarcity of clo-

FIG. 2.—HIVING A SWARM IN DANZENBAKER HIVES.

FIG. 1.—APIARY OF M. E. TRIBBLE, MARSHALL, MO., SHOWING HOW GRASS AND WEEDS WERE KEPT DOWN BY FOUR SHEEP; HIVES ARE INCLOSED IN TAR-PAPER WINTER CASES.

ver honey in New England, or at least this portion of it, as we seldom get a yield of any importance from this source, even though the hives "boil over" with bees of the best kind.

To digress a little from bee-keeping to farming I will give about what is known in England as the "four-course shift" in agriculture, which is considered one of the most approved methods of maintaining the fertility of a moderate to heavy loam (such as we frequently meet in this part of New England).

1. White-straw crop—wheat, oats, or barley, seeded in fall with clover.

2. Crop of clover hay; soil to yield two crops in fall or spring.

3. Crop of roots—mangolds, turnips, or kohlrabis. The turnips may be fed off with sheep in fall, optional with tenant.

4. Fallow (or idleness), to allow land to recuperate.

If I remember rightly, the old Mosaic law provided that land should remain idle one year in seven. This applies to leased or hired land. Where the occupant is also the owner he may farm to suit his own fancy, just as freely as in the United States; but as so much of the English land is tenanted with leases of 7, 14, or 21 years, or perhaps longer, a method suitable to the locality or estate is usually laid down and lived up to. Besides this, all hay, straw, and fodder must be consumed on the farms, *with all that means*, river valleys and other favored locations excepted.

Investigation would suggest that land that is short of lime in some form or other does not favor the secretion of nectar. Even some of our buckwheat-growers complain of certain land not secreting honey. The remedy appears to be to apply lime in some form, and a cheap one is sometimes found in gas lime, or the lime that has been used at the gasworks, when obtainable. The fall would seem to be the time for its application, and that it would be necessary to apply but once in a term of years, determinable upon cropping and results obtained.

Melrose, Mass.

SHEEP IN THE APIARY.

Valuable for Keeping Grass and Weeds Down; Some Views from Missouri.

BY M. E. TRIBBLE.

Fig. 1 is a picture of my apiary about ready for winter. Four sheep kept it clean of weeds without help. The hives are wrapped in tarred paper, with chaff cushions in upper story, and the entrance con-

tracted to $\frac{7}{8}\times 3$ inches. The Missouri Valley College Buildings are seen in the background.

Fig. 2 shows my honey crop for 1906 (net weight of 1300 lbs.), outside my house, tiered up secure from robbers. It is a great advantage to have nice-fitting supers.

Fig. 3 is a corner in my supply-house, designed to cause bee-keepers to become more interested in producing a better quality of honey as well as to work on the appetite of the honey-consumers.

Fig. 4 is my extracting-house, which, to some extent, carries out Mr. Alexander's ideas. The best helper a bee-keeper can secure is his own wife.

Fig. 5 is a picture of our little ones, designed to show the effect of honey as a food for children. I think any bee-keeper can see that honey contains both health and happiness in this home, and it may do so in others as well.

FIG. 2.—M. E. TRIBBLE'S CROP OF HONEY FOR 1906 TIERED UP SECURE FROM ROBBERS.

I have made arrangements to secure for the Missouri Valley College a lot of insects, such as hornets' nests, wasps' nests, yellow-jackets' nests, etc., next summer, for Dr. L. E. Griffin's class work. While this throws no light on bee-keeping it was the greatest attraction we had at our State Bee-keepers' convention.

Marshall, Mo.

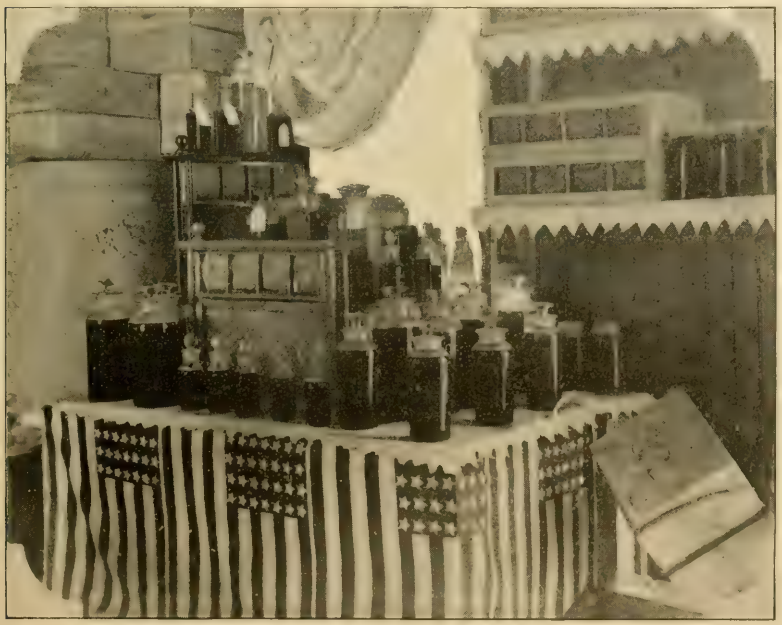


FIG. 3.—TRIBBLE'S PERMANENT HONEY DISPLAY FOR THE BENEFIT OF VISITORS.

[These little glimpses into the homes and surroundings of some of our progressive friends, even though they keep only a few bees, are highly interesting. Let us have more of these snap shots. Fortunate is the bee-keeper who has a wife that knows how to handle bees as well as he does. —ED.]

FIG. 4.—GERMAN WAX-PRESS USED AS AN UNCAPPING-CAN; HONEY RUN INTO TANK IN ROOM BELOW.

SAVE YOUR COMBS.

The Moth-miller not an Unmixed Evil; the Best Way to Circumvent the Evils of the Pest.

BY R. F. HOLTERMANN.

Every summer valuable combs—yes, even frames—or hives are destroyed by the larvæ of the wax-moth. I do not look upon the wax-moth as entirely an enemy to bee-keeping, as there is no doubt that they render harmless many a bee-tree, hive, or other repository in which the bees have built combs and in which the disease foul brood lingers.

When the farmer wishes to destroy a weed he studies its life-history and strikes at the vulnerable points. In the butterfly we have an insect which loves light and air—it is of the day. In the moth we have illustrated to us a creature in many respects the opposite of the butterfly. It loves darkness, quiet, it does not like a free circulation of air. In colder or more northerly districts the eggs, larvæ, and moth are pretty well destroyed by a low temperature. In other cases the majority of the eggs are saved in hives where the heat of the bees has kept it from being destroyed by the normally low temperatures. This being the case, as a rule the first combs which fall a victim to the bee-moth are brood-chambers in which the bees have died during winter or spring. How shall this be prevented?

Instead of doing as, years ago, I did, and as many instruct now, closing up the brood-chambers and supers, keeping the moth from entering as far as possible, I now let the air circulate freely through the combs, letting the light in, and thus making non-existent the favorite conditions of the moth.

Last year, owing to the failure of the white-honey crop with some 8000 combs, without a bee upon them for ten months, I did not lose one from the moth, but they were put in supers or hives with the bottom-board and cover removed piled up thus under cover, and sunlight indirectly and air directly given access to them. The combs were, of course, kept apart in each super or brood-chamber. This is the experience of other years, and to me the bee-moth is no longer a troublesome pest under such conditions.

I may say, however, that I sent out a dozen hives with combs having cover and bottom boards, and the entrances closed, all being

FIG. 5.—HONEY MEANS HEALTHY CHILDREN.

ready upon removal of entrance-blocks for colonies which had been bargained for. The majority of these combs were destroyed by the moth.

I am, of course, quite aware that pollen in combs adds to the danger; but even then, in our more northerly climate at least, the ravages of the bee-moth can be kept in check by exposure to light and air.

MIDDLESEX BEE-KEEPERS' ASSOCIATION, ONTARIO, CANADA.

The Middlesex Bee-keepers' Association had an excellent meeting at the City Hall, London, Ont., on Saturday, May 4, President F. I. Miller in the chair.

W. A. Chrysler, Chatham, gave an instructive address upon the subject "New Conditions Appearing in our Honey Markets." Mr. Chrysler thought that many produced a good article, but did not sell it to the best advantage. He considered that there was a great need of developing the home market. Honey should be put up in small packages, properly sealed and labeled. This would help to secure freedom from adulteration, and also save the cost of the wholesale package, which, as a rule, is of no value when emptied. Shipments to distant markets should be made in a coöperative way, and the work of marketing undertaken by a practical man who should be paid a reasonable sum for his work.

A committee duly appointed recommended, after deliberation, that members should report to the Secretary, E. T. Barnard, Lambeth, Ont., honey of which they wished to dispose in distant markets; that the honey should be put up in a uniform retail package, and that, if possible, a carload should be sent.

Winter reports varied very much. Mr. John McEwen gave the best report. Out of 200 colonies he had lost scarcely any. Mr. Holtermann's report gave a trifle higher percentage of loss. There were various other reports down to a total loss of 60 colonies. D. Anguish's loss was only 10 out of 180 colonies. The need of sugar-syrup stores, and early feeding and packing, or early setting into winter quarters, was very apparent.

Mr. McEwen gave an instance where, between apple-bloom and clover, he purchased five colonies of bees, moving them home a distance of four miles. Two days after, he received word that a bunch of bees as large as a man's hat had returned.*

Mr. McEwen also stated that he had not found it effectual, in the treatment of foul brood, to shake the bees upon combs of sealed honey. He had, however, found it effectual to feed clean colonies until they stored and sealed combs. The diseased colony was then in the fall shaken into a hive without combs, and left there until some bees starved to death, when the bees were shaken upon previously prepared combs.

*It would be rather interesting, in connection with the above, to test the difference in distance various colonies, blacks, Italian, Carniolan, etc., will forage by moving them longer and longer distances, seeing which will return to the old locality the longest.—R. F. H.

Flax shives were recommended for packing about hives in outer cases.

The apiarian report of the Ontario Agricultural College was read, those present thinking it the work of an enthusiastic experimenter in bee-keeping. It was thought that the work was of no value to bee-keeping when they found that the government was paying for the experiments

It was then moved by D. Anguish, seconded by W. J. Robb, "That it is the sense of this meeting that, whilst we are desirous and anxious for experimental work in bee-keeping to be conducted at the Ontario Agricultural College, the work as now conducted is valueless, and that we ask that it be conducted by a competent bee-keeper in touch with the Ontario Agricultural College." Every member supported the motion.

The Department of Inland Revenue, Ottawa, was also asked to take annually, during the late fall or early winter, samples of honey, with the object of detecting adulteration. Besides those already mentioned, Messrs. W. I. Craig, Editor *Canadian Bee Journal*, and Arthur Laing were present.

FOUL BROOD IN THE TROPICS.

A Cure that has Some Features to Recommend it.

BY W. W. SOMERFORD.

I have been a reader of GLEANINGS since May, 1884, and am pretty certain that, in that time, I have read many articles on foul brood, besides some books on the same.

The method which I here present for the consideration of your readers is the McEvoy plan improved—a perfect and sure, and (best of all) a costless cure—one that puts money into a man's pocket instead of taking it out, and, when finished, leaves his bees in better condition than before treatment, as they will be cured completely, and stay cured—and if they don't? Well, then it costs nothing to cure them again. But that will not have to be done unless they catch it from some other apiary near by.

Fact No. 1 to remember and paste in your hat is that foul-brood honey must be boiled one or two hours; for any man who says that bringing it to a boil kills the germs of the disease misleads, to say the least, and just such a statement cost me a bee-ranch worth a thousand dollars. So you see I paid for my learning, and hence have no love for "scientific liars."

Fact No. 2—if you can find one real case of foul brood in your ranch, and it is a big one, there are twenty that you can't find that are very sure to show up in time. Time is all that is wanted—just time, as time lifts foul brood from one stage to another, and that is why we hear so much about different *kinds*.

Fact No. 3 is that foul brood runs in stages and works according to *ages;* that is, the violent forms are reached after the disease has accumulated *age* and force in action, and, after reaching the fourth year, it is so

terrific in its destructive power that no colony affected hangs on to a long lease of life as is the case with younger germs, they being less destructive.

The proper way to treat foul brood for its sure and speedy cure is to begin as follows:

First, see that the brood is evenly divided in all colonies that are to be treated, and also the strength of the colonies evened up at the start.

Next, see to it that all have ten or fifteen pounds of honey to the hive; if not, feed up to that amount, as feed is an essential part of the treatment.

Now catch and kill every queen on the ranch (or take them away to other ranches, but it generally pays to kill them).

Get your wax-cooking tank ready. I use a molasses-cooking outfit that takes a hundred gallons at a clip. Now you are ready for the slow process of pulling the combs out, which must be done every day—enough to give the bees all the feed that they can handle. The combs, when taken out at the rate of one a day to the hive, are set beside the hive for the bees to take the honey back for feed—feed from start to finish being an important part of the process.

Now, on the fifth, sixth, or seventh day the cells should be grafted. I find that three cells to the hive are necessary, as not all of them hatch. My plan is to select from each hive one comb that has three or four fine cells started on them. Take out the old larvæ and introduce a fine-stock "fattened larva" into each cell, and push in a wire nail for a mark for each of the fine cells, while the comb containing the fine cells is placed, number two or three from the side of the hive, all taking the same place. Now the pulling-comb process goes on daily to keep up with the brood that is getting less and less every day, so by the fifteenth day you are feeding in empty frames beside the two or three combs that remain for the final shaking; and as the bees begin cleaning up as soon as their wax-pockets are full, the final combs to come out are cleaned up, and two or three new combs to the hive are started with bees just booming comb-building at the time of the final hatching of the queens (the final shaking day). By going over each hive carefully, enough pulled queens can be found to replace a few that are sure to fail to hatch on account of foul brood.

Bees shaken with *wax-pockets full of wax, and with queens just hatched,* will not swarm out—not over three per cent, if that many—and with stimulative feeding kept up for three weeks your apiary is in better condition than you ever before had one in your life; in fact, you yourself will be astonished at the way they do business, and all will have pretty clear and clean brood.

The above remedy is no theoretical illusion, but an actual fact—sure cure for foul brood, as well as a costless remedy.

I say "fattened larva," as I know it is impossible to get first-class queens from larvæ that have been fed *the common worker-bee pap.* I use the "fattened larvæ" to transfer for fine queens, and fatten them by giving a few eggs, and eggs only, to strong colonies that are broodless and queenless, so that the eggs from the very start will have only the *royal-jelly* food; and, there being only a few eggs given to the hive to feed preparatory to transferring, I get a floating larva that is not *stuck* to the bottom of the cell, and is not injured in the transfer; and queens—well, they are as good as Henry Alley's best, and who can raise better than from the egg—the only way? Your old hive is as good as any, as hives do not carry disease.

Caimito, Cuba, Feb. 20, 1907.

[Our correspondent does not say that he melts up the combs as fast as the bees remove the honey from them, but he leads us to infer that.

He states that the combs are taken out one by one, one from each colony, and set down beside the hive. Assuming that there is disease in *some* of the combs so removed, and no disease, we will say, in a half or two-thirds of the colonies, would not such an indiscriminate setting-out of the combs be the means of spreading foul brood from infected combs to healthy colonies through the agency of robbing? Perhaps our correspondent would answer by saying that, in the end, he would clean up all vestiges of disease, even if it were so communicated.

Let us assume a case. Here is a colony that is known to be diseased. A comb from such colony is removed and set beside the hive. Robbers from healthy colonies carry a good quantity of the honey to their own homes. Let us assume, again, that some of it will be stored in new empty frames, and covered over with good honey. Buried up where it would be a source of reinfection it will sooner or later recommunicate the disease. Perhaps we do not fully catch hold of the method of treatment; but as our correspondent is very enthusiastic about the method we are glad to place it before our readers.

We will say this much, however, that the only way to eradicate foul brood completely from an apiary after it has once gotten a serious hold is to recomb every colony, melting up all the old ones, and putting in their place clean combs containing foundation, preferably full sheets.

Years ago, when we had foul brood all through our apiary, we had a continual fight with it for three or four years. It was only when we began the recombing process that we could feel we had a clean bill of health. If the combs are melted up as fast as they are emptied, and the work is done during odd hours when nothing else can be done in the yard, the cost will not be very great. The wax saved will just about pay for the foundation, and so the only cost will be the labor of recombing

But if the old combs are crooked and otherwise undesirable, the labor will be covered by the better quality of the new combs, to

say nothing of the complete emancipation from disease.

As we are selling bees and queens we keep up the process of recombing, fumigating hives, buildings, and utensils, with formaldehyde; and all articles that can be subjected to a hot steam bath are given a good thorough steaming. This is done every year.

The main feature of the Somerford method involves this scheme of recombing and of feeding, which feeding puts the bees in so healthy and prosperous a state that they are able to ward off disease.—ED.]

UNCAPPING-COMBS.

A Properly Constructed Uncapping-can; Heating Knives.

BY C. W. DAYTON.

While I am waiting to hear some discussion from others on the question of honey-knives there will be time to look into the matter of uncapping-utensils. The Dadant can is all right for 50 to 75 colonies, except that it does not permit of the feet of the operator extending under it, and on this account the workman is compelled to remain at a distance from the can. This is a fault which needs correction. It is, indeed, restful to lean forward against the cappings-receptacle, and it is especially the case where there are many hours of steady work. Where the outside helper has bent over the hives a long time in taking out combs of honey, and feels as if a seat would rest his weary self, if he can help uncap and lean against the capping-can it is as good as half a seat, and a little longer space of time will give sufficient restfulness.

A capping-can should be at least 26 inches in diameter, so that two persons can work. For 200 to 300 colonies it should not be less than 34 or 35 inches in diameter. It needs that size for two persons working steadily. I know that they can get along with more cramped conditions for a while at first. But a larger can costs but a few cents more, any way.

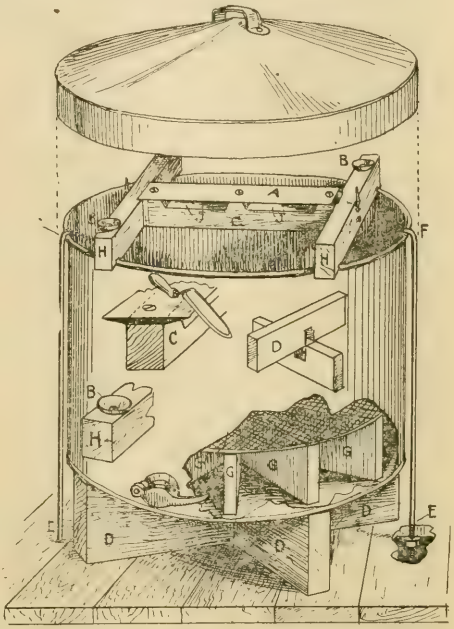
There are a great many large wooden boxes in use in this State which ought to be pitched out of the back door, but a round, convenient metal box instead, having a nicely fitting cover to keep out flies, bees, and vermin when not in use. Such a one I have had in use for the past ten or fifteen years, and I know all about its advantages. Such a capping-can I have pictured, exactly as mine is.

C is a cross-arm 2×2 inches, or 2×3 or any other size desired, by 20 in length, shouldered and mortised into the two shorter cross-arms H H.

Fastened on C is a strip of hard steel 2½ inches in width and 20 inches long, and beveled on the under side of the edges to clean the honey-knife of honey, which sticks closely. This is the kind of steel used on a wagon-spring, but hardened. It should be very hard, like the knife of a card or paper cutter—those which cut with a square edge.

To hold the comb in one place, a small cup, B, is utilized. The end of the top-bar is thrust into it, and the comb can be whirled about while uncapping. The cups I use are of metal, the same as broom-makers use in the hollow of the hand to thrust the needle through the broom. A hole is drilled for the nail as shown. I is a bent projecting wire, for the far side of the frame to swing against while it is being uncapped.

J J are open spaces beneath the strip of steel A, for the free movement of cappings as they are scraped from the knife.



DAYTON'S UNCAPPING-CAN.

D shows the boards as notched to make the stand or foundation for the capping-can to stand on. The boards may be 10 or 12 inches in width if the can is 24 inches deep, which will probably be found to be of about the best height for working.

A 10-inch space under the cap-can will admit of a pail or a five-gallon can being laid down on its side, and having a 3×3-inch hole cut in its side. The cap-can should be set to draining every evening, or during working hours, and the honey poured into the extractor or where it will find its way into the tanks with the regular run of honey.

When cappings accumulate in the capping-can, and get in the way of the working, they are taken out and pounded down hard in a tank with considerable honey adhering to them. This keeps moths from working in the cappings until they are ready to have the wax rendered from them, whether it should be a year or several years thereafter. I leave the melting of the wax until there is plenty

of leisure time, and good fires in the kitchen-stove in winter, and there are plenty of bee journals and books to be read. Don't fuss with such things when there is plenty of out-side apiary work, such as extracting honey or rearing queens, nor rob yourself of a good excuse to sit by a glowing hearth during a cold or rainy spell in winter.

F F are hooked $\frac{5}{16}$-inch iron rods to hold the can in position. Smaller-sized rods are sometimes used, but $\frac{5}{16}$ is found to be as small as will give satisfaction. The nut at E should be provided with a good-sized washer, which is not shown. The upper ends, F F, are flattened.

G, G, G is a wood frame to support the screen that drains the cappings. It has eight "wings" instead of four. The screen is held up 3 inches from the bottom of the can.

The same sort of foundation is used under the extractor, but four of the rods are used, instead of two, as on the capping-can.

I would not be annoyed by having the extractor traveling about the room for one day, for the cost of these iron rods.

You can not realize the advantage of projecting a pair of long shoes permitting you to get close to your work under the extractor and capping-can until you try it. It reduces the labor about one-fourth, seemingly.

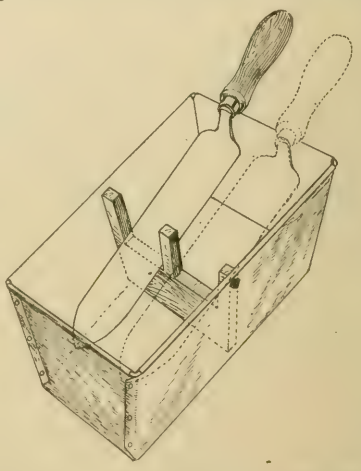
After the uncapping is over, the frame can be lifted off and placed inside the can. Honey-knives and other small utensils can also be put inside, where they will remain until the next year rolls round, and the whole outfit, with the cover on, can be set out of doors or in any out-of-the-way place. If it is to be set in the wood or wagon shed, corncrib, or granary, it is advisable to set it out in the apiary with the cover off, for then the bees will clean it of honey very tidily. Then no dust or dirt will stick fast and dry to the inside.

I have also made a honey-knife. Its length should be $10\frac{1}{2}$ or 11 inches; two inches wide near the shank, and tapering down to $\frac{3}{4}$ at the point. The Coggshall flat handle is "straight goods," and do not forget the nut on the handle. I can not find any one about here who uses more than the one bevel of the blade, so the other side would be more useful left square.

It will need a tank to heat the blade. This knife is for the professional uncapper, and heat is always of very great advantage. It nearly doubles the amount of work done. I have tried every thing, and charcoal seems to do best of anything when a cast-iron tank is used: if thin metal, then coal oil or gasoline. I can not do the knife-heater justice in one paragraph. In my opinion it is a very important affair. While it is not a very large thing, and one which *can* be got along without, I know from experience that the bee-keeper can putter along day after day with a cold or dull knife, and waste enough time and patience to afford a dozen heaters, or which time, if turned into smooth running apiary work, would amount to hundreds of dollars. There is room for a world of study and experiment still open to the inventively inclined apiarist.

Even this capping-can I have illustrated can be set in a wagonload of bees on top of the hives of bees, or on the top of the hives of bees on a wagon to be hauled to out-apiaries, because the bottom is flat and smooth, while its height compared to its width makes it not top-heavy but steady, and it weighs but 30 lbs. I know of capping-boxes two feet wide and ten feet long that make two men a good lift, and yet these big boxes are not as facilitating in work as where the cappings are stored outside the extracting-house in another receptacle.

For the cappings, I use tanks holding 50 gallons. They weigh about 15 pounds, empty, and will hold the cappings from ten tons of honey.



HOW TO HEAT UNCAPPING-KNIVES.

Instead of taking a mess of cappings from the out-apiary home every night, and scattering them around in promiscuous receptacles where moths and dirt will be likely to get into them when the tank is used and the caps pounded down solid, the tank can be rolled into the wagon on a pair of skids, or even "ended" into the wagon and taken home all at once with the load of other out-apiary utensils and trappage.

The swarms and queens and main work of taking the crop is enough to think about at the time. It is work which can be done at no other time of the year. It is where all the profits accrue. If our minds are ever clear and untrammeled it should be at the time of the harvest. The more we consolidate our thoughts on single operations the better those operations can be performed. The more work there is that is arranged to be done outside the rush of the season, the more certain are we of success, because all of the work is better and more deliberately performed. More opportunities are discovered, and better take advantage of them. Success often hangs on very small threads in any business. But success is success, notwithstanding the narrow margin. Experience can

make the margin wider. Do not let one season's management be a repetition of the season before it. Improve. We enjoy life more when we learn to live it that way.

Chatsworth, Calif.

[Our correspondent makes a good point when he says an operator ought to be able to get close enough to his work so that his feet can be placed under the machine, thus allowing his body to come in contact with the bench or table, or (as in this case) the uncapping-can over which he is working. In this respect the Dayton outfit is admittedly superior to the Dadant; but from the manner in which many extracted-honey producers work we question whether the most of them would take kindly to this method of balancing the frame on the crosswise arm while uncapping. The great majority of them usually prefer a sharpened nail-point on which to pivot the frame while it is being handled over the uncapping-can.

Then we question whether it would be wise for some bee-keepers to attempt to scrape the knife on a hard steel scraper rather than a wooden one. However, if one works carefully there will be no danger of dulling the knife-edge on the metal cleaner; and we can conceive how, when so used, it might be more satisfactory than a wooden device.

But the uncapping-box has one distinct advantage over any form of circular uncapping arrangement, in that it can accommodate a lot of uncapped combs preparatory to being put through the extractor. A great majority of the extracted-honey producers we have visited seemed to prefer an oblong box having just enough width to take in a frame that hangs on its regular projections; or, in other words, this width is the same as the inside length of the hive. The length of the uncapping-box may be any thing to suit the requirement of the producer. As fast as the combs are uncapped they are set down cornerwise; and if the uncapper can work faster than the man with the extractor, he has a place in which to put his surplus combs. The man with the machine can then pick them up as fast as he needs them; or where there is only one operator he can uncap twenty or thirty combs, set them up cornerwise in the uncapping-box, then extract them in twos, fours, or sixes, according to the size of the extractor.

The average uncapping-box is made so that one can get his feet under it the same as under the Dayton outfit here shown; and it can be made to have all the advantages of a circular can except the one of lightness and portability, with an additional advantage of its own—that of a reserve space in which combs may be temporarily placed.

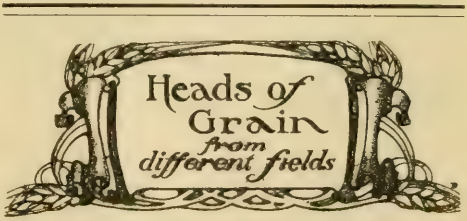
The greatest objection to the plan of heating the uncapping-knives has been the lack of a satisfactory way of obtaining the heat. Ordinarily, to keep a fire going on a hot stove would prove a nuisance on a hot day, and the expense of keeping a gasoline-stove going continuously would be hardly warranted. A small one or two burner kerosene-stove answers the purpose very well; but some sort of deep pan or tray is necessary to hold the water.

As a suggestion based on some ideas we have seen in use, we designed the apparatus here shown. The pan is 9 inches long, 6 wide, and 5 deep—the bottom being an inch smaller each way than the top. The notched division is made of ½-inch wood, and is held to the pan by means of a small screw through the tin into the wood very near the top on each side, as shown. This piece of wood should be sawed so that the grain will run vertically, in order to avoid the danger of splitting. The wood can be quickly removed so that the pan may be used for some other purpose if desired.

To use, fill the pan with water up to within ½ inch of the top. This amount of water will last for a long time without getting sticky from the honey, and at the same time there is not so much but that it can be heated to the right temperature in half an hour, over an ordinary single-wick oil-stove.

With this arrangement there is no danger of dulling the knives, even if they are put in carelessly. One knife is left in the water while the other is being used.

Such a pan could be made at any tin-shop for a few cents, and the wooden part sawed or whittled out in a few minutes.—Ed.]



SODA AS A REMEDY FOR BEE-STINGS.

On page 88 you give remedies for stings. Out here, where cows and horses sometimes get a thousand or more stings in five minutes, I have used baking-soda. We first pour a pound or so into a pan of water, using all the water will dissolve, and more too. Then with a sponge or cloth put on the soda water, and rub it in well. It always relieves immediately. I tried it two years ago on the heads of two men who were caught while running a reaper. Horses and men were fearfully stung—the men all over their heads and faces. Soda water, good and strong, did the job for them in short order. Probably washing-soda would in case plenty of baking-soda were not at hand.

San Marcos, Cal. G. F. Merriam.

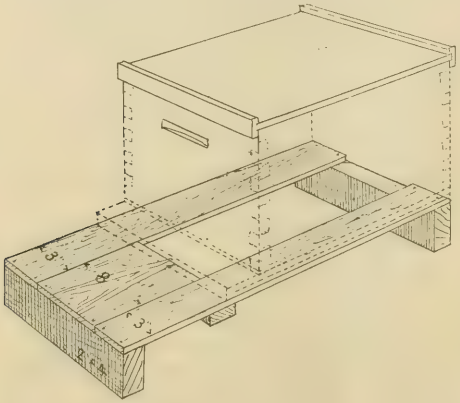
[Bee-sting poison is an acid, and soda an alkali, and the one would neutralize the other if you can get them together; but can you do this in the case of poison that has been injected into the flesh by a tiny hypodermic syringe? The orifice closes almost immediately, and it is very doubtful if any of the neutralizer gets to the right spot. Any liquid bathed over man or beast that is suf-

fering from one or more stings soothes by helping to reduce the congestion or fever to the parts incident to the swelling.—ED.]

VENTILATED BOTTOM-BOARDS.

I notice in one of Dr. Miller's Straws, p. 1556, 1906, Dec. 15th issue, in speaking of a hive-foundation he objects to Mr. Stanley's on account of the moisture that gathers between the hive-bottom and the foundation causing rot. I have used the same thing and find the same objection, and it is more noticeable with us, for we never move our hives —they remain on the stands all the year.

In order to avoid the objection I make a different foundation as follows: I use a 2×4 at each end, as long as the hive is wide. On top of these I fasten a 1×3 at each end. These 1×3's I cut 30 inches long, which makes a foundation 6 inches longer than my hive-bottom. I now take a piece of board wide enough to fill in between the two pieces



of 1×3, and 6 inches long. Fasten one end of it to the 2×4, the other to a small strip fastened under the 1×3's as per the illustration. Now, by setting this foundation on the smooth ground many a load of honey will be saved that would be lost if the hive were so arranged that a nearly worn-out bee could not climb from the ground to the hive. I find they will frequently fall in front of the hive with a heavy load of honey, and wings worn out, but still able to walk.

Weaverville, Cal. C. H. NEWELL.

HOW TO PUT IN FOUNDATION ON HOT DAYS.

Last summer was very hot here, the thermometer standing at 90 to 95 almost all through our best honey season. It was almost impossible to fasten thin foundation in the sections, so I cut as many as I wished that day and placed them in cold water, taking them out as wanted. It worked like a charm. The water stiffens up the foundation. I use the Daisy foundation-fastener.

Junction City, Oreg. J. E. BARNUM.

[This is a happy suggestion. We do not remember to have seen it suggested before. —ED.]

CLIPPING QUEENS.

Your advice, page 392, March 15th, to practice clipping drones before trying on queens is good, but I am afraid that, if a beginner should wait until drones hatch, he would be unable to find her.

Bethel, Wis. RUDOLPH MCCHESNEY.

[Where there are several colonies, a few drones are almost sure to be present in some hive in early spring. If the beginner has only one hive, let him practice picking up worker bees by the wings. True he may get stung before he acquires the knack; but this will be far better than maiming or killing a queen before he learns the art of clipping a bee or a drone.—ED.]

BEES CARRYING OUT CANDIED HONEY; FOLLOWERS TOO LIGHT.

1. Did you ever notice your bees carrying candied honey out of the hive? I have two colonies that are busily engaged in carrying out the honey, which is in the form of small round granules.

2. I have so much trouble in prying out division-boards that I think they should be made heavier or of some stronger material.

Erskine, Minn. J. A. BRANDT.

[When the candied honey becomes dry and hard, particularly if it is too cool or cold for the bees to go after water, they will often do this. In such cases give a feeder of water on top of the frames or in the hive where the bees can get at it.

Perhaps you have some of the old-style followers made of lighter material; or perhaps you allow the follower to come up tight against the side of the hive where the bees can glue it fast. It should *always* be placed in contact with the frame next to it with a bee-space between it and the side of the hive. When so placed your trouble will largely disappear.—ED.]

THE HIVE-CARRIER VALUABLE ALSO AS A COMB-CARRIER.

The method of carrying bees out of the cellar at the Home of the Honey-bees, as illustrated on page 557, April 15th issue, was used by my brother and myself in 1880. We made the frame for carrying frames of honey into the extracting-house, and, when empty, back to the hives. For this purpose it is the ideal way until robbers take to it. Then a wire screen all over and under, with the top made in a frame with hinges, is all that is required to baffle the robbers. We also carried hives and wood on it, and other things that are to be removed.

Levita, Texas. J. W. GUYTON, M. D.

UNCAPPING-KNIVES WITH SCALLOPED EDGES.

I would suggest making those uncapping-knives, page 937, with scalloped edge, like those scalloped bread-knives. I have been using one of the latter for several years, and think they work well, using the same either with a drawing or sawing motion.

St. Louis, Mo. HERMAN BETKE.

OUR HOMES

by A. I. ROOT

No chastening for the present seemeth to be joyous, but grievous; nevertheless, afterward it yieldeth the peaceable fruit of righteousness.—HEB. 12:11.

At one of our recent week-day prayer-meetings the topic was, "What has particularly impressed you in the life of Joseph which we have been studying in our Sunday-school lessons?" I replied that it was Joseph's remarkable faith that enabled him to take every persecution and trial as a part of God's plans to teach him new and important lessons, that impressed itself on *my* mind. Joseph, even in early childhood, was brought into *peculiar* trial. As soon as he was old enough to observe, he saw that his big brothers were not doing the "square thing." The question to his childish mind was, whether he should repeat to his father what he knew, and thus become in one sense a talebearer, or whether he should let it pass. We are not told very much about this, but we can read between the lines that his boyish sense of honesty and truth prompted him to report proceedings to his father; therefore when his father sent him out with a lunch and message to his brothers it is not so very strange that they regarded him as a spy and a talebearer.

The question often comes up to me, "Shall I make a disturbance in the neighborhood by trying to stop some things I know are wrong, or will it be wisdom to say nothing and just 'let the world wag'?" There are extremes both ways, of course, and we need to pray often that the Holy Spirit may guide us in this matter of standing up for law and order, and honesty and truth. Joseph was worried and troubled when they threw him into the pit; but one of his brothers, not long afterward, begged and besought them to let him go back to his father. They withstood all his entreaties, however, and were wicked enough, most of them, to let him die of starvation as they had planned. Some writer suggests that they sat down to eat the same lunch he had brought them, while he was helpless and left to starve in the pit.

Well, the remarkable thing about Joseph was that he was never discouraged nor put out. We are told indirectly that he was a *praying* boy; and while he prayed he set to work to bring about the answers to his prayers. Why, it would almost seem as if every persecution and hardship that befell him (through his wonderful faith in God and his tremendous activity) only opened the way to him for new wonders in the way of usefulness to his fellow-men.

There is a town out west that has been putting out advertising matter something like this: "Watch and see us grow." By the way, I have seen at least two business firms who had that motto up in their stores. Well, Joseph was not one of the sort to advertise himself; but somebody who could take a birdseye view of human events might have said, "Watch and see the *boy* grow." What a tremendous growth the boy *did* make, any way! Why, he even eclipsed my Indian Runner ducks. (Let me say here, they are to-day just three weeks old, and the largest of them weighs 24 ounces — an increase of just double on the third week. Of course, this doubling and trebling in a single week can not continue very much longer; but I will try to report, and the rest of you can "watch and see us grow.")

It was a terrible blow to the lad when they threw him into the pit, proposing to let him starve. It might have been a little more hopeful, though more cruel still in some way, to sell him for a few pieces of silver to those Ishmaelite traders. Well, he soon attracted attention and made himself useful, without doubt. When he was turned over to some big man as a slave he grew in favor wonderfully—so much so that in a brief space of time his master made him manager over all of his affairs. Occasionally we find a character something like Joseph nowadays, but they are not very plentiful. Just this morning I took three small boys out of the factory to have them run behind the big roller and pick the stones off the field that we were fitting for corn. I thought it would be a treat to them to get out of the dusty factory into the open air this June morning. Very soon one of them wanted to know if they should not have better pay for that kind of work. I said:

"Johnny, haven't you learned that the best way in the world to get a raise in wages is to take hold with cheerfulness and vim any thing your employer happens to want you to do?"

He said he hadn't heard about that.

"Well," said I, "Johnny, there is one way in which almost any boy can be pretty sure of getting an advance in wages over the rest of the boys of his age, and that way is to let his employer see that he is glad of a chance to tackle *any* job that is a little harder and a little more difficult. Such boys always get promotion."

Johnny could not see the point, however. He shirked, and, I fear, he made the two other boys discontented and dissatisfied.

Well, after the loving Father had tested Joseph with hard knocks, and had seen how he held fast to his faith, and climbed over obstacles, he gave him trials of another sort. A handsome, dashing woman of rank, with power in her hands, took a sudden fancy to this remarkably successful (and no doubt good-looking) young manager. Then Joseph showed his loyalty to his master—the one who had trusted him with all his household, while at the same time he showed a wonderful and abiding faith in and loyalty to God. If I remember correctly the loving Father once said of Jesus, his only son, "Thou hast loved righteousness and hated iniquity; therefore

God, even thy God, hath anointed thee with the oil of gladness above thy fellows."

We are not told that Joseph received any such comforting words from Jehovah; but these very words might have been applied at this time. Now comes another trial. His faithfulness and his unswerving integrity sent him down to prison again, but that made no difference to him, or but little. He commenced at the bottom of the ladder once more. In fact, he was in some sense *used to it*, by this time. He "got busy," even there in prison, and followed it up year after year. He soon became the manager and trusted man of the prison. Why, that is just the way it was with him every time. No matter where he was put, up he went to the top in a comparatively brief period. He was a ruler among men, and a natural-born general. The very things that would have discouraged and defeated the majority of people served only to lift him up.

Now, friends, was Joseph an exception to humanity? Did God give him a better chance than the rest of us? or is it true that *we* shall be promoted and raised up, even above our fellows, if we are actuated by the same impulse and same spirit of faith in God that Joseph had? I think so. The boy I talked to this morning could not believe me when I assured him that a disposition to tackle jobs a little harder than usual would bring him promotion. There is only once in a while a boy or a grown-up man who gets a glimpse of this thing that came so naturally, it would almost seem, to Joseph, from childhood.

When the news of the earthquake that destroyed San Francisco went over our land a little over a year ago, while I admitted it was a terrible calamity I stoutly maintained that it was a part of God's plan to teach us all some useful lessons. Of course I could not, right away, declare what lesson it was that the earthquake was to teach us; but I believe you are now all aware that it did teach us several useful lessons. One especially is that a great city like San Francisco *could* get along under prohibition, and be a thousand times better than with wide-open saloons.

Every little while, some unprecedented and unexpected event is taking place. The present season for bee-keepers and farmers, and almost everybody else, is a break in the record of the weather. We are planting our corn this 19th day of June—later than I ever planted field corn before; but we actually could not do it with our ground in suitable condition at any earlier period. This unusual season is going to teach us some valuable lessons. I mentioned in our last issue the sudden and unexpected death of one of our office force, Mrs. Root's sister. I said again that this blow that had saddened all our hearts was sent by the hand of the kind Father, and that it should teach us lessons that we probably could not or would not learn without some such sad and startling trial. I do not like the word, exactly, but it gave our whole neighborhood a sudden "jolt" and jar, different from any thing else that has happened. What is the lesson we are to learn when a loved one is suddenly called away? As I have prayed over it, some things begin to be made plain. We have been busy planning for the future. We have been making arrangements, taking it for granted, it would seem, that we are going to have a score of years or more to live. That is all right in one sense of the word; but in another it strikes on that text I have been talking about so much of late, that some of you may positively get wearied of it. I mean the one about "moth and rust." We are planning buildings and new homes. Just now Mrs. Root and I are talking about a little better home down in Florida; but are we at the *same time* laying up treasures in heaven? I hope so. God knows we are praying day by day that he will show us how to plan for something where moth and rust do *not* corrupt, and where thieves do not break through and steal. Then there is that *other* passage in the 55th chapter of Isaiah—"Ho, every one that thirsteth;" and then it goes on, "Come ye to the waters." Yes, the invitation reads, "He that hath no money, come." And then further along, "Wherefore do ye spend money for that which is not bread?" Of late I have been spending a good deal of money—I am obliged to spend it. I am consulted almost continually about the way in which money shall be used. God knows I am trying to use it in a way that will be a benefit to my fellow-men. I want to see it invested in that which is *real bread*, in the best sense of the word. Further along in that same verse we read again, "and your labor for that which satisfieth not?" A great lot of us are working hard during these long June days for something we wish to accomplish. Well, after we have worked and succeeded in getting that which we long for, can we look back and say, "Well, I am well satisfied with the results of my labor"? The women-folks work to get up big dinners; and I fear that sometimes the dinner on Sunday afternoon is bigger than on any other day in the week; and I admit that there *is* one sort of satisfaction in sitting down to a good dinner. I do not know whether the women-folks feel as if they might be put to less trouble or not; yet I hope they do *not* feel satisfied, and that we may all of us insist on something simpler, especially for a Sunday dinner.

When we come to face death, and look back over our lives, we shall probably find much to regret. In fact, I have talked with quite a number, when they neared death, on this very subject. Whenever some friend is suddenly taken away, I think of the chances I had to give him a pleasant word or a helping hand, and yet it was put off or neglected—perhaps crowded out because I thought I hadn't time,

A few days after my father's death I thought I would give almost all I was worth to have a chance to go and help him in some of the duties on the farm, just as I might have done a few days before. I remembered vividly

the last time I saw him at work, he was digging the early potatoes in the garden. Now, why didn't I get a fork and go out and help him—I who had written a whole book on growing potatoes, and yet had so much other business that I could not stop half an hour to help my old father while I visited with him? For days and weeks I thought of it; and it seemed as if it would make me happier than any thing else in the world if I could have that chance over again.

After Miss Mason, our former book-keeper, died so suddenly I remembered that I had promised to come around with my auto and take her out for a ride. Well, after her death I recalled that I went past her house the very day I expected to call, but *forgot to stop*. Her sister said she had talked about it, and was evidently looking forward with a lively anticipation to a little ride with her old friend and former employer; and I, in my stupid selfishness, forgot my promise until the chance of doing that little service was *gone for ever*.

Now, friends, such little unselfish acts are laying up treasures in heaven. If it costs you time and money, it is time and money spent for "bread" that "satisfies." I know, for I have tried many kinds of investments.

In conclusion, do you see this moral? The opportunities are now before you. There are dear friends all around you, on the right hand and on the left. In giving them a cheering word of encouragement, or in handing over to them something that is justly their due, you are laying up treasures in heaven instead of here on earth, and you are investing your time and money in bread that satisfieth; and may God help us to learn the lessons he is striving to teach us, even when it comes to "grievous chastening," as in the language of our text.

COLD FEET; THE "WALKING-BAREFOOTED-IN-THE-GRASS CURE;" THAT EARLY-BIRD COLONY.

We clip the following from the *Herald of Health* for June:

YOUR OPPORTUNITY TO BECOME STRONG AND HEALTHY.

If you are ill in any way, take the Kneipp barefoot cure, which consists of walking in the dewy grass for from 15 to 45 minutes. This treatment, at first held up to ridicule, has become world famous, and has done more to perpetuate Father Kneipp's name than any thing else. Phenomenal cures have been attained in cases such as rheumatism, gout, asthma, congestion of the head, cartarrh, headache, sore throat, and a host of minor troubles.

There is no better time for adopting this simple yet efficacious treatment than right now. If you have a lawn close to your house, get up early in the morning when the dew is still sparkling on the grass, and "when nobody is looking," and tread around over the delightful greensward for about fifteen minutes. This should be enough for the first treatment. You will be delighted with the glowing and exhilarating effects that will follow this early morning treatment, and will become an enthusiastic disciple of it. If you are unfortunate enough not to have a patch of green near the house, get out for an early morning walk into the open country—out into God's out-of-doors; find a suitable field or pasture, and then, taking off your shoes and stockings, go in for barefoot walking with a vengeance. You will feel like a child again, and all the minor ailments that have been troubling you for so long will take their leave and be as things that were not.

The above is not particularly new, to me at least. I have been in the habit of practicing the same thing for years past, because it is the easiest and most agreeable way of bathing my feet, especially in the summer time. When you get through you have no towel and wash-basin to put away. You do not even need a towel to wipe your feet. Wipe them off on the clean grass, then pull on your stockings, even if your feet are more or less damp. It will keep them refreshed and cool during the day, especially in hot weather.

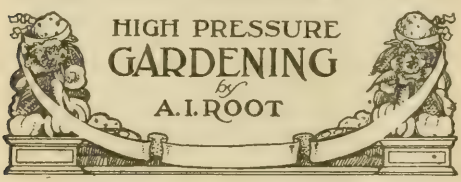
At half-past four this morning, June 19, I started out to take my foot bath, and wandered over into the apiary to see what the bees were doing. To my surprise I found one colony flying out of the entrance pell-mell. Others were coming in, apparently loaded, dropping down around the alighting-board. I called Mr. Wardell's attention to it, and he said that that colony was showing more activity than any other of the 300 or 400 the night before. He suggested it was because it was a swarm that had been hived only a day or two before. But to be sure this was the reason for the unusual vim and activity in getting out early in the morning, we went to several other colonies that were hived the same day, or nearly the same. But this one was ahead of every thing else in the apiary. When I began questioning about the queen they said they could not tell any thing about her, because they were unable to find what hive the swarm came from. Mr. W. further said our lamented red-clover queen first attracted attention in just this way. Her bees were at work and storing honey when all others in the apiary were doing little or nothing. But now to get back to the barefoot cure.

Mr. Wardell said his experience was much like mine; and where one makes it a daily practice he may carry it out even in cool weather. He said he had known people who carried it so far as to go out and scamper about while snow was on the ground; and, furthermore, that they claimed it was the very best *remedy* for those who are troubled with cold feet, for after you get in out of the snow, and get on some warm shoes and stockings, your feet will be nice and warm, and, furthermore, they will stay so all day. I should not wonder if there were something in this after all. It is probably along the same line with many people who are not happy simply because they do not know when they are well off. Give them a lot of *real* trouble, and after they are restored to their usual condition they will be quite happy and thankful.

Now, then, if you have never tried wading through the dewy grass, just get right at it.

Take the treatment before you go to bed at night, and another early in the morning. Spread out your toes and let the clover-heads (wet with dew) pull through between them. If this treatment does not make your feet sweet and clean, and make them feel pleasant all day long, your experience will be different from mine. Soaking them in hot water, and washing them with soap, does not come anywhere near giving the refreshing results.

Later.—I am sorry to be obliged to acknowledge, friends, that since the above was in print we have pretty good reason for concluding that this new swarm that was doing such a "land-office business" before any of the others were stirring, was simply sending bees back to the parent hive for supplies, the hive they came out of being very heavy with stores. This is the first case, exactly like it, *I* have ever met, but our Mr. Wardell says he has seen one transaction of the kind, where he pinned them right down to it, so there can be no mistake. So my fond anticipations of finding another $200 queen are exploded.



SPROUTED OATS—THE $5.00 SECRET, ETC.

The editor of *Poultry Husbandry*, in the June issue, asks Mr. C. T. Hatch, of Waterville, N. Y., who has been remarkably successful in his White Leghorn poultry-yards, to give him a write-up of the duties of one single day in his extensive and successful poultry-plant. From this very valuable report I clip the following in regard to sprouted oats:

At one o'clock in the afternoon each day the hens are given a feed of green oats. This food has proved itself to be for us a most excellent egg-producer. It serves as a green food all the year round, and the fowls are extremely fond of it. The way this feed is prepared is as follows:

Take a quantity of clipped oats and soak them in water for 24 hours. Then pour off the water and put the oats in a pile in an ordinary box which has holes in the bottom to let the water drain off. The oats are watered with a sprinkling-pot night and morning, using very hot water—the hotter the better. As soon as the oats begin to sprout we spread them out in the box to the thickness of about two inches, and still continue to water them night and morning. In about ten days or two weeks, depending upon how warm the room is in which they are kept, they will be ready to feed. When in the proper condition to feed, the sod will be about three to four inches thick, and the growth of the green feed on top of this will be about six or eight inches high. We feed a block about six or eight inches square of this to each pen of 25 fowls. I have been using this feed throughout the winter, and must say that my birds have never laid so well as this winter. We have averaged a fifty-per-cent egg production all winter long. This can be fed also to young chicks, although it should be fed at a time when the sprouts are an inch or two inches long. To keep the oats from growing into stalk as it grows in the field it is necessary to turn it once or twice a day. This will make the sprout grow very long, and prevent the stalk from starting.

After this feed of sprouted oats we prepare the day's shipments, eggs for hatching, market eggs, and breeding stock.

The reader will probably notice that we have allowed no special time for watering the fowls. On the ordinary poultry-plant the watering of the fowls is a part of the work that is most tiresome and takes the longest time, especially in a big poultry-plant. To do away with this really unnecessary drudgery we have installed a watering system which provides running water in each pen. The saving in labor soon pays for installing such a system. We figure that on our plant the saving in labor amounts to between twenty and thirty dollars a month.

This afternoon feed begins at 4 o'clock, winter and summer. This consists of whole *white* corn scattered in the litter, what they will eat up clean before they go to roost.

We figure that our total monthly feed-bill, including beef scraps (coarse beef scrap is before the fowls continually in hoppers), grit, oyster-shells, charcoal, dry mash, and all, averages nine cents per laying fowl per month, as nearly as we can figure it.

The above account of the whole process of sprouting oats is more elaborate, and better, than that given as a secret in the $5.00 book. At present writing I am unable to say whether friend Hatch got his information from the book or whether the author of the book got it from friend Hatch. That would not particularly concern us just now.

The above extract illustrates the folly and injustice of selling secrets. Our GLEANINGS readers are perhaps well aware that I have for years past been spending money in buying "secrets" in order to obtain valuable information in regard to different rural industries; and after paying out hundreds of dollars I can say, with our experiment stations, that nothing new or valuable ever comes to the world in this way. Our class journals and our good books very soon contain every thing that is valuable; and in this way thousands of people get information at an insignificant cost compared with the plan of buying and selling secrets. Let me give you some examples.

A man advertised extensively a recipe for artificial honey. He said it was equal to the best honey made by the bees, and could be produced for 4 cts. per lb. I sent him $1.00, and found his great secret was copied from Dr. Chase's recipe-book.

Another man advertised a "natural-hen" incubator—in fact, he is still advertising it; but I believe he has some sort of patent on it, and advertises individual rights at $2.00 each. You will get for your $2.00 a single sheet of paper, with the idea of giving every sitting hen a little pen by herself (so that other hens can not bother her) such as has been described and illustrated in our agricultural papers for years past, and is in common use more or less by all up-to-date poultry concerns. These single sheets of paper could be sold at a good profit for ten cents. Of course, the vender puts a rubber stamp on his advertising matter, and says if you will remit inside of thirty days you can have all the secrets for just an even dollar.

There are still other books claiming to give wonderful secrets, but you must first sign a contract not to show the book to any one, and keep it out sight of the neighbors, etc. One such book claims to be able to tell

which are the laying hens, without the expense and trouble of trap-nests, etc.; but the Maine Experiment Station has carefully tested the matter, and they decide that there is no truth whatever in the so-called Potter system. Just a few days ago I met some poor hard-working people who had sent their money in good faith in order that they might tell which hen laid the most eggs, etc. My impression is, there are more swindles going on at present along this line in the *poultry* business than in any other rural industry.

Now, friends, when you are tempted to invest your hard earnings in some valuable secret, just send me the advertising matter and I will purchase the secret for you, and let you all have it free of charge. Of course, I realize that many times those who have experimented and worked hard have something valuable to communicate; but let this information be given in a decent-sized book. If you have discovered something valuable that the world does not know, your book will meet with a ready sale, and you will get your reward in a legitimate way.

In regard to the discussion as to how large a book one should get for 50 cents or $1.00, I would suggest that such books be compared in size and finish with those offered by the O. Judd Co., who have for years past been giving us valuable information in regard to all rural industries through their rural publications, and new ones are constantly coming out, giving full details clear up to date of the progress being made in all rural and outdoor pursuits.

Temperance.

THE STAINLESS FLAG.

On page 1594 for last year I made a brief mention of Dr. Chapman's celebrated address at St. Louis, entitled "The Stainless Flag." Let me go over it again briefly. I heard the same address first in Columbus at the Ohio convention; but I was more impressed with it at the second hearing in St. Louis than at the first. Before he finished and waved the stars and stripes above his audience I felt that it was a second declaration of independence—a declaration of independence from the rum power. Somebody said the speech must be printed, and placed before the people of the United States. At this saying, away back in the audience, a gentleman arose and said that a lady near him would subscribe $100 to have it printed, on condition that her name be not mentioned. Others followed, and I felt that I could no longer stay in the background. I thought of our new $3000 printing-press just installed, and thought it might be made to help disseminate this wonderful address. I made some hasty figures mentally, and then announced that I would furnish 100,000 copies if the Anti-saloon League would see to it that they were put into the hands of people who would read them. There were bursts of applause and clapping of hands when the lady donated $100; but when I made my announcement the applause almost frightened me; and when Dr. Howard H. Russell got up and said my offer represented something like $1000, the applause was deafening. I meditated for a while getting up and saying that I had made a blunder, but you can readily understand what a predicament I should have been in. I said to myself, "Well, old chap, you have 'put your foot in it' this time, sure, and there does not seem to be any help for you. You might just as well sit still, take your medicine, and trust in God to help you out as he has done a thousand times before, and look pleasant and happy." In just a very few minutes $2500 was subscribed, including my gift; and before adjournment arrangements were made to have what what we call "Stainless-flag Sunday," to be observed all over the United States on the sabbath before the 4th of July. At the present writing we can not tell just what has been done on Stainless-flag Sunday; but we have a lot of copies of this patriotic address ready to send out to anybody who has not seen one. Just tell us on a postal card that you want one, or say how many you can distribute *where they will be read*, and they will be mailed from our office free of charge; and may the Holy Spirit follow them wherever they go.

Just one word more. On the front page of the pamphlet is a picture of a boy holding up an American flag. Now, by some strange chance the picture of that boy is as correct a likeness of my grandson, Wynne Boyden, as any thing that photography can furnish. I do not know where they found the boy, nor where he lives; but the picture alone ought to stir up patriotic feelings in the heart of every father and mother in this land of ours.

TEMPERANCE PRACTICABLE ONLY IN "UNCIVILIZED COUNTRIES."

For many years the friends of temperance have been inviting saloon-keepers and liquor-dealers to come out in the open and present their cause; but so far I have never heard of one who would stand before an audience and make a plea for his business—that is, a *mixed* audience. Of course, we have liquor-dealers' conventions, etc. But it seems I am in better luck. The friend who writes the following letter not only pleads his side of the question, but he addresses me as "Dear Editor."

Dear Editor:—I wish you would take my advice and keep your magazine clean of such rotten, objectionable church and temperance lectures as you have been giving, as we all know that temperance is practicable only in uncivilized countries, while in a civilized nation like this it is of no value to a certain extent. If you are so anxious to push such lecturing, why don't you start a special temperance culture and keep your good bee paper free of such unnecessary sermons and temperance bosh? If all friends of bee culture were so unreasonable as you were to the *Leader*, and not tolerate such uncooked temperance matter in their journal that is evidently a prohibition periodical hidden by a good name in order to get a sale—let him that is without sin cast the first stone at T. Q. Solomon. May the Lord keep church and bee culture apart is my prayer. WM. A. SCHEIFFER.
Merrimac, Wis.

Friend S., if it is really true, as you state,

that temperance is practicable only in uncivilized countries, I do not know but we had better pray God to save us from civilization.

In regard to discussing temperance in a bee journal, if you will turn to the first number of GLEANINGS you ever saw, or to any other number, you will notice it reads, "Devoted to bees, honey, and home interests." Now, if the matter of temperance does not come under the head of "home interests," then I shall have to confess that I do not know what does. I shall have to explain to our readers that I tried in vain so to punctuate the next to the last sentence that it would read smoothly, but I had to give it up. It is, however, clear that he objects to GLEANINGS because it is a "prohibition" periodical. In that you are somewhat mistaken, my good friend, although it *is* true I am working and praying, and have been all my life, for prohibition. The particular thing that the Anti-saloon League is working for is *law enforcement*. The most that I have written in regard to temperance has been in the way of exhortation to have the laws we have strictly enforced, instead of being trampled under foot as they are by the saloon-keepers.

I am glad to see you close by quoting scripture; but I do not quite see how I can unite with you in your prayer that the Lord would keep the church and bee culture separate. The one who leads the prayer-meeting usually, I believe, tries to make his prayer before that meeting one in which all may unite - at least in spirit if not with a good old-fashioned Methodist "amen." I shall have to confess that I do not exactly understand what you mean by praying that the church and bee culture may be kept apart, but I would recommend that our religion, whatever it is, be kept right along with us, not only on Sundays, but every day in the week, and especially when we are working with bees, particularly if those bees happen to be cross hybrids.

Now, dear brother, you did not say, "Stop my paper," and I am thankful for so much; but since I have explained to you that our journal is devoted not only to bees, but to all home interests also, may it be still kept going? If not, and you prefer, you can have your money returned; and whenever you or anybody else prefers to have it stopped, and the money returned, it will be done instantly if you will tell us so on a postal.

DUFFY'S MALT WHISKY ONCE MORE.

Some of our readers may have noticed the particulars of a walking-contest in Cleveland some time last fall. Mrs. Jane Edwards Root, who is 75 years old, won the race by walking 2½ miles in 26 minutes. The Duffy people, always on the alert to get hold of any thing that will enable them to find a foundation for their testimonials, got their eye on it and sent her a quart bottle of their whisky; and then by some hook or crook induced her to give them a testimonial recommending their whisky (so they claim), and giving the general impression that it was because of the *regular use* of their whisky that she performed this great walking-feat. If, however, you will look over carefully the letter they print, you will notice she does not say she ever used the whisky or heard of it until *after* the walking-feat. Of course, they give a picture of Mrs. Root in their advertisement. It makes my blood boil every time I see one of these misleading advertisements; and when I saw they had gotten hold of an old lady who, no doubt, could be connected with us by the Root Genealogy, I felt as though it were adding insult to injury.

By the way, will somebody tell us why it is that the Duffy people keep right on with this sort of thing? We have been told several times by the papers that they had been enjoined from selling their cheap whisky without a license, and that *hereafter* they would have to pay a license just the same as any saloon-keeper; but they keep going right on with their "testimonials." Are we to understand that some *whisky* people are "immune," like some of the millionaires, and that they can break our laws and trample them under foot, and then laugh in their sleeves when we talk about interfering with their work?

WHISKY OR ALCOHOLIC LIQUORS FOR CONSUMPTIVES.

Inasmuch as the Duffy people and other whisky-venders are publishing testimonials and other matter that may induce even Christian people to resort to alcoholic stimulants, I have thought best to give an extract from a new book entitled "The Self-cure of Consumption," by Charles H. Stanley Davis, M. D., Ph. D., Member of the Connecticut State Medical Society. Here is what Dr. Davis says on page 56:

> Nothing brings the patient more surely and quickly to the grave than alcohol. Alcohol has never cured and never will cure tuberculosis. It not only poisons the system, but it ruins the stomach and thus prevents this organ from properly digesting the necessary food. It impairs nutrition, the very function which, of all others, it is important in consumptives to maintain at its highest integrity. The elimination of alcohol by the lungs increasing the congestion of the bronchial mucous membranes, and thus enhancing the cough, is very objectionable.

THE United States Department of Agriculture has just issued a report of the meeting of inspectors of apiaries, which was held at San Antonio, Nov. 12, 1906. We do not observe any price attached to this bulletin, (79 pages), but we opine it is 5 cents, and should be obtained from the Supt. of Documents, Government Printing Office, Washington, D. C.

THE great Uncompahgre irrigation project is rapidly approaching completion. The Gunnison tunnel, six miles in length, is two-thirds completed, and the great South canal is almost finished. The tunnel alone will cost $2,000,000, and the South canal $750,000. The bee-keepers of Colorado ought to feel very grateful to their Uncle Sam for constructing this truly magnificent enterprise.

IN THE HEART OF MICHIGAN

Did you know that within one hundred miles of me are over three-fourths of the bee-keepers of Michigan? Are you one of them? If so you will find it to your advantage to write for my new catalog. A full line of Root's Goods at Root's Factory Prices. Hilton's double-walled hives are used more than any other in my State. It has stood the test of thirty years. . . . . I ship goods promptly. Wholesale or retail. . Cash or exchange for beeswax at all times.

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IT will cost you only one cent for a postal card to get our **delivered prices on Dovetailed Hives, Sections, Section-holders, Separators, Brood-frames, Foundation, Smokers, Extractors, Shipping-cases, etc.** It may mean a saving to you of many dollars. It is the natural advantage we have over others that enables us to make you the Best Price. There are no better goods than ours, and we GUARANTEE SATISFACTION or REFUND your MONEY.

We MANUFACTURE and keep in stock all standard Bee-goods, and can ship promptly.

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NICOLLET ISLAND, No. 20. (JOHN DOLL & SON, Props.) MINNEAPOLIS, MINN.

BINGHAM BEE-SMOKER AND KNIFE.

What catalogs say :

The A. I. Root Co., Medina, Ohio: "The cone fits inside the cap so the liquid creosote runs down inside of the smoker."

Chas. Dadant & Son, Hamilton, Ill.: "This is the smoker we recommend above all others, and it has given universal satisfaction."

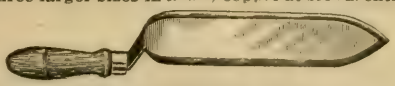
G.B.Lewis Co., Watertown, Wis.: "We have sold these for a good many years, and never a complaint. They include all improvements."

Marshfield Mfg. Co., Marshfield, Wis.: "The original direct-draft Bingham Smoker is the best smoker made."

The Bingham Smokers and Honey-knives have been the standard in America and every European country 29 yrs. There is no *smoker* so *old*, so *new*, so *perfect*. Accept thanks for 30 yrs. liberal patronage.

BINGHAM SMOKERS. Name.	Size of barrel.	Price of 1	Price of 3	Postage
Smoke Engine	4-inch	$1 25	$3 45	25
Doctor	3½ "	85	2 40	25
Conqueror	3 "	75	1 95	25
Large	2½ "	65	1 65	25
Little Wonder	2 "	50	1 35	15

Three larger sizes in heavy copper at 50c ea. extra.



Bingham Uncapping-knife, 70c; postage 10.

T. F. BINGHAM, FARWELL, MICH.

TO THE

BEE-KEEPERS OF CANADA.

WE are pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we do not offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

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The Danzenbaker hives I got last season have given splendid satisfaction; in fact, I have kept my bees outside this winter, which is seldom attempted in Manitoba, and up to date they have come through in splendid shape. I think the hive did it.
Yours truly, LAURENCE C. CLARKE.
Morden, Man., March 5, 1907.

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Dubois, : : : Pennsylvania

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will find Dallas the best point from which to purchase supplies. We have a carload of **ROOT'S GOODS IN STOCK**, and sell them at the Factory Prices. Don't forget that we can furnish any thing in the way of Field or Garden Seeds, Plants, and Poultry Supplies. Our large illustrated catalog for 1907 free on application. Mention GLEANINGS when you write. . . . . .

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It is not how much one boasts of himself, but it's what others say that counts in this world.

If you want the best goods made, promptness and accurateness in the execution of orders, and be your own judge in *A Fair and Square Deal all the way through*, send to us at once. Catalog free.

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New Goods. Free Catalog.
AT SPRINGFIELD, MASS.
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DEWEY AUTOMATIC FOUNDATION FASTENER.
"Your automatic starter-fastener is all you claim for it—the best on the market."—DOOLITTLE & CLARK.
$5.00 reward. I will pay the person securing the greatest number of starters, in 15 minutes, this reward to establish a record. Write for particulars and testimonials.
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SWARTHMORE QUEEN-REARING OUTFIT

Prices of Complete Outfits:

Outfit No. 1--Experimental

POSTPAID, $1.50

1 Cell-bar, 1 Holding-frame,
16 Waxed Flange Cups, 12 Transfer-cages.

Outfit No. 2--Amateur

POSTPAID, $3.50

2 Cell-bars, 1 Holding-frame,
35 Waxed Flange Cups, 18 Transfer-cages,
1 Needle, 1 Cell-stick.

Outfit No. 3--Professional

BY FREIGHT OR EXPRESS, $7.50

2 Blank bars, 2 Cell-bars,
3 Holding-frames, 1 Incubating-cage,
1 Cage-pocket, 1 Grace Cell-compressor,
1 Grafting-plug, 100 Flange Cups,
2 Double mating-boxes, 2 Swarth. nursery-cages,
1 Bar-holder, 24 Transfer-cages,
1 Swarm-box with lid, 1 Needle, 1 Stick.

Prices of Separate parts:

		post. extra
Bar-holder	$ .10	.04
Blank Bar	.05	.04
Bottle Feeder	.10	.05
Bulb Filler and Feeder	.75	.08
16-hole Cell bar	.10	.02
Cage-pocket	.25	.09
Flange-cups, unwaxed, 1c each; per 100.	.75	.09
Flange-cups, waxed, 2c each; per 100...	1.75	.14
Grace Cell-compressor, each	1.75	.14
Grafting-needle, each	.15	.01
Grafting-plug, each	.10	.01
Grafting-stick, each	.10	.01
Holding-frame, each	.10	.05
Incubating-cage, each	.35	.07
Double Mating-boxes, complete, $1.00; 10	7.50	
Nursery-cages, complete, waxed cell-cup	.35	.05
Nursery-cages, no cups	.25	.04
Swarm-box, with lid	1.00	
Swarm-box, lid only	.25	
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Manufacturers and Jobbers of Dairy, Creamery, Ice-cream, and Poultry Supplies.

ITALIAN

QUEENS

AND NOTHING BUT ITALIANS

A superior improved strain, Northern-bred, are hardy, and vigorous; always come out strong in the spring. Our stock is well known, and not necessary to say more here. :: :: :: :: :: :: ::

Send for circular and list of testimonials.

Prices of Queens after July 1.	1	6	12
Select queens	$ 75	$4 00	$7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	5 00	
Straight five-band breeders	5 00		
Two-comb nuclei, no queen	2 25	12 00	22 00
Three-comb nuclei	3 25	17 00	32 00
Full colony on eight frames	5 00	25 00	

Add the price of queen wanted to nuclei or colony.
Can furnish Danzenbaker or L. frame.
We employ 500 swarms in our business.

QUEENS NOW READY!
SAFE ARRIVAL AND PURE MATING GUARANTEED.

Address all orders to

QUIRIN-THE-QUEEN-BREEDER
Bellevue, Ohio.

BEES and SUPPLIES
— FROM —
NEW YORK CITY.

For fourteen years we have been furnishing every thing the Eastern bee-keeper needs. Our office and warerooms are at the same old stand—105 Park Place, New York. Full colonies Italian bees in new hives, $9.00. Catalog free.

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ABHASIANS: In order to distinguish our superior Caucasians of the genuine imported Abhasian stock from the common dark Caucasian, we have termed them "ABHASIANS." These are the YELLOW CAUCASIANS and possess all the valuable characteristics of the race in addition to their color, which commends them to the lover of bright color.

Untested queens, $1.50; tested, $2.00.

BANATS: The backward season renders it impossible to ship these before July. Choice untested queens from imported stock, at $2.00.

ABHASIANS OR BANATS imported direct to customer, $6.00.

Golden and red-clover Italians ready for shipment.

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I can supply select untested Queens at 75 cts. each; $7.50 per dozen. Orders for early delivery will receive careful attention.

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QUEENS!

Caucasians, Italians, Cyprians, and Carniolans. Prices in April, May, and June: Caucasian, one extra-select best breeding-queen, $3.00; one imported direct from Caucasus, $4.00. Italian and Carniolan: one best extra-select breeding-queen, $2.00; one imported Italian or Carniolan queen, $2.50. Cyprian: one extra best select breeding-queen, $2.50; one imported direct from Cyprus, $3. Prices in July, August, and September, 50 cts less than in May and June. Special prices for 50 and 100 queens. Caucasian, Italians, Cyprian, and Carniolan queens bred—the best imported breeding-queens. The addresses must be plain, payments by postal money-orders. Queens guaranteed to arrive in good condition, U. S. or Canada. 1000 Nuclei.

ERM. HAUNSCHILD,
Weissbach b. Pulsnitz i. Sa., Germany.

MINNESOTA QUEENS

Nothing Better. Try Them.
Three-band and Golden Italians.

We warrant our bees free from disease of any kind, and guarantee safe arrival of all queens. We want your orders and will fill them promptly on and after June 1st, at 75 cts. untested, and $1.25 for tested of either strain. A postal will bring you a circular. Send your orders to

MENNIE & FENTON,
Pine Island, . . Minnesota.

Taylor's Strain of Italians is the Best

Long tongues and goldens are the best of honey-gatherers; 18 years a specialty, breeding for the best honey-gatherers. Untested, 75 cts. each, or $8.00 a dozen; tested, $1.00 each, or $10.00 a dozen; select tested, $1.50 each. Breeders, the very best, from $3.00 to $5.00 each. Carniolans same price as Italians. Try them. We sell nuclei and full colonies. Bees in separate yards. Safe arrival guaranteed. Send all orders to

J. W. TAYLOR & SON, Beeville, Bee Co., Texas.

MILLER'S RED-CLOVER ITALIAN QUEENS
From IDEAL and GREEN VALLEY Apiaries.

Guaranteed to please or money refunded; bees roll the honey in; no better hustlers. 10 per cent discount on all orders. Write for circular and price list.

I. F. MILLER, . REYNOLDSVILLE, PA.

Queens from 65 Cents Up!

Bred from Root's Imported Italians
Write for prices, stating wants. . .

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3-BANDED ITALIAN BEES.

The best all-round bees on earth. My stock is composed of selections from my own strain of 3-banded Italians that were awarded diploma at the Pan-American Exposition, and The A. I. Root Co. clover stock.

Tested queens, $1.50; select tested queens, $2.00; fair breeding queens, $3.00; extra select breeders, $5.00—ready to go promptly. Untested 1907 queens, $1.00; select untested queens, $1.25—ready early in March. Yours for a prosperous 1907.

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Queen Specialist, HONDO, TEXAS.

CARNIOLANS and BANATS

OUR SPECIALTIES.

CARNIOLANS.

THIS is our 22nd year in breeding this race of bees, and, by careful selection, we claim to have the finest *Line-Bred* Carniolans to be had. They are very gentle, hardy, prolific, great honey-gatherers, and builders of white combs. One untested queen, 75 cts.; six for $3.90; twelve for $7.00. Tested, $1.25: best breeder, $2.50. Write for prices of nuclei and full colonies. No foul brood here.

BANAT BEES, from Hungary.

THIS wonderful new race of bees takes the lead over all others, all points considered. Are great honey-gatherers and builders of very white combs; gather very little propolis; do not breed out of season and use up their honey when none is to be had; are very gentle and quiet on combs; are not inclined to swarm, even with their hives boiling over with bees, but keep right at work while other races are swarming. One untested queen, $1.50; six for $6.00; twelve for $10.00. Tested, $3.00; best breeder, $5.00.

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Queens that Please are not always "just for looks." Hear what one of my queens has done, and that before April 15 of the present season. "*Dear Sir:*—The queen I purchased of you last fall has already given me over 200 lbs. of honey this season. I think that is good for so early in the season. Have your bees done as well? M. A. SALAZER, Falfurrias, Texas." I breed the Leather or Red-clover stock of Italians; also the Holy Land and Carniolan races in separate yards. Of the Red-clover stock I can safely say there are none better. I have a few left of those extra-fine breeding queens. If you are going to requeen your apiaries, one of these breeders will be of untold value. Remember, I place a guarantee behind every Laws queen. Price of queens, each, $1.00; six for $5.00. Breeding queens, $3.00 to $10.00. Circulars free.

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Italian Queens

Fine young prolific three and five banded Italian queens by return mail. Untested, only 60 cts.; tested, 75 cts.; extra fine queen, $1.00. Full colonies in eight-frame new hive with queen, $4.75. Three-frame nuclei, with queen, $2.75.

J. L. FAJEN, ALMA, MO.

NONE BUT THE BEST

QUEENS

are sent out by our firm; should any prove unsatisfactory, we promptly replace them. Try our strain of three-band Italians; they will not disappoint you. Tested queens, $1 each; untested, 75 cts., $8 per doz.

J. W. K. SHAW & CO., LOREAUVILLE, IBERIA PA., LA.

HERE IS YOUR CHANCE

Select Italian Queens by the hundreds after July 15. Virgins, one to 5 days old, 30c; doz., $3. Untested, 60c; doz., $7. Tested, $1; 2-frame nucleus, $2; full colony, $10. Big crops of honey prove the stock. Cash with orders.

GEO. H. REA, Maplewood Apiary, R. 2, Reynoldsville, Pa.

Better than an Island

This place is just as good as an island for breeding queens, for there are no other bees within five miles, and so pure mating is guaranteed. It is better than an island when you order queens, for the fastest trains stop here, and hence queens are not away from the colony long enough to impair their usefulness. Safe introduction is guaranteed if you follow my special directions. I consider the Banat bees the best and gentlest in the world. Banat bees are bred here; other races in out-yards. Queen-breeders should secure their breeding-queens from this pure stock. Order now. Banat queen, $2.00. Abhasian queen, $1.50. Golden Italian, 75c. Tested queens, one year old, double these prices.

Dele Collins, Ph. D., Emporium, Pa.

Moore's Long Tongue and Golden

Fine select untested queens, $1; 6, $5; 12, $9. Tested, $1.50; 6, $8. Breeders, $3.50. Safe arrival gar'd.

Queens

W. H. RAILS, - ORANGE, CAL.

Yellow from Tip to Tip!

My Adel bees and queens are very handsome. Every queen a breeder, and guaranteed to produce golden queens and beautiful bees; non-swarmers, very gentle, and hustlers for honey. Each queen, $1.00. Catalog ready. **H. ALLEY, Wenham, Mass.**

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Balance of season at 70 cts. each, three for $2, or six for $3.50. Goldens only. Safe arrival, perfect satisfaction.

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Westwood Red-clover Queens.

No better hustlers flying; will get honey where other bees fail. Try them and be convinced. Nuclei a specialty. Also full colonies of ten frames each. Safe arrival guaranteed. Price list sent on application.

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Golden, Three-banded, or Leather-colored. Write for circular to-day. . Prices right. . Queens all right.

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Golden and 3-band Italians, Honey-getters—one for . . . **50c**

$6.00 per dozen. Twenty years a queen-breeder. Safe arrival.

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MOTT'S LONG-TONGUED

IMPORTED QUEENS!

Also Goldens. Nuclei a specialty. Untested, 75 cts.; tested, $1.25. Write for prices. Postal-orders drawn on Decatur, Mich. **E. E. MOTT, Glenwood, Mich.**

QUEENS of MOORE'S STRAIN OF ITALIANS

Produce workers that fill the supers, and are not inclined to swarm. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Mr. W. Z. Hutchinson, editor of the *Bee-keepers' Review*, Flint, Mich., says: "As workers, I have never seen them equaled. They seem possessed of a steady, quiet determination that enables them to lay up surplus ahead of others. Easier bees to handle I have never seen."

My queens are all bred from my best long-tongued three-banded red-clover stock (no other race bred in my apiaries), and the cells are built in strong colonies well supplied with young bees.

PRICES: Untested queens, 75c each; six, $4; doz., $7 50. Select, untested, $1.00 each; six, $5; doz., $9.00.

Safe arrival and satisfaction guaranteed.

Descriptive circular free. Address

I am now filling orders by return mail.

J. P. Moore, Queen-breeder, Rt. 1, Morgan, Ky.

QUEENS THAT IT PAYS TO BUY.

Try one of my famous $100 red-clover breeder's daughters. Also golden queens same price. After May 1st—Untested, 50c, 13 for $6; select, untested, 75c, 13 for $9; tested, $1.00. Nuclei, $1.00 per frame, without queen.

H. A. ROSS, 1709 Upper 2d St., EVANSVILLE, IND.

TRY

Miller's Italian Queens

Untested—in May, 90 cts.; after June 1st, 60 cts. Tested—in April, $1.40; May, $1.25; after June 1st, $1.00. One, two, and three frame nucleus, and full colonies with tested or untested queens at proportionately low prices. Send for free price list. Remittance by P. O. money-order on Bluffton P. O. preferred.

THE STAR APIARY, S. E. Miller, Propr., BLUFFTON, MO.

Golden Italian Queens

Guaranteed—'Nuff Ced." Untested, 75 cts.; six, $4.00; dozen, $8.00. Select, 25 cts. extra. Tested, $1.25 up. Your order right back, if you say so, if order can not be filled in two or three days.

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QUEENS!

Golden beauties. Yellow from tip to tip. Untested, 75 cts. each; $8.75 a dozen. Tested, $1 each; $11 a dozen; 3-banded or red-clover queens same price. Remember we guarantee every queen.

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Make money-orders payable on West Fork, Ark.

—ITALIAN QUEENS—

Red-clover and Golden

Untested: 1, $1; 6, $5. Select untested: 1, $1.25; 6, $6. Hardy, Prolific, Gentle. Great Honey Gatherers.

Satisfaction guaranteed.

W. A. SHUFF, 4426 Osage Ave., Philadelphia, Pa.

Caucasian and Long-Tongue Italian Queens.

1905, '06 Queen-breeder in Apiary of Dept. of Agriculture, Washington, D. C.

Both Races.	1	6	12		1
UNTESTED,	$ .60	$3.35	$6.50	TESTED	$1.25
SELECT "	.75	4.00	7.50	SELECT TESTED,	1.50

Satisfaction Guaranteed. Descriptive Cir. free.

LESLIE MARTIN,

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Try the Robey strain of three-banded Italians that have become so famous all over the country as honey-gatherers. W. L. Coggshall and E. W. Alexander have both said in their writings to GLEANINGS that in extracting they always found combs better filled when they came to colonies containing the Robey queens. Many of the largest honey-producers of this and other countries use the Robey queens and pronounce their bees high-rollers for honey. Warranted queens, 75 cts. each, $4.25 for six. Tested queens, $1.00 each. Two-frame nuclei, with queen, $2.00 each; three-frame nuclei, with queen, $2.60 each; full colonies, with queen, $4.00 each. Safe arrival and satisfaction guaranteed, or money refunded.

QUEENS

L. H. Robey, Worthington, W. Va.

ITALIAN QUEENS

GOLDEN AND 3-banded. My queens are bred from best stock, and only strong colonies are used in starting cells. Untested, 60c each; 6 for $3.35; or $6.50 a dozen. Tested, $1.00. Safe arrival and satisfaction guaranteed.

GEO. W. BARNES, Box 340, NORWALK, OHIO

Either Golden or Leather colored. **Italian Queens** The stock with a reputation.

"One of your queens made a record of 350 lbs. of nice comb honey in 1904."—JOS. A. RENECKE, Seneca, Kan.

Prices of queens after June 15:	1	6	12
Select untested	$ .75	$4.00	$7.00
Tested	1.00	5.00	9.00
Breeders	3.00		

Buck & Wilson, Augusta, Kansas.

ITALIAN QUEENS

Golden or dark; untested, $1.00; tested, $1.50.

C. D. BENTON, AKIN, N. Y.

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that "covers the whole apicultural field more completely than any other published," send $1.20 to

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FOR HIS

"Bee-keepers' Guide"

Liberal Discount to the Trade.

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Notices will be inserted in these classified columns at 20 cents per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

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WANTED.—A man at once to help in bee-yard and on farm. R. B. HIBBARD, Evans Mills, N. Y.

WANTED.—Six salesmen wanted to introduce our new State surveys. An absolute new idea and a splendid opportunity for energetic men.
RAND, MCNALLY & COMPANY, Chicago, Ill.

Wanted, Situations.

WANTED.—An expert wants a job at bee-work.
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FOR SALE.—50 empty 8-frame L. hives, painted, at 45 cts. each. F. W. LESSER, Syracuse, N. Y.

FOR SALE.—Opaline honey-jars, all kinds; send for price list. HAROLD E. SHORE, Germantown, Pa.

FOR SALE.—Fine job-printing outfit.
C. A. STEBBINS, Broad Creek, Va.

FOR SALE.—Ten extracting combs in L. supers, $1.75 in 5 lots. Other new and used supplies.
J. E. THOMPSON, Carpentersville, Ill.

FOR SALE.—Alexander wire bee-veil, guaranteed to protect the face from any stings, 75c each, or 3 for $2.00 postpaid. FRANK ALEXANDER, Delanson, N. Y.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1907 send your name and address to FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE.—Best Wisconsin sections, per 1000, $4.00; No. 2, $3.40; plain, 25 cts. less. Discounts on Danz. hives and other Root's goods; also berry-boxes. Italian bees for sale. H. S. DUBY, St. Anne, Ill.

KODAK and Camera users, send us your developing and finishing. Send for price list. A full line of Kodaks, films, and all Photo Supplies.
FURNAS & MADDOX, 552 A, Louisville, Ky.

FOR SALE.—The following foundation-mills. Wish to dispose of them at once. Write for sample if interested, and fuller information will be given about any mill.

Mill No. 1—14-in., old-style high frame, in perfect order, price $15.00.

Mill No. 2—6-in., old-style high frame; has had a pin run through the rolls, otherwise is in good order; price $8.00.

Mill No. 3—12-in. new style, large rolls, used but very little, in perfect order: price $25.00.

Mill No. 4—12-in. blank rolls, used but little, in perfect order; price $20.00.

Mill No. 5—6-in. mill, new style, in perfect order, used but little; price $12.00.
W. W. BLISS, Duarte, Cal.

FOR SALE.—Homestead farm crops in their season, consisting of honey, grapes, pears, apples, etc.
C. J. BALDRIDGE, Kendaia, Seneca County, N. Y.

FOR SALE.—Cider, sorghum, and jelly mills on one acre of land. Also 11 village lots, house, barn, honey-house, bee-cellar, and bees. It will give one yearly work; good pay. I am going to New Mexico to rear queens. Write at once. E. E. MOTT, Glenwood, Mich.

FOR SALE.—Or will exchange for pure honey of good flavor and body: 50 Danz. hive-bodies, 20 Excelsior covers (old patent), 5 Miller feeders. The hives have been in use one and two seasons; are painted with the exception of 10. What do you offer?
JOHN VAN DEN BERG, Jr., Mahwah, N. J., P.O. box 5.

FOR SALE.—Angora and Persian cats, and kittens from imported ancestors. Persian white—some with amber and some with blue eyes. Any woman can have a nice income, with little trouble and expense, raising them. Kittens three to six months old, $6 to $10. Stamp for written reply. MRS. J. F. SKEES,
Marion, Ohio.

Real Estate for Bee-keepers.

FOR SALE.—Orange grove with good house and out-buildings and 50 colonies of bees, in Sorrento, Lake County, Fla. Also 15 colonies in Ohio. Good reason for selling. Address C. W. MCCOLLEY,
Tontogany, O.

FOR SALE.—Bee-keepers, attention. I have a 100-acre farm with house, barn, and some fruit, situate about 5 miles from Delanson, N. Y. I want a good tenant. If I can get a desirable tenant, will give FREE rent the first year. Here is a good chance for a live man, not afraid of hard work, to establish a home and business.
F. C. SAUTER, 391 6th St., Brooklyn, N. Y,

FOR SALE.—Seven-room house with cellar—two-story; stone-basement barn, 36x48; three acres of good land with plenty of fruit-trees and grapevines, located on Canada St., Munnsville, Madison Co., N. Y., in the Stockbridge Valley—a very desirable location for a bee-keeper, with plenty of basswood timber, clover, buckwheat, etc. Several years ago my brother kept a large stock of bees here and was very successful; located on the O. & W. R. R., nine miles south of the city of Oneida. Price $1800, with $800 cash, and balance on long time at 6 per cent if desired. Any further information will be given by
R. H. WOOLVER, Munnsville, N. Y.

FOR SALE.—174-acre farm; located 4 miles south of Medina (county-seat), 32 miles south of Cleveland, on electric and steam road, with electric cars running to Cleveland and Medina every hour. Nine-room house, 2 flat-bottom barns, 50×140 and 35×72; all buildings painted. Sand and clay soil; no waste land, 15 acres timber; small orchard, windmill, stock scales. Well watered, near school and church. Stone road, telephone, and R. F. D. Reason for selling—have other business. Price $65 an acre; half cash, balance long time with interest. For particulars write
A. T. SPITZER, Medina, Ohio.

FOR SALE.—652 acres of choice land in the prairie-belt of east Mississippi, situated 12 miles east of Macon, Miss. Telephone and R. F. D.; 100 acres in young hard-wood timber; 400 acres in pasture, Bermuda, melilotus, lespedesa, white clover, and blue grass predominating; about half this land will grow alfalfa, which can be cut six or seven times each year. Also 700 stands of Italian bees in three yards; my average for 15 years has been about $8.00 per stand—no disease, no failure in 15 years; 75 head of high-grade Jersey cows; butter sells for 20 cts. in summer and 25 cts. in winter, and the demand has never been filled. Improvements—7-room house, barn accommodating 52 cows; barn for horses; 10 cabins, 400 acres fenced in four pastures, best of water in abundance. Fine and healthful climate. Write for further particulars.
GEO. A. HUMMER, Prairie Point, Miss.

Bees and Queens.

FOR SALE.—Two frames of bees and queen, $2.
E. M. COLLYER, 75 Broadway, Ossining, N. Y.

FOR SALE.—Bees in Danzenbaker Hives, $7.00 per hive. NORMAN B. MATTSON, Chester Heights, Pa.

FOR SALE.—Queens from bees that gather honey: also full colonies of bees. HAROLD HORNOR, Jenkintown, Pa.

FOR SALE.—Virgin queens from pure Italian or Carniolan mothers. Write for prices.
LOUIS F. WAHL, Chili Center, R. F. D. 22, N. Y.

FOR SALE.—The Best queens. Every reader should get one or more of Best's golden mortgage-lifters and Italians. Warranted queens, $1.00; tested, $1.50 to $3.00. BEST, The Bee-Man, Slatington, Pa.

FOR SALE.—Italian queens, hustlers. Untested, 65 cts.; tested, $1.00. Select tested, $2.00. Breeders, $3.00 each. MRS. J. W. BACON, Waterloo, N. Y.

FOR SALE.—35 years with the bees. Five-banded golden Italian bees; queens, 75 cts. each.
J. LINGENFELTER, Akin, N.Y.

FOR SALE.—Bees, queens, and bee-keepers' supplies (Root's goods), at factory prices.
F. W. VAN DEMARK, Mehan, Okla.

FOR SALE.—Twenty colonies bees in newly painted Danzenbaker hives—young queens; extra fine stock; gentle, and honey-gatherers; $4.00 a hive.
M. C. LONG, 421 Cypress St., Kansas City, Mo.

FOR SALE.—By return mail or money refunded: Italian queens, each, 75c; 6 for $4. Caucasian queens, each $1; 6 for $5. Warranted purely mated.
D. J. BLOCHER, Pearl City, Ill.

FOR SALE.—Mechanic Falls, Me., branch of The A. I. Root Co. will ship full colonies, nuclei, and queens of same grade direct from Mechanic Falls, Me., at regular catalog prices. Safe arrival and satisfaction guaranteed.

FOR SALE.—My experience with red-clover bees and circular of queen-bees for the asking. Queens reared by the most improved methods to get good long-lived queens. Root red-clover stock, the best that money can buy; 300 a month.
A. H. KANAGY, Milroy, Pa.

Poultry Offers.

FOR SALE.—Homers for squab-breeding; mated birds. MISSOURI SQUAB CO., St. Louis, Mo.

RAISE SQUABS! Start right! Get Willcox's champion homers. Mated and registered.
NORTH WILCOX. Northside Farm, Royal Oak, Mich.

Wants and Exchange.

WANTED.—Feathers. What have you to sell? Mail samples. BANGOR MATTRESS CO., Bangor, Me.

WANTED.—To rent 100 or more colonies of bees in Wisconsin. H. C. AHLERS, West Bend, Wis.

WANTED.—Bees. State what kind, on what frames, and price. H. H. JEPSON, 182 Friend St., Boston, Mass.

WANTED.—Western bee-keepers, notice! Two carloads of Root's bee-supplies. Write us for prices, stating goods wanted. Would also like to quote distant bee-keepers delivered prices.
SUPERIOR HONEY CO., Ogden, Utah.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

WANTED.—To sell drawn combs (extracting combs) standard size, from healthy bees. Going out of business. Write for prices.
D. S. JENKINS, Las Animas, Colo.

WANTED.—ROOTS AND HERBS. The season is at hand for the collection of these goods, and we buy large quantities of all kinds. They have to be gathered and dried before they are ready for the market. We issue a price list and also a book giving information as to weeds used in medicines, which we send upon receipt of the necessary postage, 5c. In writing, mention this advertisement. J. L. HOPKINS & CO., 100 William St., New York City.

Honey and Wax Wanted.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.
R. A. BURNETT, 199 S. Water St., Chicago, Ill.

WANTED.—Comb and extracted honey in any quantity; state quality, quantity, and price f. o. b.
THE WAXELBAUM-HEARD PRODUCE CO., Macon, Ga.

Honey and Wax For Sale.

FOR SALE.—California extracted honey, all grades; case or car load lots.
RAYMOND E. FAIRCHILD, Redlands, Cal.

FOR SALE.—800 pounds of pure beeswax for sale. Refuse from wax-extractors wanted. Will pay cash.
W. L. COGGSHALL, Groton, N. Y.

Bee-keepers' Directory.

QUEENS.—Clover stock. Experience and methods count. Write me. H. G. LARUE, LaRue, Ohio.

ITALIAN queens bred for honey, untested, $1.00 each.
GEO. H. PLACE, 816 No. 49th St., Omaha, Neb.

Extra honey queens and choice mountain honey.
Francis J. Colahan, Bernardo, San Diego Co., Cal.

QUEENS.—Pure Gold, Red-clover, Caucasian, Banat.
ROSE LAWN APIARIES, College View, Lincoln, Neb.

ITALIAN QUEENS.—Golden and leather, 60c each; worth $1.00. G. W. BARNES, Box 340, Norwalk, O.

Bee-keepers' supplies, Italian queens. Send for a free catalog. ARTHUR RATTRAY, Almont, Mich.

ITALIAN BEES and queens—Red-clover strain imp'd mothers. A. W. YATES, 3 Chapman St., Hartford, Ct.

ITALIAN BEES, queens, and Root's bee supplies.
E. SCOGGIN, Carlsbad, N. M.

I club a high-grade Italian queen with GLEANINGS, new or renewal. W. T. CRAWFORD, Hineston, La.

WANTED.—500 colonies of bees in Texas, Arizona, or California. N. E. MILLER, Box 373, Logan, Utah.

ITALIAN BEES and queens—red-clover and golden strains. E. A. SIMMONS, Greenville, Ala.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York City.

ITALIAN bees and queens bred for honey; price list free. B. F. YANCEY & SON, Angleton, Tex.

FINEST Golden and red-clover queens, Caucasian and Carniolan. DANIEL WURTH & GRANT, Pitkin, Ark.

ITALIAN AND CAUCASIAN bees and queens of best quality; price list free. A. E. TITOFF, Ioamosa, Cal.

MAPLEWOOD APIARY.—Choice comb honey, Italian bees and queens. GEO. H. REA, Reynoldsville, Pa. R. 2.

ROOT'S SUPPLIES at factory prices; wholesale and retail. ANTON G. ANDERSON, Holden, Mo.

ITALIAN BEES, queens, and bee supplies.
H. H. JEPSON, 182 Friend St., Boston, Mass.

ITALIAN BEES, queens, nuclei, and bee-keepers' supplies. A. T. DOCKHAM, Rt. 1, Box 95, Eagle Bend, Minn.

ITALIAN BEES, queens, beeswax, honey, and bee-keepers' supplies. M. E. TRIBBLE, Marshall, Mo.

FOR SALE.—Bee-keepers' supplies. Write for catalog. Lengst & Koenig, 127 S. 13th St., Saginaw, Mich.

FOR SALE.—Golden and red-clover Italian queens. WM. A. SHUFF, 4426 Osage Ave., Philadelphia, Pa.

ITALIAN BEES and queens—red-clover and golden strains. E. E. MOTT, Glenwood, Cass Co., Mich.

SWARTHMORE Golden-all-over, Caucasian, Banat, Carniolan, Cyprian queens. E. L. Pratt, Swarthmore, Pa.

QUEENS. Free list giving safe method of introducing, ready Feb. 15. E. E. LAWRENCE, Doniphan, Mo.

ITALIAN BEES, queens, honey, and ROOT'S bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

FOR SALE.—Root's bee-supplies, wholesale and retail; factory prices; catalog free. Beeswax wanted.
W. E. TRIBBETT, Staunton, Va.

Improved Carniolans always winter best, breed up strongest early in the spring; the finest comb-honey builders. (Italians for those preferring them.) Catalog free. W. W. CRIM, Pekin, Ind.

GOLDEN-ALL-OVER Caucasian Banat bees and queens. We book orders for early queens from our best imported breeding stock for honey, with 600 twin mating-boxes. THE SNYDER APIARIES, Lebanon, Pa.

QUEENS.—Improved Red-clover Italians bred for business; June 1 to Nov. 15, untested queens, 60c; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

IMPROVED ITALIAN QUEENS now ready; nuclei and colonies about May 10, Danzenbaker or L. frames; 20 years a queen-breeder; 500 colonies to draw from. Circular and testimonials free.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

ANGEL'S GOLDEN BEAUTIES and his bright three-banded Italian Queens have but few equals and no superiors. A fine large queen of either strain for $1.00; an extra select breeder for $2.50. I have had 12 years' experience at queen-breeding. Address
SAMUEL M. ANGEL, Route 1, Evansville, Ind.

JAPANESE BUCKWHEHT.

We have a supply of choice Japanese buckwheat for seed at $2.50 per bag of 2 bushels; $1.50 per bushel; 85 cts. ½ bushel; 45 cts. a peck, bags included; shipped by freight or express at your expense. By mail, postpaid, at 13 cts. per lb.

SECOND-HAND 60-LB. CANS.

We have on hand from 100 to 200 boxes of good second-hand 60-lb. honey-cans, two in a box. The cans are free from rust on the inside, and very little on the outside. The boxes are repaired and in good condition. We offer these in 5-box lots or over at 40 cts. a box; 25 boxes at 35 cts. a box; 50 boxes at 30 cts. a box. These prices are for shipment from Medina only.

HALF-POUND TUMBLERS.

In making up the two pages of honey-packages in our catalog this year we omitted the half-pound tumbler. We have these packed 32 dozen to the barrel at $5.50 per barrel, or packed in partitioned cases of four dozen each, ready to reship when the tumblers are filled with honey, without additional packing; parchment or wax-paper discs also included; $1.00 per case; 10 cases at 95 cts.; 25 cases or over at 90 cts.

BUSINESS IMPROVING.

Frequent showers and warm days are making ideal conditions for the secretion of nectar, and the bee-keepers who were careful to see that their bees were fed when needed throughout the long cold spring will reap a reward by having a strong working force of bees ready for the honey-flow now that it is at hand. The favorable conditions increase the demand for goods wanted at once. Our many branches and agencies are well supplied, and in position to serve you without delay.

A B C OF BEE CULTURE.

We want to hear from any dealer or other person having one or more copies of the last edition of the A B C of Bee Culture in perfect condition to dispose of. We shall need every copy available for orders before the new edition is ready in the fall. Several have already reported. Let us hear from others. The price of the new edition will be $1.50 postpaid; $1.25 with other goods by express or freight, and a corresponding increase in the wholesale prices. This is made necessary by increased size, better paper and printing, and consequent increased cost to produce the book.

FAULTLESS SPRAYERS.

This is one of the most useful little implements ever invented, and this is the time of year when it is needed to spray shrubs, plants, and especially potato-vines, to kill the bugs. It is also used as a kerosene sprayer on cattle to keep off flies. They are so cheap that you should have several, each loaded with the different mixtures needed for various purposes. We have some 20 to 30 dozen, which we offer, to close out, at 27 cts. each; three for 75 cts.; $2.50 per dozen, made all of tin. With galvanized iron tank, 35 cts. each; three for $1.00; $3.50 per dozen. We could not replace this stock to sell at these prices. Some of our dealers also have a supply on hand.

ONE AND FIVE GALLON CANS.

We have an extra large stock of one and five gallon cans which we offer, to reduce stock, for shipment from Medina only, at the following prices: One-gallon cans, with 1¾-inch screw-cap, $10.00 per 100; 500 or over, at $9 00. Packed 10 in a case at $1.30; 10 cases or over, at $1.20. Five-gallon (60-lb.) cans packed two

in a case, 75 c. per box; $7.20 for 10 boxes; 25 boxes or over at 70 cts. This offer is for only a limited time to reduce stock, and you should mention it in ordering.

Bee-keepers and others in the vicinity of the points named below can secure bargains in colonies of bees by addressing the parties named, from whom full particulars can be obtained:

Geo. H. Rea, Reynoldsville, Pa.
Louis Fuelling, Mt. Vernon, Ind.
John H. Wagner, 425 N. 8th St., Beatrice, Neb.
D. W. Switzer, Roebuck, S. C.
J C. Stewart, Hopkins, Mo.
Sebastian Iselin, Stockton, Cal., R. D. No. 2, Box 11.

We haven't full particulars regarding the bees offered in each case; the parties desiring to purchase should make inquiry for themselves.

Special Notices by A. I. Root.

THE M. CRAWFORD CO., CUYAHOGA FALLS, O.

For years past, Matthew Crawford's name has been almost a household word for nice strawberry-plants; and although I have had plants from him more or less almost every season, I never yet saw a poor plant sent out from his place. A few days ago the women-folks were wishing I would get the strawberry fever again, but it was toward the last of June, and most plant-growers would say it was entirely too late to ship plants. By the way, let me say right here that I have planted strawberries, and *made them grow*, every month in the year, here in *Ohio;* and I told friend C. that if he would send me a few plants, even if it was near the 4th of July, I would guarantee to make them grow Well, what do you think? On this 21st day of June I have just opened a package of about the handsomest strawberry-plants I ever saw, and that is just the way they do business. The plants are not only always first class, but they come right straight back as quick as your order can reach them and the plants get back to you. I hope his boys will continue to keep up the splendid reputation that the veteran strawberry-grower, their father, has enjoyed all his life.

PAULOWNIA IMPERIALIS.

The tree that made the enormous growth of 16 feet from the ground in one season a year ago we had given up for dead. It stood the winter, but the repeated severe freezes during the spring seemed to have done it up. The boys were begging to pull it up and throw it away, but I told them to hold on, as it might start up from the root. But finally, when June came and it showed no sign of life, I lost hope; but I had one of my pleasant surprises this 25th day of June when I saw two great sturdy shoots nearly a foot high. They came up so quickly (near the root) it seemed almost like a mushroom in the night. Do not be in a hurry to pull up your things and throw them away. I have several times seen different kinds of fruit-trees pulled up, only to discover a big healthy sprout down under the ground; and if you once pull it up the chances are that it can not be put back so as to be a success. Now, this paulownia has probably got all of its roots, and it seemed when I took a look at it just now that it was saying, "Just watch, and see us grow."

PROFITS IN POULTRY-KEEPING SOLVED; THE $5.00 POULTRY-BOOK.

We are in receipt of the new and complete edition of the $5.00 poultry-book. It has substantial cloth covers, is printed on fine paper, and contains eleven more pages than the former edition. While this is quite an improvement over the old one, it yet lacks suitable engravings to make plain the construction of the simple poultry-houses, etc. It is true the book is fairly well illustrated; but the illustrations have no particular reference to the chapters of the book. For instance, he describes making self-feeding hoppers; but for the life of me I can not understand it so as to make one myself without some sort of picture to make it plain. There is one cheap picture of a poultry-house, and two diagrams. Thase are the only helpful illustrations I find in the book. As I understand it the book is sent you for $1.00, and you can pay the other $4.00 when you are satisfied it contains matter of enough value, different from any other in print, to make it worth $5 00. It is true the book is something of a departure from poultry-books in general, and its teachings are sound and reasonable so far as I can judge.

POOR HONEY CROP

in 1906, but we sold in Michigan

1,143,000 Lewis Sections

Six Carloads Now In.

The rush is now on. Do not send your orders to the one-horse dealer and be disappointed. We ship goods the same day order is received. Our shipping facilities are the best in Michigan—74 freight and 55 express trains daily.

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Long-distance phones: Bell, 181; Citizens, 3120.

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Going Out of Business

Bee-supplies of Every Kind and Business for Sale.

Have trade enough and can afford to quit. Tired, 60 years old, and want to rest, think, write, and live.

CAN SAVE YOU MONEY ANY PLACE IN THE U. S.

400 hives at Watertown, Wis.; rest of goods here. SEND A LIST OF WHAT YOU WANT FOR PRICES. BIG CUT, and you will need to be QUICK. Read the MODERN FARMER.

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THE "BEST" LIGHT

Makes and burns its own gas. Produces a safe, powerful, white, steady light, at a cost of 2c a week. Brighter than electricity or acetylene, cheaper than kerosene. Over 100 styles—every one warranted. Agents wanted everywhere.

The Best Light Company,
308 E. 5th St., Canton, O.

METAL MOTHERS.

Complete fireproof Hatching and Brooding plant for $7.50; 2 qts. oil will hatch and brood the chicks. Our nest system is the latest discovery. Full line poultry supplies. Lowest prices. Free catalog. Write to-day.

CYCLE HATCHER CO.
Box 223. Elmira, N. Y.

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Most Practical Poultry Journal Published. Devoted to Profitable Farm, Poultry, and the allied Interests of the Farmer and Ruralist, their wives and children.

26th year. Beautifully printed and illustrated. Up-to-date and helpful. Best known writers; show how to succeed. Specially edited for women and children. **50 cents per year. Special introduction offer to new annual subscribers until Sept. 1, 1907.** Only 25 cents, or for 30 cents we will include a large illustrated poultry book invaluable to every one interested. Stamps accepted. Sample copy free. Don't miss this offer.

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HAVE A LOOK At The World's Best

Poultry Journal. Our Beautiful Xmas Number containing **3 color pictures** from Burgess' masterpieces in oil, **costing $1,000,** and book plans for **Poultry Houses,** all for **10 cents.** We will tell you How to Make Poultry Pay. Address **INLAND POULTRY JOURNAL,**
15 Cord Bld'g, Indianapolis, Ind.

LICE AND HOW TO GET RID OF THEM

Lambert's Old Reliable **"Death to Lice"** simply exterminates all kinds of lice on poultry. One can of Lambert's will save dozens of dollars in the hatching season. Use it on your setting hens, no lice on the chicks. Sample 10c. 100 oz. $1. 1907 Pocket Book "Pointers" free.

O. K. STOCK FOOD CO.,
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We **ship on approval,** without a cent deposit, **freight prepaid. DON'T PAY A CENT** if you are not satisfied after using the bicycle 10 days.

DO NOT BUY *a bicycle or a pair of tires* from *anyone* at *any price* until you receive our latest **art catalogs** illustrating every kind of bicycle, and have learned our *unheard of prices* and *marvelous new offers.*

ONE CENT is all it will cost you to write a postal and everything will be sent you **free postpaid** by return mail. You will get much valuable information. **Do not wait,** write it **now.**

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Our Guarantee that this Buggy will stay right for that time is backed by a cash bond of $25,000. Your money back if it is not all we claim for it.

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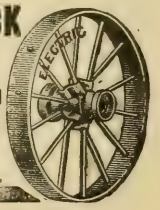

Low wheels, broad tires. No living man can build a better. Book on "Wheel Sense" free.

Electric Wheel Co. Box 95, Quincy, Ill.

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MYERS

The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers. Pumps, Hay Tools & Barn Door Hangers. Send for catalog and prices.

F. E. Myers & Bro.,
Ashland, Ohio.

PHOTOGRAPHIC - COMPETITION

We are pleased to announce another series of prizes for the best photographs submitted to us, as described below, in two series, American and foreign, under the following conditions:

FIRST.—The competition opens January 15th and closes October 1st, 1907. All photographs intended for this competition must be in our hands by the last-named date.

SECOND.—Competition for these prizes is limited to bee-keepers or some member of the family. Entries may be made for as many different classes as may be desired.

THIRD.—A photograph entered in one class can not be entered in any other class.

FOURTH.—Each photograph should be marked on the back with the name and full address of the sender, and the class in which it is entered. This is important.

FIFTH.—In judging the photographs, the general appearance, neatness, etc., of the apiary or exhibit or yard will be taken into consideration. Photos may be sent unmounted. We rather prefer them this way, and in a solio or reddish-brown tone if possible. However, send such as you can get most easily.

SIXTH.—With each of the photographs submitted we would like a brief statement of the conditions under which the apiary was photographed or honey produced, or similar information regarding the photograph. This should be limited to about one hundred words.

SEVENTH.—All photographs and correspondence regarding the same should be addressed to Advertising Department, GLEANINGS IN BEE CULTURE, Medina, Ohio.

EIGHTH.—We reserve the right to limit the number of awards or make no awards in any class if there are no suitable entries for that class.

AMERICAN COMPETITION — Including Canada and Mexico.

The following are the classes in which entries may be made:

CLASS A.—Photographs of any apiary in village, town, or city.

CLASS B.—View of an apiary not exceeding six hives in town or city.

CLASS C.—Apiary in town or country of not less than six hives or more than fifty hives.

CLASS D.—Apiary in town or country of fifty hives or more.

CLASS E.—Photograph of comb honey produced by a single colony of bees; not less than ten sections, and this preferably in plain sections.

CLASS F.—Photograph of a bee-keeper's home showing some view of the apiary if possible. The apiary need not be prominent in the picture, however.

CLASS G.—Photographs of a crop of honey from any number of colonies, six or more.

CLASS H.—Photographs of any apiarian exhibit of bees, supplies, or honey taken at fairs or shows of any kind.

CLASS I.—Photographs of any work in the bee-yard, such as hiving swarms, extracting, or any other operations with the hive.

CLASS J.—Photographs of any other subject relating to bee-keeping not classified above.

FOREIGN COMPETITION — same as the American.

PRIZES

	Value, Postpaid
FIRST.—One leather-bound "A B C of Bee Culture," 1907 English edition, or cloth-bound French or German..	$2.00
SECOND —One half-leather "A B C of Bee Culture," 1907 English edition..	1.75
THIRD.—One "How to Keep Bees" and any two Swarthmore books.....	1.50
FOURTH.—One full cloth-bound "A B C of Bee Culture," 1907 English edition	1.20
FIFTH.—One "How to Keep Bees," by Anna Botsford Comstock.....	1.10
SIXTH.—One No. 1 bee-veil, all silk...	.80
SEVENTH.—One No. 2 bee-veil, silk face	.50
EIGHTH.—One illustrated book, "Bee Culture in Foreign Countries".....	.50
NINTH.—One Bee Model Queen (see Special Notices)	.50
TENTH.—One Bee Model Drone (see Special Notices)	.50

Ten prizes are offered for each class: Ten for Class A, Class B, Class C, etc.—one hundred prizes for each contest, American and Foreign, two hundred in all if that number of entries are received, the prizes offered being identical for each class for the American competition and for the Foreign.

If the winner of any certain prize has already the prize offered, we will, on request from him, furnish a selection of other items from our catalogs, of equal value.

ADDRESS ALL CORRESPONDENCE TO

Advertising Department, Gleanings in Bee Culture

The A. I. Root Company, Medina, Ohio, U.S.A.

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is here. Are you prepared? Why not order your supplies now, and take advantage of

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illustrates and describes our complete line; tells how to raise bees and chickens successfully. . Free upon request.

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in one, two, and three frame nuclei and full colonies. Send for our forty-page catalog, etc.

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and also a new firm name, but in the same place with the same management. We have just put in a complete

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of the very latest type, and we are now ready to work up wax for Western bee-keepers at low prices. We want several thousand pounds of beeswax at once, and will pay top market price for same. Let us hear from any one having wax to offer.

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Sample copy and our 1907 illustrated catalog and price list free. Address

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NEW WAREHOUSE ROOT'S GOODS PROMPT SHIPMENT LOW FREIGHT

Every Thing for the Bee-keeper at Savannah, Georgia.

We are now prepared to furnish promptly a full line of supplies; choice new stock just from the factory. **Bees** and **Queens.** We have large apiaries of fine stock. Book your orders at once, as there will be a heavy demand this season. Catalog sent free. Correspondence solicited.

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We handle every kind of bee-keepers' supplies and only the very best. Early order discounts given now on supplies and foundation. Write us before selling your beeswax or buying your season's supplies. . . . . .

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Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS.

My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

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Gleanings in Bee Culture

JULY.15. VOL.35. No.14

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We always pay the same price for wax as The Root Company. Watch the notices in "Gleanings." You can save freight expense by shipping to us. Put your name in the box and ship by FREIGHT to BEECH, Mich., via. P. M. R. R.

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is here. Are you prepared? Why not order your supplies now, and take advantage of

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from TOLEDO, which places our goods in your door cheaper than you can get them elsewhere. We afford you every advantage in both Poultry and Bee Supplies. We sell The A. I. Root Co.'s bee-supplies, Model Incubators and Brooders, Prairie State Incubators and Brooders, Poultry Supplies of all kinds.

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The Griggs Bros. & Nichols Co.

523 Monroe St., Toledo, Ohio.

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Bienenschleier,
Handschuhe,
Futterkasten,
Bienenflucht "PORTER,"
Fluglochschieber für Kasten,
Koniginnenabsperrgitter,
Weiselhaüschen,
Schwarmfangbeütel,
Entdecklungsmesser,
Dampfwachsschmelzer,
Wabenentdecklungsapparat, und alle anderen Artikel von.

The A. I. ROOT Company,

Der grösste Fabrik der Welt.

EMILE BONDONNEAU,

General Vertreter für Europa und Kolonien.

142 Faubourg Saint Denis, Paris, 10me.

C. H. W. WEBER

Headquarters for . . .

BEE-SUPPLIES

Distributor of Root's Goods Exclusively at Root's Factory Prices

GIVE ME your orders for the **Best Goods Made.** You will be pleased on receipt of them. You will **save money** by ordering from me. My stock is complete; in fact, I keep **every thing** the **bee-keeper** needs. **Cincinnati** is one of the best **shipp ng-points** in the Union, **particularly in the South,** as all freight now **goes through Cincinnati.** Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly **free.**

WANTED.

Fancy White Comb and White Clover Extracted HONEY.

Queens and Nuclei

Let me book your orders for queens. I breed the finest **Golden Italians, Red-clovers, and Caucasians.** Can furnish **Nuclei** beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White Sweet-scented Clover, Alfalfa, and Alsike.

C. H. W. WEBER

Office and Salesroom, 2146-48 Central Ave.
Warehouse, Freeman and Central Avenues.

CINCINNATI, OHIO, U. S. A.

Honey Markets.

GRADING RULES.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

The prices here quoted are wholesale, or what the honey brings on arrival.

NEW YORK.—Comb honey: We have a fair demand for white comb honey, with very little supply; fancy stock selling at 15 to 16c; No. 1 at 13 to 14; No. 2 at 12c. No demand whatsoever for dark honey at this time of the year. Extracted honey: Good demand for nearly all grades, and we quote California white at 8 to 8½c; light amber at 7 to 7½; amber at 6½ per lb. New crop from the South brings from 58 to 65c per gallon in barrels, according to quality; strictly fancy will bring as high as 70 to 75c per gallon. The market on the coast seems to be unsettled, and prices fluctuate more or less. West India honey is arriving in fair quantities right along, and sells at from 58 to 62c per gallon. Beeswax is somewhat weaker, although choice stock still finds ready sale at 30 to 31c per lb.

HILDRETH & SEGELKEN,
July 8. 265 Greenwich St., New York.

INDIANAPOLIS.—There is a strong demand for fancy white comb and best grades of extracted honey, but at this writing the market is practically bare. Evidently a new scale of prices will be established on arrival of new crop. Beeswax is plentiful, and in fair demand at $35.00 per 100 pounds.

WALTER S. POUDER,
July 3. Indianapolis, Ind.

CINCINNATI.—The market on fancy comb and white-clover extracted is entirely exhausted. We quote you light amber in barrels at 5¾ to 6c; in cans, 1c per lb. higher. We are selling beeswax at 32c; market dull.

C. H. W. WEBER.
July 8. 2146 Central Ave., Cincinnati, O.

DETROIT.—Market very quiet with very little old honey left, and no new honey offered yet. Season will be about two weeks late in this respect. No prices can be given except No. 1 or A No. 1 will bring a good price if offered early. Beeswax, 27 to 29c.

M. H. HUNT & SON,
July 10. Redford, Mich.

CINCINNATI.—The demand for extracted honey does not come up to expectations, which is probably due to the lateness of the season. Quotations range about the same as published recently. Amber in barrels, at 5½ to 6¾, according to the quality. Fancy white extracted honey in crates of two 60-lb. cans at 9c. As yet, there is no new comb honey on the market. We are paying 28c cash, and 30 in trade, delivered here, for choice yellow beeswax free from dirt.

THE FRED W. MUTH CO.,
July 3. No. 51 Walnut St., Cincinnati, O.

CHICAGO.—Very little honey of the yield of 1907 has come on this market. What has come in the way of white comb has sold readily at 16c. There is no call for other grades at the present time. Very little demand for extracted, and a tendency not to take it at over 7c for the best grades of white. Beeswax continues to sell well at 32c. R. A. BURNETT & CO.,
July 8. 199 So. Water St., Chicago, Ill.

ST. LOUIS.—The honey market is unchanged, and the arrivals very light. We quote: Fancy white, 17; No. 1, 15 to 16; light amber, 14 to 15; broken and inferior, less. Extracted light amber, California, 8; Spanish-needle, 8 (all in 5-gallon cans). Southern, in barrels, from 5½ to 6; same quality in 5-gallon cans, ½ to 1c higher. Beeswax firm at 31 for choice pure. All impure and inferior, less.

R. HARTMANN PRODUCE CO.,
June 20. St. Louis, Mo.

KANSAS CITY.—The demand for comb honey is good; receipts very light. New comb has made its appearance, and $3.75 per case of 24 sections is asked. The receipts of extracted are light; demand light. We quote: White comb, No. 1, 24 sections, $3.50; white and amber, No. 2, 24 sections, $2.50 to $2.75; extracted white, light, $8.00; extracted amber, light, $7.00. Beeswax, light, 25 to 30. C. C. CLEMONS & CO.,
June 20. Kansas City, Mo.

PHILADELPHIA.—This hot weather has come on us so suddenly that it has stopped the sale of comb honey entirely, and extracted honey has been moving very slowly in the last ten days. We quote extracted honey, dark, in barrels, 6 to 7; light, 7 to 8, in 60-lb. cans, according to quality and quantity. Beeswax, 30. We are producers of honey and do not handle on commission.

WM. A. SELSER,
June 25. 10 Vine St., Philadelphia, Pa.

ZANESVILLE.—There is an increasing demand for honey, consumers turning, of necessity, to extracted, there being no comb on the market. I quote pound jars at $2.20 per dozen wholesale. For good quality of beeswax I pay 33 f. o. b. Zanesville, in exchange for bee-supplies.

EDMUND W. PEIRCE.
June 19. 136 W. Main St., Zanesville, O.

WANTED, COMB HONEY

WRITE US WHEN YOU HAVE ANY TO OFFER.

WE PAY THE DAY SHIPMENT ARRIVES

THE FRED W. MUTH CO.,
51 WALNUT ST. CINCINNATI, OHIO.

EVANS & TURNER

COLUMBUS, OHIO

WANT TO BUY 1907 CROP COMB HONEY

Write us immediately, naming price on different grades. We want to hear especially from Michigan and Wisconsin Producers

WE WILL BUY AND SELL

HONEY

of the different grades and kinds.

If you have any to dispose of, or if you intend to buy, correspond with us.

We are always in the market for WAX at highest market prices.

HILDRETH & SEGELKEN,

265-267 Greenwich St. 82-86 Murray St.

NEW YORK.

The Danzenbaker 20th Century Smoker

Pat. Oct. 3, '05, June 4, '07.

Awarded Highest Prize

A GOLD MEDAL

St. Louis, 1904.

IS THE BEST, STRONGEST, COOLEST, CLEANEST, CHEAPEST, AND LARGEST SMOKER SOLD FOR A DOLLAR

It has a side grate that strengthens the fire-cup and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to **CLOG WITH SOOT**.

ALL THAT IS CLAIMED.—N. E. France, Platteville, Wis., General Manager of the National Bee-keepers' Association says:

I have given your 20th Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke I find it all you claim. In the spring I shall want several. I always want the best.

SURPASSES ALL OTHERS.—Mr. Grant Stanley, Nisbet Pa.—"After giving the Danzenbaker 20th Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until the fuel is all consumed, and it produces a cool smoke a feature very necessary in any first-class smoker."

BEST IN TWENTY YEARS.—M. D. Andes, Bristol, Tenn.—"I have used the 20th Century Smoker one season It has given me entire satisfaction. In my twenty years of bee-keeping I first used the old stand-by Clark smoker, and I believe I have tried all the different makes, as I am always looking for the best, and will say that your smoker beats them all up to date."

NEVER TOO HOT TO HOLD.—Dr. Reginald Munson Washington, D. C.—"I am well pleased with the 20th Century Smoker. It keeps fire well without getting too hot to hold on continuous use, and makes smoke enough to satisfy the most critical."

Price Dan-ze, Large 3½-inch Smokers:
Postpaid—one, $1.15; two, $2.10; three, $3; five, $4.50
By Express or freight—one, $1; six, $4.20.

"Facts About Bees," a sixty-four-page pamphlet, sent free on request. Send also address of your bee-keeping friends for same

F. DANZENBAKER, NORFOLK, VA.
(Jamestown Exposition Sta. Money-orders on Norfolk.)

S. T. FISH & CO.

Established 1876.

189 South Water Street, CHICAGO

RECEIVERS AND SHIPPERS OF

Comb and Extracted Honey

and Beeswax in car lots and less.

We solicit correspondence from honey-producers throughout the United States, advising what they will have to offer during the season of 1907. Mention *quantity, quality, style of package, and price.*
Long-distance phone. Main 1028. Reference, First Nat'l Bank, Chicago. Respectfully, S. T. FISH & CO.

Established 1873
Circulation 32,000

72 pages, semi-monthly
$1.00 per year

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

Published by
THE A. I. ROOT CO., Medina, Ohio

J. T. CALVERT, Business Manager

POSTAGE IS PREPAID by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian postage is 30c per year. For all other countries in the Postal Union add 60 cents per year postage.

CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old address must be given. The notice should be sent two weeks before the change is to take effect.

DISCONTINUANCES.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

HOW TO REMIT. Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of The A. I. Root Company, Medina, Ohio. Currency should be sent by Registered Letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

Foreign Subscription Agents.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

PARIS, FRANCE. E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid. 7½ fr.*

GOODNA, QUEENSLAND. H. L. JONES. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid.* 6/.

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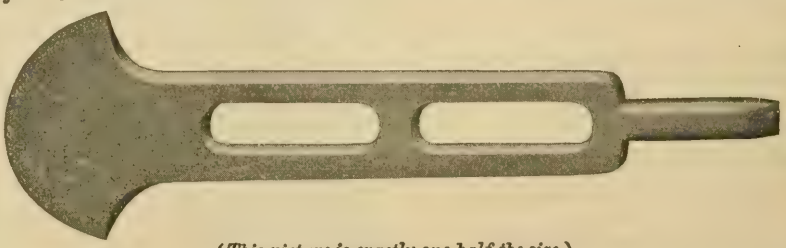
The Weekly American Bee Journal is in its 47th Year

Something New=The Ideal Hive-Tool

Bee-keepers have long needed a Tool with which to work among the hives during the bee-season. The Tool shown here was invented by Wm. Muench, a Minnesota bee-keeper, some years ago, but it was not on the market before. We have lately bought this Tool, and all rights, from Mr. Muench's widow, and have had the first lot made. They are ready for delivery now.

Best Hive Tool



Only 30c, by mail

(This picture is exactly one-half the size.)

DESCRIPTION.—The Ideal Hive-Tool is made of high-grade malleable iron, much like wrought iron, 8⅛ inches long. The middle part is 1 1-16 inches wide and 7-32 thick. The smaller end is 1⅝ inches long, ½ inch wide, and 7-32 thick, ending like a screw-driver. The larger end is wedge-shaped, having a sharp semi-circular edge, making it almost perfect for prying up covers, supers, etc., as it does not mar the wood.

What Dr. Miller and Miss Wilson Say of It:

In the first edition (1903) of Dr. Miller's "Forty Years Among the Bees," page 58, he says: "Of all the hive-tools I have tried, I like best the Muench tool." On Jan. 7, 1907, he wrote us saying he thought "just as much of the tool as ever."

Miss Wilson, Dr. Miller's assistant, says this of the Ideal Hive-Tool: "It is an ideal tool. In fact, I don't see how it could be improved upon. I am sure we would feel utterly lost in the apiary without it.....You will have to try one yourself if you want to know its worth."

The Ideal Hive-Tool Free to a New Subscriber.

To a **new** subscriber to the **Weekly Bee Journal** for one year (at $1.00), we will mail an Ideal Hive-Tool **free**; or we will mail the Hive-Tool alone for 30 cents (stamps or silver, if more convenient). Sample copy of the Weekly American Bee Journal sent on request; **or a 3 months' "trial trip" for only 20 cents.** Address,

GEORGE W. YORK & CO., 334 Dearborn Street, CHICAGO, ILL.

The Oldest and Only WEEKLY Bee-Paper in America

The Pearl Agnes Bee-hive

FIG. 1.

FIG 2.

The body of the hive has five frames with a total comb capacity of five-sixths of two full-sized Hoffman frames—that is, each is exactly one-third that of a full frame ($16\frac{3}{4}\times8$ inches interior). The frame itself has somewhat the appearance of a large section $5\frac{5}{8}\times8$ inches. It is supplied with full comb foundation, or with a starter across the end as may be desired. The length (8 inches) of these small sections is the same as the depth of the interior of a Hoffman frame, and the depth ($5\frac{5}{8}$ inches) is one-third the length of the Hoffman, so that three may be fitted into the length of the Hoffman, if placed side by side and on end.

The super is fitted with sections $2\frac{1}{2}$ inches deep by 2 inches wide—that is, one-fourth the size of the Danzenbaker 4×5 section, and hence it may be used, if desired, in the regular Danzenbaker super as "toy" or "sample" sections (Fig. 2). These little sections, when filled either in the Pearl Agnes hive or the regular full-sized super, are convenient, dainty, attractive, and, to the young folks, "just too cunning for any thing." They may be used as sale samples, or novelties for the table, or as gifts to friends and to visitors at the apiary. The fences of the super are in the same form, but of smaller size than the regular fences The cover is shaped like a gable and roof, so that, together with the fanciful painting of the three parts in three different colors gives the whole a pleasing effect. And it is further enhanced by the feeding-bottle (with perforated cap) which extends down through the roof, and is of the proper length to project far enough to have the aspect of a chimney.

THE A. I. ROOT CO., Medina, O. Malden, Mass., June 11, 1907.

Gentlemen:—The three-frame nucleus and tested queen came duly to hand, and I at once installed them in my observation hive bought of H. H. Jepson, 182 Friend St., Boston. They prospered finely in spite of the cold weather. I also bought of Mr. Jepson a Pearl Agnes hive for my baby Ruth (ten years old), the first Pearl Agnes hive sold in Boston by Mr. Jepson, and into six of my frames I put eighteen Pearl Agnes frames. On looking at them this morning I was surprised to find brood hatching out, and I am in a rush to transfer, so I am wiring you for a red-clover queen, select untested, to be mailed to-day sure, and I hope you will receive my message in time to ship her majesty to-day. Yours very truly, EDWIN E. HARRINGTON.

Prices

A complete little hive. Just right for teachers of small schools, and others who want to study the bee for a short time at little expense; with five brood-frames 5½x8, and super holding twenty sections 2x2½x1½, with necessary fences, complete with foundation at the following price: each, nailed and painted, $2.50; in flat, $1.75; ten in flat, $15.00. ¶ Filled with bees and untested Italian queen, this hive can be sent at low cost by express. Price of complete hive with bees and queen, with smoker, veil, and book of instructions, $5.00.

The A. I. Root Company, Medina, Ohio

Gleanings in Bee Culture

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Department Editors: DR C. C. MILLER, J. A. GREEN, PROF. A. J. COOK, J. E. CRANE, LOUIS H. SCHOLL, G. M. DOOLITTLE, R. F. HOLTERMANN, "STENOG."

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REAL ESTATE FOR BEE-KEEPERS.

Our advertisements of real estate have so increased of late that a special place has been assigned to them. It will be noted we do not list any *boom* advertisement, nor do we intend to list any. We think that any person with genuine *bona-fide* land investments to dispose of will find this a very desirable medium, and we doubt very much if there is any part of GLEANINGS which is more faithfully read than this.

Many bee-keepers, for various reasons, would make a move to a new location if they could secure just what they want, and doubtless there are places which would suit them if they only knew of them. If you have a place to sell, suitable for bee-keeping, etc., surely the proper way of disposing of it is through a bee-journal which has many thousands of readers who are profoundly interested. Should you have a property to sell which meets the requirements, advertise it in this column and watch the results.

HUNTER, TRADER, AND TRAPPER MAGAZINE.

The above is the caption of a magazine dealing in an able manner with the interests of the men who make hunting and trapping a business more or less during the cold months. In a very practical sense it is the only magazine devoted to the subjects indicated by its title, for it is quite different from the sportsmen's journals which advocate killing wild animals for fun; consequently one finds in it much valuable information to outdoor people which can not be obtained anywhere else. Its writers are actual hunters and trappers scattered all over North America from the arctic regions to Central America. For this reason it has the real flavor of the wild woods. These writers are not very good scholars, as a rule, but they know things that are worth knowing. It pays great attention to the prices to be obtained for fur skins, roots, and herbs, so that the trapper who reads it may know just what to expect for his shipments. In some ways it resembles GLEANINGS.

To the reader of GLEANINGS who is interested in furs, roots, and herbs, and the love of the wilderness, we do not hesitate to recommend the *Hunter, Trader, and Trapper* (Columbus, Ohio). See advertisement elsewhere, giving clubbing offer.

HONEY-BUYERS—FOR CASH.

Many bee-keepers have expressed a desire to sell their honey to a prompt cash buyer with the object of eliminating all uncertainties and risks incident to selling on commission. There can be no doubt this is the correct way to do business — the twentieth-century style.

With this end in view, several reliable firms have their advertisements elsewhere in GLEANINGS, and we bespeak for them the patronage of our readers. Needless to say, we believe the firms mentioned will do what they say they will, and therefore we give them our endorsement. Do your best to avoid misunderstanding on your end of the deal, so that every thing will be satisfactory to yourself and the buyer. The following firms are especially interested in making cash deals:

Hildreth & Segelken, 82 Murray St., New York.
Evans & Turner, Columbus, Ohio.
C. H. W. Weber, Cincinnati, Ohio.
S. T. Fish & Co., 189 South Water St., Chicago, Ill.
The Fred W. Muth Co., 51 Walnut St., Cincinnati, Ohio.

JOSEPH HORNE CO.

PITTSBURG, PA.

Write for

Any Goods You Need,

whether SILKS, or DRESS WOOLENS, or DRESS COTTONS, or DRESS LINENS, whether READY-TO-WEAR OUTER GARMENTS, or READY-TO-WEAR UNDERGARMENTS, and rest assured of getting what you choose for some one of the following reductions:

$\frac{2}{3}$ $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$

¶ This is the month we clear out all Summer goods of whatsoever nature; this is the month that this great Pittsburg store, of more than 80 divisions, LOSES SIGHT OF PROFIT.

¶ The most sensible thing to do is to WRITE AT ONCE and to state a first, second, and third choice.

THE "BEST" LIGHT

The only 100 Candle Power Light that burns its own gas and gives absolute satisfaction during a long life of efficient service.
No Grease, Smoke, Dirt or Odor.
Brighter than electricity or acetylene, cheaper than kerosene. Over 160 styles. Every lamp warranted. The Best Light Co., 905 E. 5th St., Canton, O.

$53,700 Made by O-HI-O Cooker Agents in 1905 Selling the O-HI-O COMBINATION STEAM COOKER-BAKER.

We have many agents making $5 to $10 daily. Write us and we will give you names of agents near by who are making at least $5 daily. We can easily prove that the "O-HI-O" is the best money-maker you ever heard of, and will make you more money than anything you ever sold or are now selling. *Write us at once and we will prove it.*

Guaranteed to save 50 per cent in fuel, labor, time, and provisions. A whole meal cooked over one burner on any style stove. It assures you deliciously cooked hot meals; *30 days' trial.* No intermingling of odors or tastes. Fine for use in summer cottages. A necessity every day of the year. The only healthful way to cook foods and breadstuffs. :: *Handsomely illustrated catalog free.*

"O-HI-O" COOKER CO., 908 Jefferson Ave., Toledo, O.

CUTS USED IN THIS MAGAZINE ARE FROM THE MUGLER ENGRAVING CO. MUGLER BLDG. CLEVELAND, OHIO.

Hunter-Trader-Trapper

Here is a magazine that will surely interest many of our readers. It does for the trapper what GLEANINGS does for the bee-keeper, and does it well. It is just the thing for the man or boy who desires to make a little money winter time by trapping fur-bearing animals. It gives all trappers' "secrets," and indicates where to sell furs to advantage.

Hunter-Trader-Trapper

is not intended for city sportsmen with fancy guns and expensive fishing-rods. It is written by real wilderness hunters who know all about the capture of wild animals. It is a monthly, containing as much real reading-matter as the great monthlies, and far more practical. For a limited period we are making the following liberal offer:

HUNTER-TRADER-TRAPPER, 12 issues a year, . . .	**$1.00**
GLEANINGS, ...	**1.00**
Both to the same party and address, $1.50.	**$2.00**

If you desire to inspect a copy of HUNTER-TRADER-TRAPPER, write to the A. R. HARDING PUBLISHING COMPANY, Columbus, Ohio.

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Our Advertising Rates.

Twenty cents per agate line, flat.
Fourteen lines to inch.

SPACE RATES (To be used in one issue)

One-fourth page $11.00
One-half page 21.00
One page..... 40.00

Preferred position, inside pages, 30 per cent additional.
Preferred position, inside cover pages, 50 per cent additional.
Outside cover page, double price.
Reading notices, 50 per cent additional.
Cash-in-advance discount, 5 per cent.
Cash discount, if paid in 10 days, 2 per cent.
Bills payable monthly.
No medical or objectionable advertising accepted.

"A Square Deal."

We believe that every advertisement in this paper is backed by a responsible person. But to make doubly sure we will make good any loss to paid subscribers sustained by trusting any deliberate swindler advertising in our columns, and any such swindler will be publicly exposed. We protect subscribers against rogues, but we do not guarantee to adjust trifling differences between subscribers and honest responsible advertisers. Neither will we be responsible for the debts of honest bankrupts sanctioned by the courts. Notice of the complaint must be sent to us within one month of the time of the transaction, and you must have mentioned GLEANINGS IN BEE CULTURE when writing the advertiser.

In no department of human activity has there been more improvement of late years than in the invention of artificial lights for the home. One of the best of these is manufactured by the Best Light Co., of Canton, Ohio, whose advertisement will be found elsewhere in these columns. By the use of their lamps one may have an illuminant equal in intensity and softness of the best city lights.

THE JOSEPH HORNE CO.

The ladies will see by the advertisement of the above concern that they are determined to get clear of all goods left over from last season. It is the policy of this big store to get rid of all goods which are "left-overs," and to do this they are prepared to sell at sacrifice prices.

This gives the cautious housekeeper with ready cash a unique opportunity to replenish her household wants at a low figure—far below what such goods usually sell at.

CHEAP ADVERTISING.

Occasionally some one says our advertising rates are somewhat higher than others. This is not true; and if any one will figure out the problem for himself he will discover that our rates are really much lower than any of our contemporaries. How so? It is this way: All modern advertising is now paid for on a basis established by the circulation. For example, GLEANINGS has now a circulation of 35,000. Suppose a competitor has 5000. In this case GLEANINGS would be well justified in charging seven times as much for advertising space. But it does not do that. On the contrary, its charges are only about double, whereas the benefits are seven times as great. This is the manner in which advertising agencies figure up their rates, and it is the only fair way. Perhaps you think GLEANINGS will not draw seven times as many orders as a journal with one-seventh of the actual circulation. If you are in doubt about it, keep tab and see for yourself whether these things are so, just as one of our regular advertisers writes us: "I advertise with what is called key advertising, and you will be pleased to learn that the result from my 'ad.' in GLEANINGS is more satisfactory than from any other 'ad.' We happen to know this advertiser gets all the business he can attend to. He advertises queens. We know of others who have MORE than they can attend to. After you have tested our columns for a while you will probably arrive at the conclusion reached by others, that it does not pay not to have an 'ad.' in GLEANINGS, even if our rates were considerably higher than now. We aim to be moderate in our charges, and those who have done much advertising know that it pays to use our columns. Try GLEANINGS and watch for results.

HARDY BEES.

Bees of the Superior Stock, furnished by J. P. Moore, of Kentucky, are the best honey-gatherers I ever owned. They are gentle—smoke is seldom necessary in handling them, and very little at that. In addition to that, they are very hardy, seem to have more than the ordinary amount of vitality. We had a very striking example of this last spring at one of our apiaries in Northern Michigan. About one-half of the bees were of this strain, and the others of several different strains. The Moore strain of bees were quiet all winter, consuming very little honey, coming out in the spring fully as strong as they went in. Then, still further, they "stood up" during the trying weather that followed after they were set out of the cellar. When colonies of other strains were dwindling away and succumbing to the cold, these bees held their own: and when the harvest opened up the last of June, they certainly were far ahead of all the other bees that we had in the North. They were treated the same last fall, kept in the same cellar, protected and fed the same in the spring, but they came out ahead. It was simply in the *breed of the bees*. We are planning now to requeen all of our apiaries with this strain of bees, and I know that it will bring us big profits.

I can furnish queens of this strain (they will be sent out by Mr. Moore) at $1.00 each, or I will send the Review for 1907 and one of these queens for only $1.50. There are about a dozen sets left of the Review for 1906, and those whose orders come in before these back numbers are gone will receive a set free.

W. Z. HUTCHINSON, Flint, Mich.

BY EXPRESS

Sections and Foundation

THE SAME DAY
ORDER IS RECEIVED

The A. I. Root Co.
Syracuse . . New York

Our discounts on BEE-SUPPLIES are still in effect.

WE furnish EVERY THING needed in practical bee culture, at lowest prices. We make the DOVETAILED, LANGSTROTH, and ALTERNATING HIVES. The most practical, *up-to-date* hives are the MASSIE HIVES. We make them. Have you seen them? Have you received our new 1907 catalog? It is surely the easiest catalog to order from you ever saw. It is so easy that you can not make a mistake in your orders; a child can order from it as well as an adult. It is something new and entirely different from any you have ever seen. Write us a postal card for it to-day. It is free.

Address Kretchmer Mfg. Co., Council Bluffs, Iowa.
Muscatine Produce Co., Muscatine, Iowa. :: Trester Supply Co., 103 S. 11th St., Lincoln, Neb.
Catalogs issued in German and English.

A Four-per-cent Investment.

WITH the money absolutely safe and always available is an ideal disposition of individual savings. This bank accepts deposits in any amount, and pays four per cent interest —compounded every six months.

Our booklet describes our methods and management, and explains the advantage of our simple banking-by-mail system.

Write for the Booklet To-day

Assets over One-half Million

THE SAVINGS DEPOSIT BANK COMPANY

MEDINA, OHIO

A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.
E. B. SPITZER, Cashier.

NOTICE

Free Lecture and Demonstration on Bees, Season 1907, Tuesdays and Fridays, 10 to 12 o'clock, A. M., 10 Vine Street, Philadelphia, Pa.

So great has been the interest, and so numerous the calls, to see our bees, from parties who have not the time to visit our Jenkintown apiary, that we have arranged our plans to set aside Tuesday and Friday during the season of May and June, from 10 to 12 o'clock, to give a public demonstration for any one, whether a customer or not, to call and have explained to him the marvelous work of the honey-bee.

While our apiary, of some forty or fifty colonies, has always been open to inspection, yet the calls to see the bees coming at all hours of the day, many times when we were rushed with other work, were necessarily hurried and unsatisfactory, and were confined mostly to our customers. We now invite the general public, and a much more complete and general demonstration will be given. By giving us your name and address on entering the office, veils will be furnished you and your friends, so there will be no danger of being stung.

P. S. Our Jenkintown apiary is always open by appointment to visitors. Ask for

WM. A. SELSER, Mgr.

The A. I. Root Company, Philadelphia, Pa.

Telephone 181 W. Ogontz.

NOW READY

to fill your orders for hives, supers, sections, and foundation of all grades. We now have a large stock of these goods on hand and can supply your wants for regular goods without delay.

We are booking orders for BEES and Queens, and to assure early shipment you should send in your orders now.

Price list free upon application.

W. W. CARY & SON, Lyonsville, Mass.

1884 1907

New 64-page catalog for the New Year now ready

FOR YOU

Twenty-two successful years manufacturing bee-supplies and raising Italian bees and queens. . . . . Root's Goods in Stock.

J. M. Jenkins

Wetumpka, : : Alabama

Northeastern and New England

BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine

MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

SAVE EXPRESS!
SAVE FREIGHT!
SAVE TIME!

by ordering your supplies in **Boston**

H. H. JEPSON,

182 Friend St. Phone Haymarket 1489-1

LOFTIS SYSTEM **Diamonds** On Credit

YOU CAN EASILY OWN A DIAMOND OR WATCH, or present one as a gift to some loved one. Whatever you select from our beautiful catalog, we send on approval. Pay one-fifth on delivery, balance in 8 equal monthly payments. Your credit is good. As a pure investment nothing is safer than a Diamond. 20% annual increase in value. Written guarantee of quality and value. Catalogue free. Write for it today. *Do it now.*

LOFTIS BROS. & CO. Dept. G337, 92 to 98 State St., Chicago, Ill. THE OLD RELIABLE ORIGINAL DIAMOND AND WATCH CREDIT HOUSE.

DO YOU KEEP BEES?

Then you need this microscope to help you study them.

Are You a Lover of Nature?

Then you should have it to find out nature's secrets.

This is not a toy, but a standard-size microscope such as physicians and scientists use, and has full-size eye-piece and compound divisible objectives giving a remarkable magnification, sufficient to see living bacteria in water, etc.

With it you can see the eyes of the bee, hundreds and thousands in each bee, and which are not visible to the naked eye.

The wings, antennæ, pollen-baskets, stings—in fact, a hundred things about the bee are brought to view in a manner simply marvelous.

Soils, seed, cloth, water, flowers, leaves, rocks, insects—in fact, a thousand things can be searched with it.

No home should be without one.

This instrument is strictly high grade, of solid brass, and is packed in an imitation alligator-skin velvet-lined case, and full size.

It is offered for the remarkably low price of $10. Remit by money-order only.

Those who have bought them are simply delighted, and, as I have but a few left, you must act quickly if you would secure this high-grade microscope which is equal to those that sell for three times its price.

Satisfaction guaranteed, or money refunded.

D. EVERETT LYON, PH. D., RYE, N. Y.

These instruments are made for me by one of the largest houses in the country.

H. M. Arnd, Prop'r York Honey and Bee-supply Co. (NOT INC.)

Long-distance telephone, North 1559. CHICAGO, ILL. 191-193 East Superior Street.

Carries a full line of new Lewis Bee-supplies, Hershiser Wax-presses, etc. Slightly damaged Poultry and Bee Supplies at greatly reduced prices while they last. Send for 1907 catalog and fire-sale list. Beeswax wanted. Italian Queens, Nuclei, and full colonies in up-to-date hives for sale.

NORTHERN NEW YORK BEE-KEEPERS.

BUY your supplies where you can buy to the best advantage. Save freight charges and time. Large stock of new goods. "Root's goods." Cash paid for beeswax. Send for catalog and price list.

A. H. REEVES & CO., Watertown, N. Y.
17 Morrison St. Phone 1296.

WAGON SENSE

Don't break your back and kill your horses with a high wheel wagon. For comfort's sake get an

Electric Handy Wagon.

It will save you time and money. A set of Electric Steel Wheels will make your old wagon new at small cost. Write for catalogue. It is free.

ELECTRIC WHEEL CO., Box 95, Quincy, Ill.

A NEW BEE-SUPPLY HOUSE

AT LITTLE ROCK, ARK.

I am prepared to furnish you the best of bee-supplies, manufactured by The A. I. Root Co. Let me send you my catalog of bee-keepers' supplies. Also have for sale the very best strain Italian queens and nuclei or full colony. Satisfaction guaranteed. **W. J. LITTLEFIELD.**

PATENTS.

Twenty-five Years' Practice.

PRINDLE & WILLIAMSON,

Second Nat'l Bank Bldg., Washington, D. C.

Patent practice in Patent Office and Courts.
Patent Counsel of The A. I. Root Co.

"If goods are wanted quick, send to Pouder."
Established 1889

More than Pleased.

By the Bee Crank.

A pleased customer is a continuing one, and a continuing customer is a valuable friend

The best business principles are, after all, nothing more than a kind of denatured selfishness.

It always pays a business man to treat his patrons so well that they are ever ready with a good word for him.

The trouble is, so many business men do not realize it.

If you deal with us you can expect to receive the same sort of treatment that inspired Mr. Jones to write this letter:

WALTER S. POUDER, Indianapolis, Ind. Atwater, Ill.
Dear Sir: – My order, No.8788, of June 1st, received in good condition, and in the least time possible to go such a distance. Am more than pleased with the goods, and, as long as you fill my orders in the future as you have in the past, you will receive all of my trade. I expect to send another order soon. Very truly yours, M. A. JONES.

Root's Goods at Root Prices with POUDER Service.

My catolog is yours for the asking.

It lists a thousand things that can not be enumerated here.

Every bee-keeper should have this book.

BEESWAX WANTED. Send by freight or express, according to size package. I pay the best market price.

A select untested Hoosier-Italian Queen by return mail for $1; six for five.

Walter S. Pouder.

513-515 Massachusetts Avenue, Indianapolis, Ind.

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Company, Medina, Ohio

E. R. Root, Editor A. L. Boyden, Advertising Mgr.
H. H. Root, Asst. Ed. J. T. Calvert, Business Mgr.
A. I. Root, Editor of Home Department

Vol. XXXV. JULY 15, 1907. No. 14.

STRAY STRAWS
by Dr. C. C. MILLER

ILLINOIS pure-food law went into effect July 1—an A 1 law, in harmony with the national.

SHEEP in an apiary are all right with hives raised as on page 904; but don't try it with hives low down. I've tried it, and know.

A QUEEN of Dr. Bruennich continued laying side by side with her daughter fully 11 months, then suddenly disappeared (*Leipz. Bztg.*, 85).

I TRIED putting brood over sections, as Fig. 3, p. 899, but had to give it up, because it darkened the cappings of the sections. Does Mr. Hand have no such trouble?

ENDORSING R. F. Holtermann, p. 906, I may say that my practice has been to allow idle combs standing outdoors to be uncovered; not so good for the combs otherwise, but greatly safer from the bee-moth.

LEATHER-COLORED Italians are mentioned, p. 895, as coming from Switzerland. Strangely enough, a vote taken in the leading Swiss bee-journal showed a general consensus of opinion that all Italian blood should be suppressed and only pure blacks cultivated.

SPEAKING of the air-space cover, you say, Mr. Editor, p. 888, "Why not go one better and have the deep telescope cover?" Because, aside from the extra cost, it takes more strength and more time to handle two pieces than one. I don't know, though, whether it might not pay after all.

L. STACHELHAUSEN, I am pained to learn from *Europaeische Bzht.*, 93, has for months been suffering severely from cancer of the tongue, with the painful prospect of losing part of that organ. Let us hope that a man so useful to his bee-keeping friends in Germany as well as in this country may long be spared.

IN GETTING bees from old hives into new ones, E. W. Alexander, p. 896, says put the new hive with the queen on top of the old one, an excluder between. I wonder why he puts it on top, and not under the old one. Don't bees work brood down better than up? I once had a queen utterly refuse to lay for days when fastened upstairs.

RAUSCHENFELS (*B.-Vater*, 175) says a good colony will consume from Sept. 1 to April 6 about 26.4 lbs. honey; from April 9 to May 10, at least 11 lbs., and probably more if it is present; and from then to the last of August, with its great mass of brood, at least 52.8. That makes 90 lbs. the minimum, without counting any thing for the production of wax.

NO ONE under 18 years of age is allowed by the Illinois law, since July 1, to smoke in a public place, and the manufacture and sale of cigarettes are utterly prohibited. How is that for Illinois, Bro. A. I ? [That would be tiptop, doctor, if it were true; but how about the following, which we clip from the *Woman's National Daily* of July 1?

> The law passed by the last Illinois legislature, prohibiting the sale of cigarettes in that State, has been declared invalid by Judge Chytraus. He held that the body of the act did not conform to the title. He further said that the law was declared to be an act to "regulate," when, in fact, it was an act to "prohibit."

If all of our righteous laws are to be thrown out by some "nullification act," what is going to become of us?—A. I. R.]

THAT FAT COMB, mentioned on page 888, where the capped comb has gone clear over the nail spacers, is all right for uncapping if you merely take the usual thin slice of cappings, for in that case you will not cut down to the nail. If you want to cut down to the frame, you can still make it, for the two spacers on each side are on only one end, and you are not much of an engineer if you can't start your knife in where the nails are and cut straight through where there are no nails. But I don't insist on metal spacers for extracting-frames. What I do insist upon is

that comb-honey men be not denied the best spacing arrangement just because it doesn't suit extracted-honey men.

PINE FORESTS, when cut over, give place to willow-herb. Can you tell us how many years the willow-herb continues? [Willow-herb is found all through the region of our cabin in the woods; but it grows more rank and strong after the forest has been burned off. After that, if undisturbed, I think it would continue to grow indefinitely. In fact, it sometimes comes up as a weed in potato or corn fields, and it is always found more or less in the fence-corners. As good farming prevails, however, willow-berb and all plants of that sort are crowded out. It has no value except for honey, so far as I know.—A. I. R.]

I HAVE READ that, in the Langstroth frame, there is a two-inch border of honey under the top-bar; and now comes the additional statement, p. 899, that bees "are often very loath to remove honey from the sides of a deeper one-brood-chamber, since bees always store honey at the sides of the brood, but never below it." Now will some one please be so good as to arise and say whether it is locality, strain of bees, or what, that makes bees do so differently here? Until late in the season I don't have any two-inch nor one-inch border in Langstroth frames; the amount of honey stored at the side can not be such a great deal with brood in from six to eight of the eight frames, and I have had many a pound of beautiful comb honey built below the brood. I have also had bees store in a body of extracting-combs under the brood-chamber.

E. F. ATWATER gives a bright plan for promptly starting his bees on outdoor feed (*Review*, 192). Break up some old comb into pieces about 1½ inches square. Dip these in the feed, lay one at the entrance to each hive, and kick the hive, if necessary, to get enough bees out. Then go around and pick up the bits of comb, bees and all; carry them on a queen-excluder or board, and dump them into the feed. The advantage of this plan is that all your own bees will be promptly started and will finish the feed before neighboring bees get notice. He says nothing about the time of day, but evening is probably preferable. I feel pretty sure that, after the first evening, it will be necessary to put only a little feed at one or two entrances to start the whole business going. If late enough in the evening it will be practically certain no neighboring bees will be on hand.

SLUMGUM is said (*Deutsche Bzht.*, 93) to be good for manure. When perfectly dried, it contains nitrogen, 7.44 per cent; ash, 18.33 per cent; phosphoric acid, 1.01 per cent. Has it been tried as manure in this country? [Yes, doctor, it has been tried on a limited scale. When I was growing vegetable-plants I saved all the slumgum, chopped it up, and mixed it all through our plant-bed for high-pressure gardening; but with the best apparatus we then had to remove the wax there was enough remaining to prevent the decomposition of the slumgum, and so it was raked back and forth, and chopped up without doing any good that I could discover. Since recent experiments in removing all the wax down to less than one per cent, it might work differently. If it could be pulverized by some suitable machine, and then composted with stable manure, it ought to make a rich fertilizer.—A. I. R.]

WEATHER conditions for honey have improved materially since our last report. But we are fearful that so much bad weather previously has had an unfavorable effect on the blossoms, so that nectar, now that we have the right conditions, will not be secreted as it should be. Reports are lacking, and therefore we are unable to give any definite information. In the mean time we should be pleased to have our subscribers all over the country write, in one or two sentences on a postal card, whether they are getting any honey, and be sure to write at once. Meanwhile there is a strong probability that the honey crop will be light, and prices should rule accordingly.

A GLUCOSE-FACTORY BEING DEMOLISHED AS A RESULT OF THE PURE-FOOD LAW.

THE national pure-food law has had some peculiar effects as the following excerpt from the *Louisiana Planter* of a recent date will show:

> The work of demolishing the plant of the erstwhile Goyer-Alliance Glucose Company, at Belle Alliance, La., is progressing rapidly under the direction of the Chicago House-wrecking Company, which concern purchased the big establishment and is disposing of the mechanical equipment. A large proportion of the machinery has already been sold and removed, and the remainder is meeting with ready sale at good prices.

It may be added that some of the northern concerns in the same line have recently had financial difficulties of a like nature; but for excellent reasons we have said nothing about their troubles in this paper. But more anon.

THE VALUE OF PROTECTION FOR OUTDOOR-WINTERED COLONIES.

MR. W. Z. HUTCHINSON, in speaking of some of the hard lessons learned in this remarkable spring, says:

> As I carefully examined hive after hive, the conclusion was forced upon me that most of them had *starved* with honey in the hives. It was a peculiar combination, but one that is likely to occur in wintering bees out of doors with no protection.

Those of us who have had very much experience in wintering outdoors in single-walled hives have observed the same thing time and time again. The investment in winter-cases or in double-walled hives, even

during a single winter, is one that brings back a tremendous dividend. We conclude that it never pays in our cold northern latitudes to winter outdoors in single-walled hives, for the reason that too many times the bees will actually starve to death with plenty of stores in the hive. Why? Because the hive is too cold to allow the cluster to move over to where the stores are.

THE PEOPLE WANT TO KNOW.

THE following was uttered by Dr. Wiley at the meeting of the Inter-State Cotton-seed Crushers' Association, held at Jamestown, Virginia, quite recently. There can be no doubt he is right on this matter, more particularly when he states the people are determined to know what they are eating every time they sit down to a meal.

There is no longer any excuse for trying to cover up matters of this kind. We should recognize the dictum that the days of delusion and deception are done. The people of this country are in earnest about this matter. This sentiment for correct names, for freedom from adulteration, is no mere brain storm which is sweeping over the country—it is the legitimate growth of education and a revival of the ethical principle of justice and of right. The people want to know, the people are determined to know, and the people can not always be deceived. I do not believe that any one of you here would care to continue to promote a business which was not worthy of your support.

CUTTING ALFALFA BEFORE IT BLOOMS—A BAD PRACTICE.

WE have already published matter from a variety of sources showing that the early cutting of alfalfa, before it blooms, is a wrong practice, hurtful alike to stockman and bee-keeper. The following additional item appeared in the *National Farmer and Stock-grower*, and speaks for itself:

Many start out with erroneous impressions about cutting alfalfa. They have been induced to put in the crop because of its great feeding value, and that three or four cuttings may be taken from the field during one season. If you want a strong vigorous stand of alfalfa, don't be in too big a hurry to clip it to get rid of weeds, and don't cut the crop from a newly seeded field too soon. The crop should be pretty well matured before it is cut. It is important that the plant be well established and the crown buds set for subsequent crops before the first crop is taken off. After the first year, three or four cuttings may be made providing each one is done at the right time.

HONEST HELPFUL CRITICISM.

THE following, on the subject of criticism, in the last *Bee-keepers' Review*, so exactly echoes our own sentiments that we are glad to place it before our readers:

Criticism, to be of any use, should be helpful. There is no great benefit in telling a man that he is doing something wrong unless we can also tell him how to do it better. Then there ought to be a kind, helpful spirit shown in criticism. Occasionally criticism is made in such a way as to lead one to believe that the chief pleasure or object of the critic is to show that some one is in the wrong—made in such a caustic manner as to rouse the combativeness of the one criticised. Criticism ought to be frank and free, but it need not be insulting nor insinuating in tone.

No firm or person is perfect. Many of them are ignorant of their own weaknesses, and to have those weaknesses pointed out is a real kindness.

FINDING AND CATCHING QUEENS, AND CLIPPING THEIR WINGS, WITHOUT HANDLING A FRAME.

APPARENTLY there has been a good deal of correspondence on this subject since the article by Mr. J. E. Hand appeared in our issue for June 15. Mr. Hand finds it necessary to say something more on the subject, which he does right here.

Mr. Root:—Regarding the clipping of queens' wings in sectional hives, as described and illustrated in my article in GLEANINGS for June 15, I fear I have not made my mode of operation plain enough; and for the benefit of those who wish to try this method of finding queens I would further add that, in case the colony is very strong in bees, we remove the top brood-section after driving the bees up, and place the queen-excluder on the next section and place the top brood-section on the queen-excluder before removing the cover. This should be done quickly before the reaction takes place, so that the bees will pass through the zinc into the hive below instead of boiling over the sides of the hives. A few puffs of smoke, and one or two shakes, with a quick jerking motion, will deposit the bees and queens upon the queen-excluder, through which the bees will quickly pass, leaving the queen in plain sight.

We used this method altogether this season, 1907, and, although our colonies were very strong, each having three brood-sections full of bees from top to bottom, we did not experience the least difficulty in quickly finding the queens without handling the frames. About half the queens will usually be found either on the tops of frames or on the under side of the cover. J. E. HAND.

Birmingham, Ohio.

SPRAYING AFTER BLOSSOMS FALL.

WHENEVER an advertiser of spraying-outfits or chemical mixtures advocates in any of his printed literature the spraying of fruit-trees while they are in bloom, we generally send in a friendly protest, calling his attention to the fact that experiment stations everywhere have condemned the practice, both from the standpoint of the fruit-grower himself and the bee-keeper. One of these companies to whom we addressed such a protest was the Merrimac Chemical Co., 33 Broad St., Boston, Mass. Their reply was so satisfactory that we are glad to place it before our readers, even if it does give a free advertisement to this company. And in this connection we are of the opinion that bee-keepers will be glad to patronize any company that regards their interests as well as those of the fruit-growers. The letter is as follows:

The A. I. Root Co.:—We are in receipt of your favor of the 17th inst., and contents duly noted. Replying we would say that we have always advocated spraying after the blossoms fall, and are perfectly aware that it is the only proper time to spray. Unfortunately, however, by a mistake on the part of our printer, and an oversight on ours as well, we did not notice the error in our booklet, where it says, "Spray just before the blossoms fall." We intended to say "just after the blossoms fall." We have sent these books to all the different colleges in the country, as well as numerous other people, and it has apparently escaped everybody's attention until it was brought to your notice. We shall certainly correct this on all literature which we send out in the future, as we do not wish to convey a wrong impression.

Boston, Mass. MERRIMAC CHEMICAL CO.

This is in splendid contrast to the attitude of another prominent manufacturer of spraying-outfits whom we might name. None so blind as those who won't see. But the intelligent fruit-grower and bee-keeper won't be

blind to their own interests. No, they will patronize companies like those whose letter is given above.

A DEAD-BEAT LIST OF HONEY-BUYERS.

GENERAL MANAGER FRANCE is doing a good thing in collecting a list of no-pay customers, and placing the same before the members of the National Bee-keepers' Association who may call for it. The information given by this no-pay list may more than make up for the annual membership fee of $1.00 for a good many years; or, to put it in another way, this is only one of the many ways that the National can save its members the small fee asked for membership several times over. Mr. France is doing a good work, and he should have the support of all right-thinking bee-keepers. It goes without saying, that any one who has had any experience with a no-pay customer should send the name in to General Manager N. E. France, Platteville, Wis., with a brief statement of the facts.

CHEMISTS WHO HAVE DONE A SERVICE TO APICULTURE.

FRANCE is mourning the loss of three of the really great men of the nineteenth century—all three being chemists of the premier rank—Berthelot, Moisson, and Curie. The latter was a native of Poland, but a Frenchman by education and adoption. Both Berthelot and Moisson rendered excellent service to the bee-keepers of all countries. It was Berthelot who showed how artificial glucose could be detected in adulterated honey by detecting the traces of minerals due to the use of mineral acids on starch, and also by the presence of dextrine; and, if these were not present, by its want of taste. The great chemist was at the time, 1878, in charge of the pharmacy of the Central Hospital of Paris.

Moisson invented a method for detecting the presence of ozokerite in beeswax, which at one time threatened the industry by its wholesale adulteration of the product of the apiary. This is of more importance to the bee-keepers of Europe than with us, for they pay far more attention to this production of wax than American bee-keepers do. Dealers were in the habit of adulterating beeswax by the addition of ozokerite to the extent of 30 per cent, and yet guaranteeing the same to be pure beeswax, and no one at the time could actually detect the fraud till Moisson attacked the problem. One very important fact he demonstrated was that beeswax is completely soluble in sulphuric acid, whereas ozokerite, paraffine, or ceresine was not. For these facts we are indebted to M. Ronsseray in *L'Apiculteur*. These two men are deserving of great praise in thus allying themselves with the side of common honesty.

ARTIFICIAL FERTILIZATION OF QUEENS.

SOME years ago there was considerable discussion as to whether queens might not be mated in a small cage or in a room; but after many fruitless attempts the idea was abandoned. It has been revived within the last five or six years; but so far nothing definite has been accomplished, unless it has been in the case of that mammoth cage of Mr. Davitt, as reported in the *Bee-keepers' Review*. In looking over our back volumes, looking for something else, we ran across an editorial item in our issue for April 15, 1882, and the same is reproduced here:

> Last season Dan White took all the wingless queens he found, tied a delicate silk thread around their bodies, hitched it to a tall pole, when the drones were out thick, and let them buzz round with the stumps of their wings. Three out of ten were fertilized, and he has them laying now.

Mr. White is one of our substantial bee-keepers, and he would never report any thing of this kind unless it were true. He is still a bee-keeper, making a specialty of producing an extra quality of extracted honey. The item is interesting, not only because it is true, but because there are possibilities along the line of "hitching up" several queens to a long pole by means of a silken thread, and leaving the pole in a yard where a lot of selected drones are allowed to fly. But the question might be raised, "What advantage would be secured over the natural way of queen-mating?" It is well known that queens and drones both may fly some distance from the home yard. This increases greatly the possibilities of queens mating with undesirable stock from the woods, or bees of other yards where no attempt is made at the selection of drones. Tying the queens up and causing them to mate while so tied may enable one with a good strong glass to witness more minutely the operation.

The account of Mr. White's experience is here reproduced in order that some of our readers may test the matter again; and instead of a long pole would it not be more feasible, on a perfectly still day, to elevate the hitched-up queens by means of a toy rubber gas-balloon? After the thing has been up an hour or two pull it down. Perhaps some one with more time and enthusiasm at his disposal than we have can try this out and report. Or is there some one since Mr. White's early experiments who has tried something of this kind?

RULING ON HONEY-LABELS BY THE SECRETARY OF AGRICULTURE; LABELING HONEY IN GENERAL.

IT appears that a letter was addressed by the General Manager of the National Bee-keepers' Association to the Secretary of Agriculture, James Wilson, asking for a ruling on certain labels and the labeling of honey in general. (See "Information Bureau No. 5" put out by the Association.) As the reply contains much valuable information we take pleasure in presenting it here:

> DEPARTMENT OF AGRICULTURE,
> WASHINGTON, D. C.
>
> *Mr. N. E. France:*—I do not see that any objection can be made to the form of seal label which you submit. In regard to the shipment of honey without label, I may say that you do not violate the law in so doing provided it is pure honey and not something other than what it is sold for. If the honey is shipped

from one State to another, and the party receiving it puts his own label on it as if he were the producer, he violates the law by representing the product as having been made in a State different from that of its actual production. The shipper, however, of such honey will not be amenable unless he is a party to the fraud, and benefits thereby. The law does not require a label to be placed upon food products, but does require that if one is used it must be a truthful one. Unlabeled food products are covered by Section 8, first paragraph under foods, which states that a food is misbranded "If it be an imitation of or offered for sale under the distinctive name of another article." Thus honey which is pure and unlabeled, sold as honey, is wholly within the protection of the law; but if honey be adulterated by admixture with glucose, and sold as honey, then the law is offended. If honey which is produced in Wisconsin, however, is sold to a dealer in Illinois, and the dealer in Illinois places upon it his own label as if it were produced in Illinois, and sells it in original packages in Illinois, or repacks and ships in interstate commerce, the law is offended, because a false statement is made respecting the State in which it is produced, which is a violation of the first paragraph of Section 8 of the law. You will find the law on standards of purity of honey in Circulars 19 and 21, which I enclose. Respectfully,

JAMES WILSON, Secretary.

In a word, the Secretary says that it is not necessary to label pure honey; but if a label *is used* it must state the truth and nothing but the truth. There is one point, however, on which we are not quite clear. We have written to the Secretary for information, and as soon as we receive his reply we will place the same before our readers.

To illustrate the point of uncertainty we will suppose a case. Mr. John Jones, of Blankton, Ohio, does a general bottling business in pure extracted honey. The labels he uses on all the bottles read as follows:

"Pure extracted honey put up by John Jones, Blankton, O."

We will suppose that the honey that John Jones produces in his own yard is usually a blend of clover and basswood, and that his own apiaries can not begin to supply the bottling trade, so that he is compelled to buy largely, and make up a blend of pure clover, basswood, and alfalfa. The basswood may one year come from Wisconsin, and at another time it may come from Michigan; and the same is true of the clover. His alfalfa may one year be produced in Colorado, and at another time in Nevada. Now, the question is, would he be violating the national pure-food law if he makes up a blend of these three pure honeys and sells them under the label given, in any State but Ohio? Or, to put the question in another way, can John Jones, if he does not claim to *produce* the honey, sell his labeled goods in any State, providing the claim made is that the honey is pure and is "put up by" him? We are in doubt, but have written the Secretary for a ruling on this point, and hope to be able to give his reply at a later time.

Should it not be permissible to make up a blend of pure honey from three or four different States, then honest honey-bottlers—those who handle nothing but pure honey—might be placed in a very awkward position, for the reason that they can not always determine from which State the honey is produced, neither can they beforehand, when ordering labels for the season, anticipate from what State the stock will come. Bottlers would take the position, probably, that if honey be guaranteed to be pure, and no further claim than that it was "put up by" a responsible individual or firm, there would be no violation of the national law, because no wrong or misleading statement would be made. But it is perfectly clear that he can not say "produced by" unless such honey bearing such labels came from his own bees.

SWARMING INDUCED BY SUPERSEDING.

Nearly every swarm I have had this year could be traced directly to a failing queen. It does not pay the bee-keeper who expects to control swarming to allow the bees to do their own superseding. Too often they will select the beginning of a honey-flow as the time for this. The result is a swarm, although the colony may be in poor condition to swarm. Very often the old queen never amounts to any thing afterward, and somehow it often happens that they do not try again to supersede her, so unless they are watched, and the queen replaced, the colony soon dwindles away to nothing.

SMOKER-LIGHTERS.

The use of pieces of rag or other material soaked in a solution of saltpeter to use in starting the fire in the smoker is one of those kinks that add largely to the comfort and convenience of the apiarist. In preparing these, be careful that you get the right kind of saltpeter. What you want is the nitrate of potash. I have known cases where the druggist substituted, for this, nitrate of soda, or "Chilian saltpeter," as it is sometimes called. For many of the purposes for which saltpeter is used this is all right; but it is not good for smoker-lighters. It does very well when it is dry, but it absorbs moisture from the air so readily that in damp weather it becomes quite wet, in which condition it is very unsatisfactory for starting fires.

SHAKING BEES OUT OF SECTIONAL HIVES.

Are you really sure, Mr. Editor, that it is practicable to find queens by shaking the bees out of the hive, only with black bees? For some years I have had the idea that I could shake any colony, Italian or black, out of a properly made sectional hive, and find the queen in far less time, on an average, than is ordinarily consumed in finding a queen by hunting her up on the combs. I use a little variation of the Heddon method, and told the readers of GLEANINGS how it was done, some years ago. You threw cold

water on the plan at that time, I remember, and the bee-keeping public has never taken much notice of it since, possibly because of that cold water; but the plan is all right, nevertheless, and has been in practical use in my apiaries for fifteen years or more. I frequently find queens by the plans given by Mr. Hand, especially the first one. This also, by the way, was made public some years ago by that veteran bee-keeper M. M. Baldridge. But for steady use I prefer the plan of shaking them out. It is perfectly practical with any race of bees with which I am acquainted, when you know how. I will tell you again before long just how to do it.

"SWEET CLOVER IN A NEW LIGHT."

That is certainly a new light in which sweet clover is placed in the paragraph on p. 823. I have fed sweet clover and sweet-clover hay at various times and for various periods during the past ten years or more, and I never noticed any injurious effects from it whatever. In fact, at one time when we fed our three Jerseys for several weeks on nothing but sweet-clover hay and bran, we decided, according to my recollection, that it made a little nicer butter than any thing else. At any rate, private customers gladly took it at the highest market price. The idea of adding it to other varieties of hay is doubtless good; but it should be done at the time the hay is made and stacked away. I wish some of those who are skeptical about the value of sweet-clover hay could have watched my horses several weeks ago. We had cut a small quantity of sweet clover for hay, and put it into the barn alongside of the old alfalfa hay on which the horses had been living all winter. A few days later the young man who had been doing the feeding came to me and said, "That sweet clover makes fine hay. The horses like it better than alfalfa. I have been trying to get them to use up the old hay by mixing the new hay with it, but they will hunt out every bit of the sweet clover before they will eat any of the old hay."

DESTROYING QUEEN-CELLS TO PREVENT AFTER-SWARMING.

A few years ago I received a letter from a man who offered to reveal to me an infallible method of preventing after-swarming. He did not ask for any compensation, and the only stipulation he made was that I should keep it a secret. To this I readily agreed, and soon another letter came with the particulars as to the valuable discovery. I was to wait until five days after the colony had swarmed, then cut out all queen-cells but one. When I wrote back to him that his method was not exactly new or altogether desirable or reliable, he became very angry at me. I believe he thought I was trying to rob him of the credit and benefits of his great discovery. Be that as it may, I have never revealed his secret from that day until this, and it is but very seldom that I have made any use of his method. Beginners in bee-keeping very often put their faith in this plan, and I have known quite a few men of considerable experience in bee-keeping to depend upon it. The greatest objections to the plan are the great amount of labor involved and the great liability to miss some of the cells, making all the labor in vain. There are times when it seems to be the best thing to do, and a few hints on how best to go about it may not be amiss. First select the cell you want to keep, taking care that it is in a position where it will not be likely to be damaged in getting it back into the hive. Then carefully brush all or nearly all the bees from this frame, remembering that you must not shake it or handle it roughly or you may injure the immature queen. Having the bees out of the way, look carefully for other cells. Pay particular attention to all the edges of the comb. Sometimes a cell will be so doubled up against the bottom or end bar of the frame that only the closest scrutiny will detect it. Sometimes a queen-cell will be built on the smooth surface of a solid frame of sealed brood, projecting only slightly above the surface. Here you come to another great fault of the plan, which is that the poorest and smallest cells are most likely to be overlooked, yet will defeat your labor just as surely as the large fine ones, with the added disadvantage that the queens they produce are apt to be of poor quality. After you are through with this first frame, the others may be handled with less ceremony, shaking the bees off to make a thorough inspeciton.

Do not let your selected cell remain long unprotected if it is cool, nor let it stand in the hot sun. In spite of all your care you are likely to find sometimes that your one selected cell never hatches; and unless you look after such colonies closely you may find some of them hopelessly queenless. Or the queen may have some defect in her wings or otherwise, which will keep her from being mated. Such things are not likely to happen when the selection of a queen is left to the survival of the fittest after they are hatched. I believe some have reported that the bees have swarmed out with the only queen left in the hive. I have never had this experience, but it might occur when the swarming fever was prevalent and the cells were not destroyed until nearly time for them to hatch.

Taken altogether, this way of preventing after-swarms is not to be recommended. Better methods are the well-known Heddon plan, or the similar one of leaving the old hive beside the new one for a week, then removing it so as to deplete the old colony as much as possible. Better yet, when a later yield of honey may be looked for, is the plan of giving the colony, as soon as it has swarmed, a ripe cell, or a newly hatched queen, or, still better, a laying queen. Usually at this time a queen may be turned loose with perfect safety; and as the colony is weak in numbers she or the bees may be depended on to destroy the cells more certainly and cheaply than you can do it.

TEXAS BEE-KEEPERS' ASSOCIATION.

After a long delay it was ascertained that the annual meeting of the Texas Farmers' Congress takes place again this year at College Station, Texas, July 23 and 24, 1907. There will be low railroad rates, and a large attendance as usual is expected.

The Texas Bee-keepers' Association is one of the sections of this congress, comprising some twenty State organizations of all the varied industries of Texas. It is hoped that a large number of bee-keepers will be in attendance. A good program will be arranged.

Prospects for the Texas bee-keepers have improved somewhat over previous reports. Abundant rains, and lots of them, have freshened up every thing considerably, and bees are humming again as of yore.

BEE-KEEPERS' EXHIBITS.

Exhibiting by bee-keepers of their products is a valuable thing to do. It is a good way to advertise, hence more exhibits should be made. This was decided upon at the last meeting of the Texas Bee-keepers' Association when the question "How can this Association become more effective in its work?" came up for discussion. It was decided then and there to have in connection with its annual meetings an exhibit of the products from the apiaries of its members, not only to advertise these, but it was thought that, through this, a greater interest would be taken in the annual meetings, hence increase the membership of the association. Whether this will come true remains to be seen; but it is hoped that the results will be favorable.

A committee on exhibits was appointed to look after such matters as exhibiting at not only the annual conventions of the association but exhibits at fairs, etc., where bee-keepers' exhibits should be made. This committee consists of the following members: Louis H. Scholl, chairman; Willie Atchley, W. H. Laws, Dr. C. S. Phillips, W. O. Victor. Solicitations were made at once, and in a short time contributions almost sufficient for the premium list, to be given as premiums to exhibitors, were donated. This list is appended herewith.

Now for the members of the Texas Bee-keepers' Association, an invitation is extended to all to coöperate in this work. A creditable exhibit means much to our association and the bee-keepers generally. If you have any thing to show, let us know about it—at least, write what you have.

There are, every year, hundreds of eager visitors during the several days' meeting of the Texas Farmers' Congress, all ready to see and listen to "all about bees," hence it is an excellent opportunity to the exhibitors. While the premiums offered are not as large as those of our previous lists of the larger fairs, they are well worth the trouble to compete for, besides the blue and red ribbons which will be awarded for first and second premiums. For any other information kindly address the writer, as secretary-treasurer of the association, and chairman of the committee, at New Braunfels, Texas.

LIST OF PREMIUMS DONATED FOR THE BEE-KEEPERS' EXHIBIT AT COLLEGE STATION, TEXAS.

Bees, all in one-comb observatory hives.

1. Golden Italia: 3 bees and queens:
   a Year's subscription to GLEANINGS, by L. H. Scholl, $1.60.
   b One Root smoker, by Texas Seed and Floral Co., 85 c.
2. Three-banded Italians, bees and queen:
   a Subscription to GLEANINGS, by L. H. Scholl, $1.00.
   b Bingham honey-knife, by Texas Seed and Floral Co., 80 c.
3. Carniolans, bees and queen:
   a Subscription to GLEANINGS, by Louis H. Scholl, $1.00.
   b Hive-tool, brush, imbedder, and wax-tube, by Texas Seed and Floral Co., 80 c.
4. Caucasians, bees and queen:
   a Subscription to *Am. Bee Journal*, by L. H. Scholl, $1.00.
   b Hive-tool, brush, and gloves, by Texas Seed and Floral Co., 80 c.
5. Cyprians, bees and queen:
   a *Am. Bee Journal* one year, by L. H. Scholl, $1.00.
   b Drone-trap and entrance-guard, by Texas Seed and Floral Co., 80 c.
6. Holy Lands, bees and queen:
   a *Am. Bee Journal* one year, by L. H. Scholl, $1.00.
   b Novice honey-knife, by Texas Seed and Floral Co., 80.
7. Black bees and queen:
   a Bee-veil and gloves, by Texas Seed and Floral Co., $1.00.
   b Manum swarm-catcher, by the same, 80 c.
8. Bumble-bees, bees and queen, or best display:
   a Bee-veil and gloves, by Texas Seed and Floral Co., $1.00.
   b Four Porter bee-escapes, by the same, 80 c.
9. Best and largest display of bees of various races in observatory hives:
   a One complete ten-frame comb-honey hive, by W. H. White, $2.50.
   b One complete eight-frame comb-honey hive, by Willie Atchley, $2.00.
10. Best and largest display of queens of various races, in mailing-cages:
    a One Root Jumbo smoker, by Texas Seed and Floral Co., $1.50.
    b One Root's A B C of Bee Culture, by the same, $1.25.
11. Best case of white section honey, 12 lbs. or more:
    a One tested golden queen, by Willie Atchley, $1.50.
    b One untested Carniolan queen, by J. W. Pharr, $1.00.
12. Best case of amber section honey, 12 lbs. or more:
    a One tested Holy Land queen, by Willie Atchley, $1.50.
    b One untested Carniolan queen, by J. W. Pharr, $1.00.
13. Best and largest display of section comb honey:
    a Two two-frame nuclei, by J. W. Pharr, $4.00.
    b One breeding queen, by A. G. Anderson, $3.00.
14. Best display of special designs of comb honey:
    a One tested albino queen, by Willie Atchley, $1.50.
    b One untested Carniolan queen, by J. W. Pharr, $1.00.
15. Best 12 1-lb. friction-top pails of white bulk comb honey:
    a One select golden queen, by J. W. Taylor, $1.25.
    b One untested Caucasian queen, by J. W. Taylor, $1.00.
16. Best 6 1-lb. friction-top pails of white bulk comb honey:
    a One select golden queen, by J. W. Taylor, $1.25.
    b One untested Caucasian queen, by J. W. Taylor, $1.00.
17. Best 3 1-lb. friction-top pails of white bulk comb honey:
    a Select golden queen, by J. W. Taylor, $1.25.
    b One untested Caucasian queen, by the same.
18. Best display of bulk comb honey:
    a One Italian breeding queen, by W. H. Laws, $5.00.
    b One Italian breeding queen, by the same, $3.00.
19. Best 12 jars of white extracted honey:
    a Mushroom spawn, grown by Udo Toepperwein, $1.50.
    b One untested Carniolan queen, by J. W. Pharr, $1.00.
20. Best 12 jars of light-amber extracted honey:
    a Comb foundation, by Udo Toepperwein, $1.50.
    b Mushroom spawn, by the same, $1.00.
21. Best display of extracted honey:
    a Five Italian queens, by F. L. Aten.
    b One select tested Italian queen, by W. H. Laws, $2.50.
22. Best display of extracted honey in granulated form:
    a One breeding queen, by Udo Toepperwein, $3.00.
    b Comb foundation, by the same, $2.00.
23. Best sample cake of light-yellow beeswax, not under 2 lbs.
    a Two Italian queens, by Grant Anderson, $2.00.
    b One select Italian queen, by the same, $1.50.
24. Best and largest display of beeswax:
    a Comb foundation, by Udo Toepperwein, $5.00.
    b One select tested Ital. queen, by Victor-Knolle Co., $2.50.

25. Best display in special designs in beeswax:
a Select Italian queen, by Udo Toepperwein, $2.00.
b Mushroom spawn, by the same, $1.50.

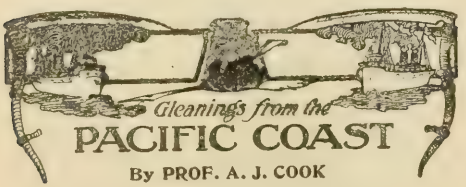
26. Best display of fruit preserved in honey:
a One Italian queen, by Udo Toepperwein, $1.50.
b Mushroom spawn, by the same, $1.00.

27. Best collection of honey-plants, pressed and mounted:
a Comb foundation, by Udo Toepperwein, $3.00.
b One Jumbo smoker, hive-tool, brush, and gloves, by the Texas Seed and Floral Co., $2.50.

28. Best honey vinegar:
a One tested Cyprian queen, by Willie Atchley, $1.50.
b One Atchley improved queen, by the same, $1.50.

29. Best instructive display in apiarian products, and of various uses made of honey and beeswax:
a One eight-frame colony of Caucasian bees, by Willie Atchley, $5.00.
b Three untested queens, by Victor-Knolle Ap. Co., $3.00.

30. Best and largest display of bee-keepers' supplies:
a One Italian breeding queen, by Victor-Knolle Apiary Co., $5.00.
b One Italian breeding queen, by the same, $3.00.



HINTS ON BEE-FORAGE.

The German empire of to-day is hardly more than a third of a century old, and yet in many respects the Germans are at the head. Their advance in almost all lines is phenomenal. They have taken highest rank in research, and have justly gained a reputation for close, thorough, accurate work that any of us may well covet. How is this to be explained? The Germans are not as good workers, nor do they work with the energy, anywhere near, that the Americans exhibit. It is said by good authorities that the Germans will do a third less in a day than will the Americans. I think that the word "thoroughness" explains the astonishing progress of this great people. They show this same thoroughness in observation, and so are not hindered by inaccurate or incomplete knowledge. Thus when they tell us that the bees get a very considerable part of their honey from the phacelia, they know that it is so, and we may believe their statement. In such matters the Germans may give us two excellent hints. They know; and, what is more to the purpose, they know positively. How many of us have really observed so as to have any idea, from our own examination, just where the bees get their nectar? and when we have a thought in the matter, how many of us are sure of the facts? Our German brothers *know* that from phacelia, an introduced plant that occupies waste ground, they get much of their best honey. Is there not an important suggestion here for us? Should we not ask our Department of Agriculture to seek out "phacelias" in other countries for us? and should we not observe our own plants more carefully, and see if we have not in our own fields, and along our own roadsides, plants that, if they were more numerous, would add greatly to our honey resources? We know that cold and drouth dry up the nectar fountains of many of our honey-plants. May there not be scattering plants rich in nectar-secretion that are independent of heat and drouth, or at least more independent than many of the plants on which we have heretofore depended? I have been led to this opinion by noting the bees on wild plants when the orange blossoms and alfalfa seemed not to attract them at all. We know that the rapid growth of our useful plants, consequent upon cultivation, enfeebles them in other ways; and, if so, why not in this matter of nectar secretion? I believe that we should know of a truth, by actual observation, just what plants give nectar, the quality of the nectar, their susceptibility to cold and to drouth, and then when we find "weeds" which are of real value we see to it that they occupy every possible foot of waste ground in the range of our bees. I have known but one bee-keeper, in all my long acquaintance with bee-keepers, that I thought improved his opportunities to any thing like the degree possible, and warranted by the importance of the matter, and that was our old friend D. A. Jones, of Beeton, Canada. Along the railroad, and in all waste places, he had planted borage, motherwort, catnip, figwort, and a host of other honey-plants which were no longer weeds, as they were no longer plants out of place. I believe that a close search in other lands, close observation of honey-plants that we may know surely just their value, and extensive planting in all waste places, will very likely add materially to our honey resources, and very likely make us more independent of cold and drouth.

TREE-PLANTING FOR HONEY.

It may be well for the bee-keeper to pay in part, at least, for the seed to induce his neighbor to grow alsike clover and alfalfa. It surely will be wise for every bee-keeper to become a crank on the matter of tree-planting along the public way. There are three reasons, each of which would be enough to warrant every effort to make this matter of tree-planting general. The value of trees to the country in affecting climate can not be overestimated. Europe has learned from bitter experience the necessity of trees to regulate temperature and rainfall, and so is far more alive to the necessity of tree-planting than are we. Wisdom shouts at us to learn of them, and save the fertility of our country.

Again, nothing adds so much to the beauty of a landscape as do beautiful trees. Britain, France, Germany, and, indeed, almost all the countries of Europe, are more like great parks than like the treeless, desert-like plains so often seen in our own America. Beauty is always attractive; and would we increase the value of our farms and lots, we will make all haste to push tree-planting to the utmost. Much of Germany is famed for its avenues of uniform trees along all the highways. Let us all spring to our opportunities, and see to it that all our roadsides are adorned with the best of our magnificent forest trees.

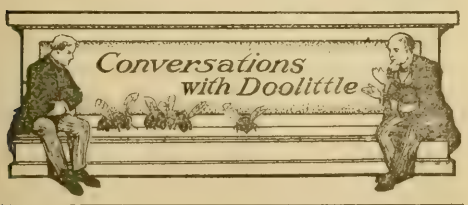
A third reason for tree-planting is that we may thus add immensely to the honey resources. Here, again, Germany has set us a good example. There we find the linden, the maple, the locust, and the catalpa, and many other trees that are of great value to the bee-keepers.

WHAT TO PLANT AND WHY.

In our country, east, the maples, tulip, and linden all claim attention as among the best trees for roadside decoration. The soft maple comes very early and is beautiful, especially in the autumn, when their wealth of color is transcendently beautiful. The bees get nectar from the soft maple very early, and are stimulated to rapid brood-rearing. The hard maple comes in bloom later, but is a close rival of the other in beauty. Unfortunately the maples are attacked by borers; but if we rub the trunks of newly set trees the last of May with soft soap or strong soap solution we can save our trees and will rejoice in their health and beauty. Fortunate the bee-keeper who has many maples in easy range of his yard.

The tulip is wondrously beautiful, is a fine honey-tree, and is excellent for lumber. I have never yet seen it set along the highway, and this is not complimentary to the enterprise or patriotism of our American people. The linden, or basswood, is the incomparable tree for roadside planting. It is wondrously beautiful, and is the tree par excellence for honey. All of the above trees are attacked by the great tulip scale, but I have watched the splendid trees of all these varieties on the campus of the Michigan since their planting in 1858; and the other day, as I sat again beneath them, I could not see any loss of health or vigor,

In California and on the Pacific coast the eucalyptus, acacia, and the beautiful peppers are strong vigorous growers, very beautiful, and are all of value as honey-trees.



POLLEN, PROPOLIS, ETC.

"Mr. Doolittle, some of my colonies stored lots of pollen in the sections last year, and they are beginning to do the same thing this year, and I want to know why they do this."

"The storing of pollen in the surplus apartment to the hive is largely brought about by the queen filling the brood-chamber so full of brood that there is not room enough for all of the needed pollen below. This is a thing which does not happen regularly where a large brood-chamber is used; but with our small hives, such as the eight-frame Langstroth or the nine-frame Gallup, it is not at all unusual for this state of affairs to exist, where no precautions are used."

"What are the precautions which can be used?"

"A break-joint or queen-excluding honey-board will help very much."

"What is a break-joint honey-board?"

"It is a honey-board so made that the openings from the brood-chamber below to the surplus apartment above come directly over the center of the top-bar to each frame, instead of being over the passageways between the combs, as the honey-boards of our fathers were made. This causes the bees to come up over the tops of the frames to get into the sections, or gives a crooked passageway, instead of the continuous passageway of our fathers."

"Very well; but what has that to do with the matter of pollen-storing?"

"Such a circuitous route causes the bees to think that the room above is not a part of the brood-chamber, so they do not store pollen in it, for pollen is, as a rule, stored close to the brood. For the same reason, large hives give the same results, as in this case there is usually quite an amount of sealed honey between the brood in the hive below and the surplus arrangement above. However, as bees will not work as well in sections, where they can store large quantities of honey below before they commence in the sections, a small brood-chamber is much preferable, even if we do have to go to the trouble of making a special honey-board to keep the queen and pollen out of the sections."

"I think I understand that point now. But why do some colonies store more pollen than others?"

"Pollen accumulates in the combs only as brood-rearing is not carried on rapidly enough to consume it as fast as it is brought in. For this reason a queenless colony will often have its combs half filled with pollen, while one by its side having a prolific queen will have its combs nearly free from pollen."

"But some colonies carry a lot of pollen over to the next year, do they not?"

"During the latter part of the season more or less pollen is generally stored, for at this time the rearing of brood is drawing to a close, and nature has so ordained that the bees can have some pollen in early spring before they can secure any from the fields; but the prolificness of the queen has very much to do with these matters at all times of the year."

"Is this or any pollen a food for mature or emerged bees?"

"Pollen (or bee-bread as it is very often called) is not a food for mature bees to any extent; but it is used largely in compounding the chyle which is fed to the larva or young bee in that form; hence when the bees are breeding largely, as in May, June, and July, large quantities of pollen are consumed."

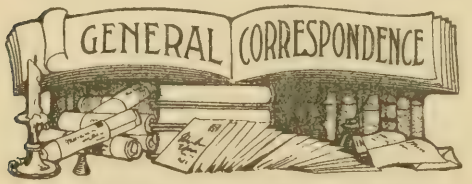
"How is this used?"

"Pollen, honey, and water are taken into

the stomach of the nurse-bee, and by a process of digestion, or secretion, or both, formed into milk of chyle, which is the only food of the immature bee; and if, from any reason, the supply of honey entirely gives out at such times of prolific brood-rearing, the larvæ are sucked dry by the mature bees, so they (the bees) need not perish; and if the honey-famine still continues, the nurse-bees feed to the mature bees, intead of to larvæ, what chyle they have prepared, so that the life of the colony may be preserved as long as possible, with the hope that honey may again come from the fields before all perish. At no other time have I ever known of mature bees eating pollen. I have starved several colonies in the fall in a vain attempt to make old bees subsist on pollen."

"One more question before I go. A neighbor of mine says pollen and propolis are the same thing. Is he right?"

"No. Their offices are very different. Propolis is a resinous substance gathered by the bees from the buds of trees which secrete or exude it, and is used to stop all cracks in and about the hive not large enough to admit a bee, and to smooth over all uneven surfaces about that part of the hive they come in contact with. It is as different from the farinaceous substance of pollen as glue is from flour, and could in no way be made to take the place of pollen in preparing the food for the larval bees. Your neighbor can be no close student or he would not make any such assertion."



COMB VS. EXTRACTED HONEY.

Comb Honey Requires a Rapid Honey-flow; More Expensive Fixtures, More Labor to Produce; Swarming Controlled More Easily in Colonies Run for Extracted Honey.

BY E. W. ALEXANDER.

Frequently I receive letters from different parties wishing to know which is the more profitable to produce—comb or extracted honey. This, in some respects, is a rather hard question to answer, for much depends not only on the location and season, but also on the man and his methods. Rather than produce extracted honey as some do I should prefer comb honey.

There are many localities where the surplus is gathered so slowly, even in good seasons, that it is almost impossible to produce a nice quality of comb honey. Then there are many seasons, even in good locations, when the surplus comes so unevenly, by unfavorable conditions of the atmosphere, that this, too, to a great extent, prevents the securing of nice comb honey. We all know that, the sooner the sections can be filled and well capped, then removed from the bees, the nicer will the honey appear.

Some years ago, in conversation with one of our principal honey-merchants, he called my attention to a fine lot of comb honey he had just received. Each section was glassed on each side, and the combs were as white as any new comb I ever saw. I don't think the sections could have been on the hive more than ten days. They were so white and free from travel-stains he told me he could sell that honey for 4 cents per lb. more than ordinary honey, on account of its fine appearance.

A location that will require the whole summer in order that a colony can secure 30 or 40 lbs. of comb honey should never be used to produce honey of that kind, for only a rich harvest with strong colonies and warm nights, so the bees will continue their work in the sections, night and day, will give us choice comb honey, and usually it is rather hard to have these requirements all at the same time; and if either is lacking, then we have a surplus of poor quality and a large number of unfinished sections.

Then there is the expense connected with comb honey, which we must consider. This is no small item in large apiaries. I hardly know just what it would be now, as it is a long time since I produced comb honey. But when I did, it cost me at least 2 cents per lb. for the necessary sections, comb foundation, glass, and crates. Then the freight charges were high, and frequently the honey got badly damaged in transit; and the worst of all was the uncertainty of securing much surplus. Then when I got the net returns from the commission men, and found they were only 10 or 12 cents per lb., with still another discount to be made of 2 cents per lb. or over for supplies, I gave up the production of comb honey in disgust.

The desire to swarm is hard to overcome in producing comb honey—much more so than with extracted. It is much handier to make increase, rear queens, or form nuclei in running an apiary for extracted honey, for I think these all require some brood when started, which never should be taken from a colony at work in sections, for it soon reduces their working force and causes them to be somewhat discouraged. This can be easily proven by removing their brood and putting in its place combs partly filled with honey.

Now, the question of labor is one we must consider. From our past experience we find, from the time sections, crates, comb foundation, separators, and glass are received from the manufacturer until the comb honey is sold, it has required far more labor than it would to produce a given amount of extracted honey. Whichever you produce, I consider it of as much importance to prepare your bees well in the spring for the summer

harvest as it is to prepare them in the summer for the long cold winters of the North.

In the above I have briefly called your attention to a few of the many troubles in producing choice comb honey. With extracted honey it in many ways is so different that it is almost like another business. We have the whole spring season to rear young queens, make increase, and build them up into strong colonies; and although when the harvest comes there may be some still weak in bees, we know that they will give us some surplus, even though the season is a poor one, and the harvest is strung along all summer with only now and then a good honey day.

As soon as a colony is strong enough in bees, and is full of brood and honey, all that is necessary to do is to put on top a hive of empty combs with a queen-excluder between; and if you want them to commence storing honey above, at once exchange an empty comb from your upper hive for a comb of brood from below.

Some prefer shallow combs to extract from; others prefer combs of the same size as those below, and use one or two combs less in their extracting-supers. We prefer all combs in the apiary to be of the same size, and use the same number in the extracting-super as in the main hive. This gives more comb surface, so the honey will evaporate much faster than in thick combs.

Here is one of the principal reasons why we are never troubled with thin honey. A strong full colony that has plenty of room to spread out their honey and keep it hot night and day will thicken it very fast.

Storage-tanks are very important in producing extracted honey of fine quality. After it is strained into them there will be a little scum rise to the top, which can easily be skimmed off, and never should be allowed to go with the honey. Then it is easy to draw off the thick honey from the bottom, which gives you the very best quality that can be produced.

Comb honey is rather unfortunate in many ways. It is used only for table use, and here it has to compete with nearly all kinds of fruit, maple syrup, and a small per cent of extracted honey. But not so with extracted. There is a growing demand at nearly all times of the year for it. This is used mostly for manufacturing purposes.

As to the amount of comb or extracted honey that an apiary can be made to produce this is well worth considering. Some good bee-keepers estimate 2 lbs. of extracted for one of comb. We are sure we could never secure more than one third as much comb as we do extracted, even though it cost far more labor.

Still another thing I like about producing extracted honey is that, as soon as the harvest is over, the work in the apiary is nearly done, except putting the bees in their winter quarters.

In the above I have tried to show both sides of the question to the best of my ability, and I leave you to answer your own question as to which is the more profitable to produce—comb or extracted honey.

Delanson, N. Y.

[Our correspondent has quite fairly set forth the advantages and disadvantages in the production of either comb or extracted honey. Very much will depend on the locality and the markets. In the production of dark amber or other medium-grade honeys, extracted should be the object. For the very small bee-keeper who does not care to go beyond the investment of four or five hives, the production of comb honey should be recommended, especially if he is in a white-clover district. It does not ordinarily pay a bee-keeper of four or five colonies to buy an extractor; but he can run as for extracted and sell chunk or bulk honey among his neighbors.—ED.]

REPORTING THE HONEY MARKETS.

Some Honest Commission Men.

BY THOMAS C. KINCADE.

I notice the article on page 597 on "The Reporting of the Honey Markets." I do not think any of the writers improved on your proposed heading; in fact, if you adopted some of their suggestions your heading would be very misleading. Now, Messrs. H. & S., of New York, state that, where sales are made to the merchants direct, freight, commission, and cartage charges are eliminated; but such is not the case. Bills of sale here in my desk from The Fred W. Muth Co. show that freight and cartage charges are deducted from sales or proceeds.

Mr. Pouder thinks the cash buyers could handle all of the honey; but he neglects to add, *at their prices.*

The latter part of March, this year, I sent out samples (to the cash buyers or merchants) of new honey, having five or six barrels to dispose of. The best offer I could get was 5 cts. per lb. delivered. None of the prices suited me or compared favorably with the market prices, so I shipped to a commission house in Missouri which is no stranger to me and which is perfectly reliable in spite of the fact that they are commission men. They acknowledged the receipt of the honey, stating condition (good) *immediately* on arrival, and promising prompt attention. Within a very short while they sent me account sales and check. The honey was sold for 6½ cts. per lb. The weights were perfect. The cartage was a third or more less than that of the cash buyers. I, of course, paid 5 per cent commission and a slight charge for insurance and freight. You can tell without figures whether the commission man profited me.

Another commission man with whom I have dealt is a perfect gentleman. I sold him over 20 bbls. of honey last year, of 600 lbs. each, net.

I never try to influence one man by another's prices; in fact, he may not know I have another man's prices. When I have five or

six barrels to sell I send out samples and sell where I get best offer from *reliable party*. I put emphasis on "reliable party." Last year I sold six barrels to a cash buyer in the South. He ordered me to ship it to him at Louisville, Ky. I did so, but he did not accept the honey there for some reason which he never explained. They never wrote me. A commission man finally took it off my hands, but I had to pay double freight. Caution is necessary with cash buyers as well as with commission men.

I suppose there must be some bad commission men or so many would not say there are; but I believe that, if the commission men are all eliminated from dealing in honey, the producer will receive a blow that he will feel for quite a while.

This is the most important subject of any to the ordinary bee-keeper, and I greatly admire your desire to give all a square deal in this matter as well as in others. I shall watch closely for future articles on this subject. If people get better posted they will not go to town and sell honey two or three cents under the market price, as Charles MacCulloch says they do. Please keep this subject humming until it reaches the country men.

Sterling, Ark., May 6.

[While it is possibly true that commission men as a class are not all that they ought to be in a business way, we believe (and have before stated) that those who quote on the honey markets in this journal are honest and reliable. It is true we have received some complaints at times, and in some cases the commission men have been at fault, and in others the trouble lies clearly at the door of the bee-keeper. We believe that the most of our men in the Honey Column belong to the class described by our correspondent.

The trouble is, we don't hear about the *good* deals; but if there is the least dissatisfaction we hear about it at once. Where there are a hundred good sales made to one bad one, the latter is the only one that is talked about, and it is talked so much that one easily assumes that all others are like it. While it is true that there are some bad corporations and some bad honey-men, it does by no means follow that *all* are. There is too much wholesale condemning these days. It would indeed be a sorry day for producers if all commission business would be outlawed.

Now having said this much in defense of the commission men who quote in our columns, let us give a letter of an unsatisfactory deal with one of these same men. We give the letter without name.—ED.]

Dear Sir:—While the subject of commission houses is up in GLEANINGS, perhaps the enclosed statement just received from one of your regular advertisers and price-quoters might be of interest to you. Note the time of shipment, 1903, and settlement, 1907; commission nearly ¼ of what they claim the honey sold for. I marked 19 cases of this honey "fancy;" the rest A No. 1, and I think I was fair in grading. You will see by the weight they give that the sections were well filled, as they were in ideal sections. I made the weight 47 lbs. more than they do. I don't think they have quoted the price of this grade of honey less than 13 cts. since I sent this shipment. The freight was prepaid on this shipment. Is not the small producer who occasionally sends them honey almost at their mercy? D. J. HILLS.

Mr. D. J. Hills:—We have your kind favor of the 13th inst., and are pleased to hear from you, and you would have had an earlier reply; but the writer has been absent from this city, and found your letter awaiting a reply, which we gladly give you. Yes, it is time. Your shipment can now be closed up, and the result is as follows:

1903, Dec. 11, received 36 cases of honey, 812 lbs. 4 oz.
Sales, 36 cases, 812 lbs. 4 oz. $82.70
Charges—
Commission, storage, and insurance 19.08
Your net 63.62
1906, Feb. 12, paid remittance 25.00
Check herewith for balance your due $38.62

We trust the result will please you; and when you have another crop to ship we may be able to serve you.

Yours, —— —— Co.

[While the letter of the commission firm furnished us by Mr. Hills does not prove dishonesty, yet if the facts are correctly stated it does reveal a degree of neglect or carelessness that should not be allowed in a first-class house. We have had some dealings with these people, and we believe they mean to do the right thing generally. But it should not take three and a half years to dispose of 36 cases of honey, providing it is A No. 1, the most of it. Such honey, any time, should be disposed of inside of 90 days at the outside. The experience of commission men, and our own as well, shows that a fancy or No. 1 honey will move off quickly (if producer does not ask too high a price) while No. 2 and off grades go slowly. Possibly this commission house might aver that this honey was not A No. 1, as claimed by Mr. Hills.

We have seen a number of instances where there was a dispute as to the grade. Where the matter has been referred to us we have sometimes had to decide in favor of the city man and sometimes for the bee-keeper. We have seen several lots of comb honey classed as No. 1 that absolutely had not even been graded, the entire crop being mixed indiscriminately in the cases except that the No. 1 and fancy sections were put next to the glass. This policy is exceedingly reprehensible. Dissatisfaction on both sides is inevitable. One accuses the other of dishonesty. Nobody gains by it, and, worst of all, the bee-keeper is the heaviest loser; for if the consignee must regrade and repack, he is going to make the other fellow pay for it.

We are not claiming that Mr. Hills did not grade his honey. In view of the fact that that there have been other complaints concerning this company, the presumption is that Mr. Hills is not misstating the facts. *If* the honey, therefore, was A No. 1, there is no excuse whatever for keeping 19 cases of it from Dec. 11, 1903, till May 29, 1907, before making returns.

If the honey was kept over three years and then sold, it is a wonder that it brought even 10 cents. Most comb honey kept that length of time would bring hardly one-third prices.

Mr. Hills draws attention to the charges that amounted to nearly 25 per cent of the gross sales. It is not surprising that the storage should have been a large item in view of the long delay. If the honey had been sold promptly this charge would have been insignificant. Unfortunately the items of com-

mission, storage, and insurance are all lumped together. How is any one to know whether he has been overcharged on any one or all three of these items? The commission itself should not exceed 10 per cent, $8.27; insurance for three and a half years ought not to exceed $4.00; but here, again, if the goods had been sold promptly, this would have been an insignificant item. Putting insurance and commission together we have $12.27, making a net charge of $6.88, or nearly $7.00 for storage. This seems to us like a high price, especially if it should develop that this long storage of the honey was not necessary.

We are not disposed to enter into any severe arraignment against this commission house; but we desire to suggest this: That an explanation should be rendered in case goods are held longer than 90 days, stating why sales are not made, giving the producer the option of turning the goods over to somebody else. Certainly in rendering a final account our commission house should have made such an explanation. In the absence of any explanation their last sentence soliciting further deals is almost adding insult to injury. We desire to suggest that, when thore is a charge for storage and interest, these be itemized and not blanketed in one general charge in connection with the commission.

We hope all our commission houses will see the importance of giving fully itemized statements as well as an explanation for any unusual delay or low price.

Finally, we are not disposed to condemn the firm whose name is omitted until we can receive from them a full statement. We are introducing the letter here as a sort of object-lesson, and for general discussion; and in this connection we desire to note that some companies do not charge for insurance and storage. Others add to commission freight and drayage. In the charges above enumerated, no account is made for freight and drayage. But these items would be small.—Ed.]

BEE-KEEPING IN IDAHO.

The Control of Swarming by the Use of an Abundance of Room.

BY E. F. ATWATER.

The apiary illustrated in the cut is the home yard of Mr. T. H. Waale, of Nampa, Idaho, as it appeared during the season of 1905. Partly because of toads, the hives rest on quadruple stands, about 18 high, two hives facing east and two west. The hives are of the eight-frame standard size, with Hoffman frames, and short top-bar projections, end-spaced.

Mr. Waale is remarkably successful in controlling swarming, the queens being allowed the freedom of the entire hive, be it 2, 3, 4, or 5 stories high, with abundant ventilation.

After some experience with horizontal wiring of frames Mr. Waale now wires all his frames vertically, and gets much better combs by so doing. Being a good mechanic, he makes his own hives and foundation. Many of the hives illustrated are of red cedar, which does not warp nor check as does pine in this climate. It is especially good for wide single-piece lids.

HOME APIARY OF T. H. WAALE, NAMPA, IDAHO.

One George W. Whitcomb, of Washington, has often told in the *American Bee Journal* how the blacks were far superior to the Italians for that climate. This assertion is vigorously combatted by Mr. Waale, who was for years a bee-keeping specialist at Sara, Washington, only thirteen miles from Portland. Mr. Waale is the efficient foul-brood inspector for one of our districts.

Meridian, Idaho.

RASPBERRY HONEY.

A Report from the Largest Producer of it in the United States.

BY S. D. CHAPMAN.

This photo of my home yard was taken last August. There are 246 colonies in this yard, and my out-yard contained about 150.

For the past 17 years I have been located in the very best of the raspberry belt. During this time I have produced many thousands of pounds more of raspberry honey

HOME APIARY OF S. D. CHAPMAN, THE LARGEST PRODUCER OF RASPBERRY HONEY IN THE UNITED STATES.

than any other bee-keeper in Michigan, and, to the best of my knowledge. more than any other bee-keeper in the United States. Nearly all of my colonies are run for extracted honey. I see that each colony has a young queen during July in each year.

I send you a photo of my family. They are my helpers in my bee-yards. We believe in a home market for honey; and you can tell by our looks that we consume a large amount of honey for a family of five. We have good health, no doctor's bills to pay, and we try to feel thankful for these blessings.

Mancelona, Mich.

S. D. CHAPMAN AND FAMILY, OF MANCELONA, MICH.

EXTRACTORS.

Brakes for the Two-frame Machines; Steam vs. Gasoline for Power.

BY ROBERT GIBB.

I am using a two-frame reversible extractor, and the thought has often occurred to me that a brake of some sort would be a great advantage. Could you not fit a brake on to the handle similar to our free-wheel back peddling bicycle brakes? make the handle to run free when not speeding up, and by pushing in the opposite direction put on the brake.

Another idea has struck me. I notice, in some of the last GLEANINGS, illustrations of small gasoline-engines for driving extractors. Now, in our district we have cream-separators driven by small steam-turbines with steam generated in small boilers. How would a small turbine do for extractors? All you have to do to start or stop them is to shut on and off the steam; and if a brake were wanted, the steam could be set against the turbine. Steam has many advantages over gasoline—

1. You can start and stop when you like, and regulate the speed.

2. Heat is necessary while extracting.

3. A small jet of steam could be led into the water for heating the knives.

4. The steam could be led into the lower chamber of the wax-extractor, and that would make wax-rendering easy.

5. Steam has no smell.

6. It is cheaper than gas-

oline (in New Zealand), and less dangerous, and when not required it could be used to generate steam for separators on the farm, and driving all sorts of light machinery.

Tuturau, N. Z.

[The use of a brake on the two-frame extractors has been suggested several times, as you may have noticed in GLEANINGS, pages 487 and 824 for 1905. Our automatic two-frame extractor is so equipped; but so little power is needed, ordinarily, to stop these small machines that any brake would seem superfluous.

As to the steam-engine for driving the honey-extractors, we would say that we considered steam before we did the gasoline-engines, and the greatest objection is because of the first cost of the outfit. Without being well informed as to the power required by your cream-separators we should think this would be very small compared to that required to run a honey-extractor, especially the larger sizes, as most producers who would want power extractors would want them at least of the four-frame size, and more likely the 6 and 8. The amount of steam necessary would then be much greater than that required to run the cream-separators, and it is doubtful whether the small steam-turbines could do the work. We will take up one by one the advantages which you mention of the steam.

As to the starting and stopping, we would say that a gasoline-engine can be allowed to run all the time, the extractor being started and stopped by means of an idler on a loose belt and by the brake. When the engine runs idle, very little gasoline is used. We have tested this matter out very carefully, and find that nothing could be more satisfactory. When the lever is moved one way the idler tightens the belt, and the extractor starts; when it is moved the other way the idler moves away from the belt and the brake can be applied. See page 699 of the May 15th issue.

As the extracting is ordinarily done in hot weather, heat is not necessary; but if for any reason it becomes necessary to use heat, the exhaust from the gasoline-engine could be used for this purpose in almost every place where steam could be used. It could be used very satisfactorily for heating honey-knives, and with but very little trouble; but steam, of course, would have the advantage in extracting wax.

When properly used, the gasoline-engine gives almost no smell, or so little that very few would find it any objection.

While steam power might be cheaper than gasoline in New Zealand this would not be true in the great majority of cases. It would be impossible to have an explosion with a gasoline-engine, as there is no fire nor heat in any place except inside the cast-iron cylinder of the engine. Reasonable care should, of course, be used in handling the gasoline when filling the tank.

A gasoline-engine could be used for running any kind of machinery about the farm, and in this it would have the great advantage of being portable, or more portable than a steam-outfit.—H. H. R.]

A SYMMETRICAL SWARM.

A REMARKABLY WELL-SHAPED SWARM.

The swarm shown in the photo may not be extraordinary for size, but it is a good one, and regular in shape. It issued at 8:30 on a cloudy morning. Swarming had evidently been postponed until the last moment; for, while the swarm was out, on examining the hive a young queen was observed to leave her cell. The owner stands at the same distance from the camera, a few inches from swarm, to give an idea of the size. E. FLEMING.

Victoria, B. C.

FIG. 1.—APIARY OF B. C. VANDALL, IN SUR, MONTERY CO., CAL.

BEE-KEEPING IN CALIFORNIA.

Summit Apiary of B. C. Vandall; Second Growth of Alfalfa in Nevada.

BY SOJOURNER.

Tucked away in the top of a spur of the Coast Range Mountains we find this apiary, facing and looking down upon the waters of the Pacific Ocean, some two thousand feet below—see Fig. 1. Its owner, now retired from more active pursuits, was once California's representative in its legislature, and a journalist of repute. At eighty years of age he still works with his bees.

In Fig. 2 notice the fineness of the alfalfa stems which shoot out from the roots. Although not yet in bloom, nor full grown, it averages four feet in length.

This quality of hay is bought at seven and

FIG. 2.—SECOND GROWTH OF ALFALFA IN NEVADA.

eight dollars a ton, and shipped to Kentucky at a cost of twenty dollars a ton, and fed to the Blue-grass State's thoroughbreds. How is that for hay in the West?

Lovelocks, Nevada.

A DEMONSTRATION OF CAUCASIAN BEES.

Advertising at Fairs.

BY FRANK G. ODELL.

The demonstration shown in the accompanying photographs was undertaken to show the extreme gentleness of the Caucasian bees. The time chosen was not propitious, being late in the afternoon of a cool day in the latter part of October, when no bees were flying. The sole purpose of the demonstration, which partook largely of the character of a vaudeville performance, was to show to the spectators that there are bees which may be handled without fear of stings. The operator, from choice, customarily does his apiary work with bare arms, even when working with Italians, so that this part of the specta-

FIG. 1.—SCOOPING HANDFULS OF CAUCASIANS OFF THE FRAMES.

FIG. 2.—CAUCASIAN MILLINERY.

cle is not unusual. No preliminary quieting maneuvers were resorted to, as smoke is entirely unnecessary; and as soon as the artist was in readiness with a kodak the first colony handy was opened up and the performance begun by scooping a few handfuls off the frames. These were thrown from one hand to the other like a boy playing ball, until nearly all the bees were on the wing, and the entire cluster was then shaken from the remaining frames on the hat of the operator in order to demonstrate the stylish effect of Caucasian millinery.

By this time the entire colony had been subjected to a pretty vigorous stirring-up with no stings. A good-sized handful was next scooped from the cluster on the hat, and thrown in the face of the demonstrator; still no stings. By this time the bees had begun to cluster again on the frames, and a frameful was subjected to the indignity of being blown off the frame by the breath of the operator—a treatment usually resulting in stings if bees will sting at all, but they were still gentle. They were then subjected to a series of shakings, running the fingers through the cluster on the frame, patting them on the back with considerable emphasis, etc.; but, evidently realizing that they were on exhibi-

FIG. 3.—TAKING A HANDFUL OF BEES FROM THE HAT.

tion, they still declined to be provoked into stinging.

Similar demonstrations were made with a colony of these bees in an exhibition hive in a screened pavilion at the Nebraska State Fair several times daily for an entire week, with a lad of seven years and a little girl of eleven as the demonstrators. During this entire series of exhibitions neither of the young apiarists was stung; and many bee-keepers, who were among the spectators, entered the cage and assisted in the demonstrations with much interest. This series of exhibitions attracted much attention, and frequent concern was shown by observers for fear the children would be "stung to death," but, fortunately, no such catastrophe occurred.

The bees used in these experiments are a colony of yellow Caucasians, the term "yellow" being indicative of their lighter color as compared with the dark strains of this race. These bees, when examined closely, show a distinct yellow marking in the light bands, which are much narrower than the corresponding bands on Italian bees. The queens of this strain are dark on the back, with the under part shading into a dark orange color, being frequently found as light in color as a good leather-colored Italian. Experiments in breeding queens have demonstrated that it is possible to accentuate this tendency toward a lighter color without diminishing the fertility or bodily vigor of the queen, and it is possible that sustained experiments in this direction may develop a strain of yellow Caucasians approximating to five-banded Italians in color, the chief distinction being in the relatively narrower dark and light alternate bands in the markings of the Caucasians.

This possibility in breeding is suggested, not only for the interesting problem in development it affords, but also because of the fact that the Caucasian bee is associated with a hue of inky blackness in the mind of the average bee-keeper. In fact, these bees in the cluster have a marked grayish cast, much like the gray Carniolans, due to the blending of colors. It might be entirely possible to send out samples of gray Carniolans, Caucasians, and Banats, and even an expert be puzzled to distinguish between them, so similar are their markings. The difference is largely one of physical make-up, in slightly differing form and size of body. In handling them in the colony the difference would be

FIG. 4. — THROWING THEM IN THE FACE OF THE OPERATOR.

FIG. 5. — FIVE MINUTES AFTER THE DEMONSTRATION.

more easily discerned, as the Caucasians are not only very quiet on the comb, but quiet down more quickly after being disturbed than any other race of bees within our observation.

In the foregoing demonstration the colony was subjected to every possible test of gentleness under the most trying conditions for some thirty minutes; and within five minutes after the demonstration ceased, nearly all the bees had returned quietly to the hive, as shown by the last photograph of the series.

In a yard devoted entirely to rearing of queens it is difficult to make authoritative tests of honey-production, but the Caucasians here shown made their own stores, while Italians beside them had to be fed, and they have undergone the test of wintering in excellent condition. Our experience with them thus far leads us to be very friendly to these gentle bees. Another point in their favor is the remarkable inherited fertility of the queen. We have repeatedly had young queens mated, and laying in nucleus boxes, in five and six days from the time they were hatched, ten days being exceptionally early for Italian queens under the same conditions. Our experience has also been that a larger percentage of queens are successfully mated than in the case of the other races.

Lincoln, Nebraska.

[We may be mistaken, but it is our opinion that almost any race of bees can be handled in handfuls *after* they have been demoralized or made to form in the form of a cluster. In our various public exhibitions we have handled all kinds of bees in a large demonstrating-cage, and have scarcely ever received a sting. We are not sure, but we are of the opinion that Cyprians can be handled in that way after they have been shaken into a pan or gotten into the form of a cluster; but it is not every colony whose hive can be opened without smoke. Here is really the crucial test of the temper of bees. The most of our pure Italians and all of our Caucasians will permit of being handled or having their hive opened without smoke, provided it is warm weather and the cover is not glued down so that, when it is loosened, it comes up with a snap. But Mr. Pritchard, at our north yard, says he has noticed that Caucasians are more gentle under *unfavorable* conditions, as in cool or chilly weather, than the Italians under like conditions.—ED.]

BEES FOR FERTILIZING CUCUMBER-BLOSSOMS.

Some Troubles in Hiving a Swarm; Some Funny Experience.

BY A. T. HARPER.

On the 13th of July, 1905, I purchased a colony of three-banded Italians. At the time I had no intention of going into bee-keeping beyond a couple of hives, for, being in the market-garden business, I needed bees to inoculate cucumbers, not having grown above a dozen fruit for the three years previous, and those only by fixing the blossoms by hand, although I always put in lots of plants. I gave ten dollars for the hive, leaving it to the other fellow's sense of honor to give me a good strong swarm. Now for results:

On the 20th of the same month they swarmed, with me rushing round, dressing in almost a suit of mail, almost persuading myself I was going to battle. I will not describe how they settled in a tall willow, or how I was standing on some lower limbs with a basket in one hand and an ax in the other, when the limb broke and deposited me in the brush, ripping the veil off and dumping bees all over me. Suffice it to say, in the scrimmage I lost the queen, or killed her, or something, for I carted bees on sticks and branches, in bunches of one quart upward, and dumped them in front of another hive for over two hours; but still they would not stay in. I sometimes varied the proceedings by blocking the entrance and plunking them in the top, closing the lid quickly; but no sooner did I open it for another lot than the rest were out. Well, they got back to their old home at last, and came out four days later; and as they settled in a more respectable place I captured them, this second swarm

being a very strong one. Again on the 7th of August and the 14th they swarmed. I caught both, ending up the season with four hives.

I took away six dollars' worth of honey that fall, mostly from the first swarm captured.

The only place I had to winter them was in our cellar, 9×9×6 feet deep, under the house, no ventilation, and with 50 bushels of potatoes, and also lots of other vegetables such as cabbage, celery, onions, etc. I put them in about the 25th of October, giving them a fly in midwinter, putting them just outside the door one fine day, and putting them in the cellar at night again, and in the spring putting them on their summer stands about the 15th of April—that is, three of them, as I lost one from lack of stores, but not the strong one.

This season, 1906, I have increased them to eleven strong hives, all doing well; but that is not all. This year I sold $35 worth of honey, and also $55 worth of cucumbers, besides lots of pumpkins, marrows, etc. Now, here is the funny part: The more I handle the little fellows the more I like them, so fate only knows where it will end. It is just about 16 months since I started with one, and I now have eleven.

Minnedosa, Manitoba.

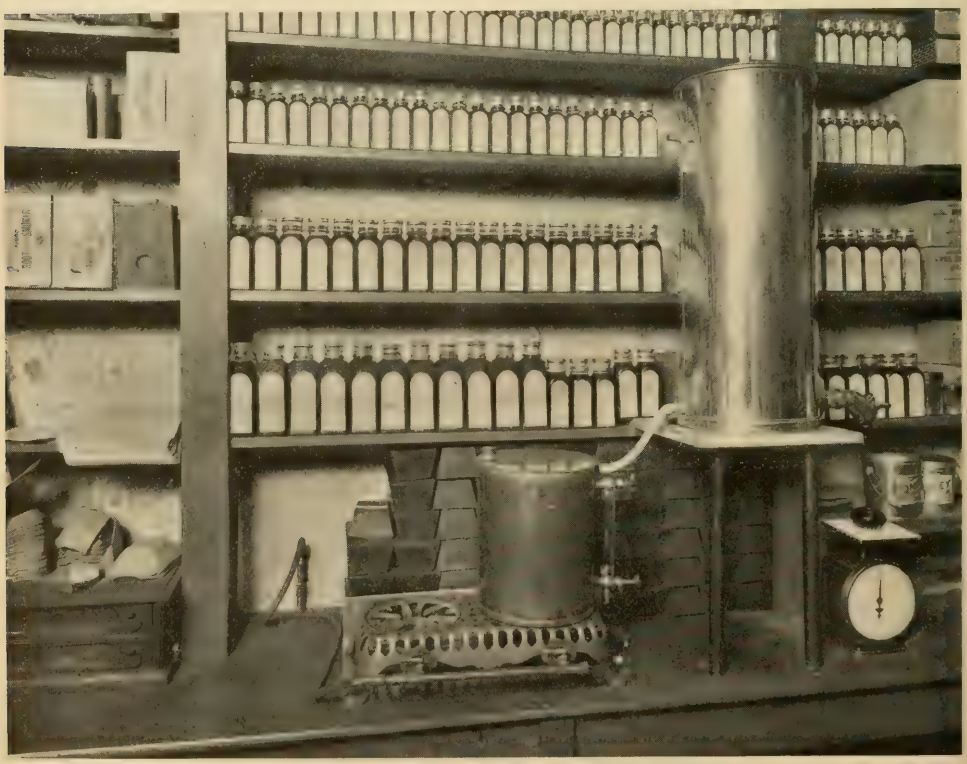
BOTTLING HONEY.

A Coil of Steam-pipe for Keeping the Honey Hot to Prevent Granulation.

BY WALTER S. POUDER.

Feeling the need of a speedier method of bottling extracted honey so that it will not granulate readily, I have been making some experiments and think I have at least improved on all old methods. My old method of filling jars and then placing them in a hot bath till thoroughly heated before sealing was slow, and even at the best there was a lack of the sparkling brilliancy that can be obtained by heating in large quantities where there is a heavy pressure, obtained only in a deep tank. The pressure is an aid to having air-cells rise: and when this is accomplished we retard granulation, and so prevent that soapy appearance that occurs when jars are heated after being filled.

Following my ideas in this line I have a twelve-gallon tank in which I have installed a copper coil of half-inch tubing. This coil represents many feet, and is closely wound near the bottom of the tank, and continues to the top of the tank as shown in the engraving. The tank is 30 inches high and 12 inches across, and is made of copper, nickel-plated. The tubing is tinned. I have a



POUDER'S METHOD OF KEEPING LIQUID HONEY HOT WHILE FILLING BOTTLES.

steam-generator on a gas-stove, which I connect with a rubber tube with the coil; and the steam passing through the coil brings up the temperature very rapidly. I do not use a thermometer at all; but one readily learns to take care of the temperature by simply placing his hand on the side of the tank. If it indicates too much heat we simply turn off the gas. We melt five-gallon cans by the usual hot-water method and empty them into the tank through the strainer while hot. By this method we gain much time in heating, and the coil method is then used to keep up the temperature of honey that has been previously heated. My only fear was that the temperature of hot steam would be too high for the honey; but the outfit is giving perfect satisfaction, and we have increased our speed fourfold over old methods.

I have installed the system behind my counter, where my customers can view it, and it seems to be attractive.

Indianapolis, Ind.

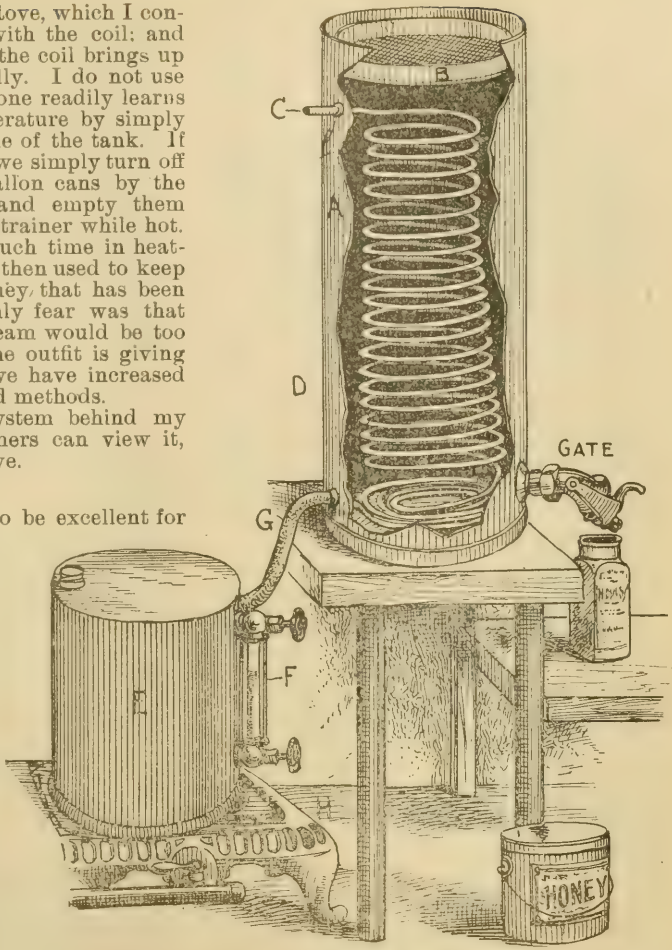
[We believe this outfit to be excellent for bottling honey. Instead of a nickeled copper tank, one of tin would be almost as good, and much cheaper.

The scheme of having the whole outfit in the salesroom, where it can be seen, is excellent. It is something on a par with advertising griddle-cakes by making them in a show-window, or making taffy out in the open, where the appetites of the public can be whetted to the point of buying.

A modification of this plan, which would certainly be cheaper, though perhaps answering the purpose nearly as well, would be a can within a can, the space between the two being about half an inch. The outer can should be several inches deeper than the inner one, the deep space below then containing the water, so that the whole apparatus could be set directly on the stove, thus saving the expense of a separate boiler. Instead of the rather expensive steam-coil, a steam-jacket would thus be substituted, entirely surrounding the inner can containing the honey. A vent should be provided, of course, at the top.

If the temperature of steam proved too high for honey, the outer can could be filled with water, so that the honey would be surrounded by a hot-water jacket, the temperature of which could be kept at any point.

This hot-water plan is used to some extent already, and there is no doubt but that it is an entire success. Is may be even a better method on account of the lower degrees of temperature that may be maintained. Furthermore, the apparatus would be somewhat simpler, as no water-gauge would be necessary.—Ed.]



DETAILS OF POUDER'S HONEY-TANK.

A, twelve-gallon tank, made of copper, nickel-plated; B, fine-wire strainer; C, outlet for steam; D, half-inch copper tubing, tinned; E, copper boiler or steam-gen erator; F, glass water-gauge; G, rubber connection; H, gas-stove.

A SEASON'S WORK WITH SECTIONAL HIVES.

Swarm Control and Comb-honey Production; Putting Foundation in Sections; a New Method.

BY J. E. HAND.

Perhaps it will be in order at this time to describe our new method of putting foundation in sections. You will see by Fig. 2 that our sections are split ¼ of their length exactly through the center by a circular rip-saw before they are folded. They are then folded, and placed in wide frames with the unsplit side at the bottom of the frame, and the wide frames are placed in supers which are tiered up in the shop until it is time to put

in the foundation. This work is usually performed during rainy days when we can not well work out of doors. Having our sections split and folded, and placed in wide frames when we wish to put the foundation in the sections, the wide frames holding four sec-

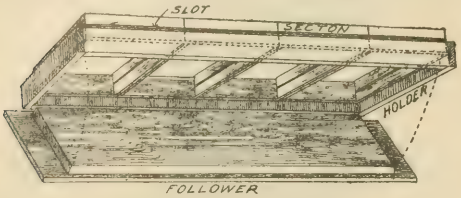


FIG. 1.—FORCING THE FOUR SECTIONS HALF WAY OUT OF THE FRAME TO EXPOSE THE SLOT.

tions is pushed down over a form, Fig. 1, just half as thick as the sections are wide. This exposes the split in the sections. We next insert the thin narrow strip of wood down through the center of the four sections

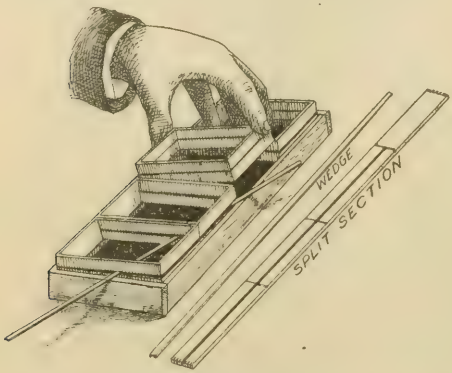


FIG. 2.—SPREADING THE SPLIT SECTIONS WITH THE WEDGE.

from the tops until it rests on the bottom of the sections, Fig. 2. This strip holds the sections open to receive the foundation. We will now drop in our strip of foundation

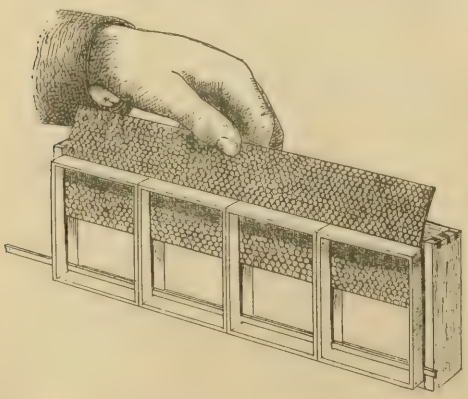


FIG. 3.—INSERTING THE FOUNDATION INTO ALL FOUR SECTIONS AT ONCE.

thin strip of wood that holds the sections open, Fig. 3. We will now pull out the strip of wood endwise, Fig. 4, and give the bottom of the wide frame a good rap on the bench, when the foundation will settle to the bottom of the sections, Fig. 5. With the reverse (which is $4\frac{1}{4}\times17\frac{1}{8}$ inches) until it strikes the side of the form we will press the four sections back into place in the wide frame, Fig. 6, and then you have four sections perfectly filled with foundation at one operation, Fig. 7. You may throw them on the floor, pile the frames up like cordwood, or haul them to out-apiaries, but the foundation is there to stay.

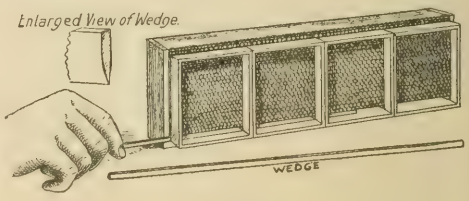


FIG. 4.—WITHDRAWING THE WEDGE.

This method entirely does away with the fussy job of cutting the foundation up into small pieces and then going through the slow process of putting two pieces of foundation in each section with a hot-plate machine; and it avoids the annoyance of having an occasional section of honey spoiled by having the foundation drop out from the weight of the bees. This system is perfect in its operations and results. You can fill four sections with it in less time than you can one with any hot-plate or other method, and it insures a perfect section of honey firmly fastened to

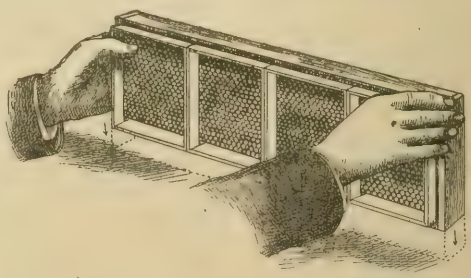


FIG. 5.—SHAKING THE FOUNDATION DOWN INTO PLACE.

the wood on four sides, and practically free from pop-holes. Although this method has never before been given to the public, yet it has long since passed the experimental stage, since we have used it exclusively for three seasons with perfect satisfaction.

In putting in foundation by this method you must have your foundations wide enough to rest on the bottom of the sections and reach up through the section at the top; $4\frac{1}{4}\times17\frac{1}{8}$ is right for four $4\frac{1}{4}$ sections. Don't think that 4×17 is near enough, for it is not. Don't think that it is a fussy job to put in foundation by this method, for a child ten years old can put in foundation faster and

far better than two men can with a hot-plate machine. But, to return to the bees:

An examination at this time shows that every one of the supers is crowded full of bees, and that work in the sections has begun in earnest. Our colonies are all over-

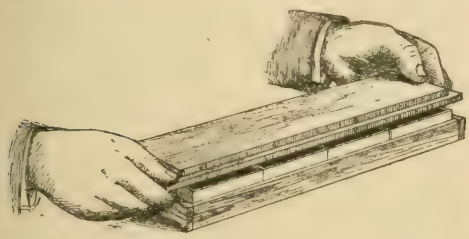


FIG. 6.—FORCING THE SECTIONS BACK INTO THE FRAME AFTER THE WORK IS COMPLETED.

flowing with bees, therefore we will place on each of our 50 comb-honey colonies another section-super of drawn foundation, and also on each one of our extracting-colonies another super of empty extracting-combs, placing all supers next to the brood-chambers, Fig. 8. We are now up with our work, and are right in the beginning of a fine honey-flow from basswood bloom; and whether or not we are going to secure a partial crop of surplus honey from this source will depend entirely upon ourselves and our methods; for any of the methods as practiced by the honey-producer of the average location would result in an entire failure on our part to secure any surplus in such a season as this, for the total amount that our bees will store during this short honey-flow will be only a little more than would be required to carry them through the winter if we allowed them to store it in the brood-chamber, which we do not intend to do, as the difference between basswood honey and sugar syrup for wintering our bees means a profit of about $400. Just now is the crucial test of our methods. A hitch in any of our methods at this time would mean a loss to us. As we pass along in front of the rows of hives and note how the bees are dropping on the ground and fairly piling up on top of each other we have

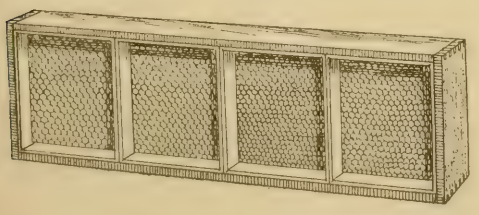


FIG. 7.—THE FINISHED WORK.

a certain feeling of satisfaction that comes from the knowledge that our bees are doing the very best work that they are capable of performing under the most favorable conditions.

There is nothing more for us to do to-day, as there are no swarms to look after; and as my brother and family are coming to spend the day with us we shall enjoy ourselves the rest of the glorious old Fourth of July. It seems good to have the day all to ourselves, and our memory travels backward into the dim and distant past, and we remember another Fourth of July when we did not have things all our own way with our bees, before we knew how to control swarming or practiced the clipping of queens. Oh the good (?) old days of climbing trees to dizzy heights! On this particular Fourth of July a refractory swarm had clustered high up in the top of a cottonwood-tree. We were younger then than now, so we pulled off our shoes and shinned up the tree with our swarming-box on the end of a pole; and after climbing as high as we could we could only just reach the cluster with the box. We gave it a bump, and down came the bees. Down went the box, and down went McGinty. Up went the bees—yes, up our panta-

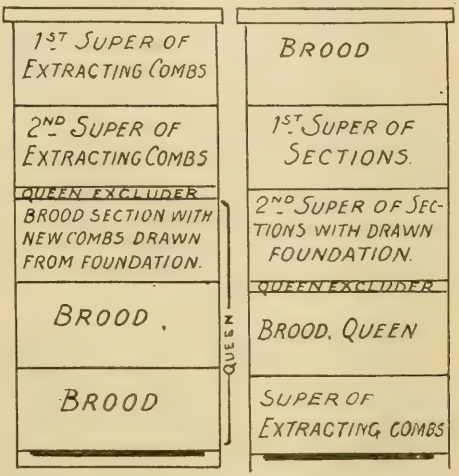


FIG. 8.—DIAGRAM REPRESENTING AN EXTRACTED-HONEY COLONY AND A COMB-HONEY COLONY AFTER THE SECOND SUPER HAS BEEN PUT ON.

loons and into our hair. We didn't climb down—we just dropped. Well, if there was any part of our anatomy that was not punctured by a bee-sting we have forgotten where it was. That was the time we were converted to the clipping of queens. Perhaps if you had been within hearing distance about that time you would have entertained serious doubts regarding our conversion along certain other lines. We also remember another Fourth of July, not so far back in the past, when we had somehow neglected to clip our queens. On this Fourth of July we had nine swarms of bees all clustered together in one bunch. Talk about celebrating the glorious Fourth! we did it that day to perfection.

When we compare the past with the present, and while we are having the day all to ourselves, we feel that truly we are beginning to reap the rewards of our labors in solving the problem of perfect swarm con-

trol in connection with comb-honey production.

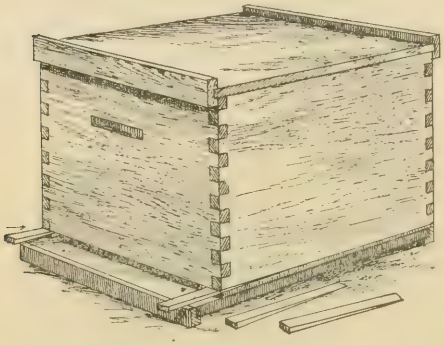
To be continued.

LARGE ENTRANCES.

Reversible Bottom-boards.

BY ADAM A. CLARKE.

I am greatly interested in the article on p. 157, last year's volume, by E. R. Root, on the importance of deep entrances in the storing season. There is room for improvement in the way these wide entrances are furnished. From the illustration, I notice that the reversible bottom-board is how the large entrance is obtained. Having used the same as illustrated, for many years, I have come to the



CLARKE'S METHOD OF REGULATING THE ENTRANCE.

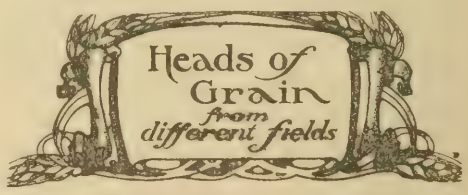
conclusion that the reversible bottom-board is a step in the wrong direction, and causes more trouble than it is worth. Bottom ventilation at a time when the bees are very populous, and honey is coming in freely, is of great advantage to the honey-producer, as it tends to lessen the work of the bees; and on days when the mercury is at 100° in the shade, which very often occurs when the flow from white clover is at its best, the bees can keep on with the work in the supers, where, if only the regular entrance is used, the bees will be found on the outside during the greater part of the day, and in many cases this will cause them to prepare to swarm. I might say that I have discarded the reversible bottom-board, and have a plan that gives me more satisfaction than any kind of bottom-board I have yet seen, and I think I have tried them all, the Danzenbaker included, and have adopted the regular bottom-board as sent out years ago. When I want to increase the entrance I pry with a chisel the hive-body in front; then with a strip of shingle, ¾ inch wide by the length, I put one of these between the hive-body and the cleats of the bottom-board. In this way you can raise or lower the entrances to a large number of hives without lifting the hives or disturbing the bees; and if it should turn cold for a time these strips are quickly and easily removed. The bottom-board is more easily leveled than when the outside edge has the cleat on both sides.

I have not given any attention yet to the principal thing connected with this subject—that is, when the wide entrance is used, and the bees are run for comb honey, I have found that the bees for some reason will not fill the sections in the front row in the supers, and I have had this experience for many years. I have had colonies of bees that have filled and completed twelve supers from white clover, but in all cases the front rows in all of them were never completed. I have tried every style of section made, and have tried it with different races of bees, but the results were always the same. I should be glad to be informed whether you have ever had the same experience. I might say that my bees are close to the ground, and that I use bricks for hive-stands, using a loose board for the alighting-board as in the illustration; then when I want to run the lawn-mower close to the entrances I first gather these up, laying each one on the top of each hive it belongs to, and return them when the mower has been run along.

Le Mars, Iowa.

[The plan you describe, of deepening the entrance, is much like that recommended by S. T. Pettit, of Canada, some years ago. Dr. C. C. Miller goes further by putting a couple of blocks under the two front corners, and sometimes four blocks under all four corners. We are not so sure but that this method is cheaper and more effective, because it gives ventilation at the sides as well as at the ends.

No, we have not observed that those sections over the entrance are not so well filled. If you put a winter case over the super while the honey is storing the trouble should disappear.—ED.]



FUMIGATING COMBS WITH SULPHUR.

What is the correct amount of sulphur to 100 cubic feet of room space for fumigating brood-combs from hives in which the bees have died—the combs containing wax-worms of all sizes? Or, to put the question in another way, how many cubic feet of room space will 1 lb. of sulphur fumigate effectively?

Will the same proportion answer for fumigating comb honey? If not, what should be the proportion for this purpose?

I can not find any definite answer to these questions in the A B C of Bee Culture (of 1905), which I have, and deem it of sufficient importance to be incorporated in future editions. I have seen these questions answered

before in the bee-papers; but it was years ago, and I do not now know where to find it, and do not have time to go over all the files.

I notice that complaint is made about soap on comb foundation. What kind of soap do you use, and how is it prepared for this purpose? Do you put salt in it, and in what proportion? Why do you use soap instead of starch? WM. MUTH-RASMUSSEN.

Independence, Cal.

[We are turning the question as to the amount of brimstone or sulphur to 100 cubic feet over to those of our readers who possibly and probably have made experiments sufficient to give an exact answer. To use too little sulphur does not accomplish the object. Too much of it will turn the white comb surface yellow. The golden mean is certainly the thing here.

No complaint has been entered against the use of soap in comb foundation except by one bee-keeper, who imagined the bees might object to it. As we have already stated, the amount of soap used in the modern methods of making, where wax is sheeted from continuous rolls, is infinitessimally small. By the old hand process of hand-dipped sheets it is necessary to use a great deal more soap, and it is possible that the amount so used might be objectionable to bees. No salt is used.

With regard to starch, as we have before pointed out, it is not as good a lubricant as soap. More of it must be used, and the residue left on the sheets of foundation is liable to mildew or spoil. So far as we know, soap is clean, sanitary, and is the universal lubricant used by the large makers of foundation. —ED.]

A TABULATED REPORT OF SUCCESSFUL CELLAR WINTERING.

I give below a report in detail of a very careful and successful test of cellar wintering, just completed. I reckon 400 dead bees to the ounce.

Hive Number.	Put in the Cellar.	Taken out of Cellar.	Time in Cellar.	Honey consumed.	Ounces of Dead Bees.	Number of Dead Bees.	Condition of Bees.	Remarks.
1	Nov. 19, '06	Mar. 21, '07	4 mos. 2 d's	6½ lbs.	5	2000	Good.	Quiet all
2	Nov. 19, '06	Mar. 21, '07	4 mos. 2 d's	5 lbs.	3	1200	Good.	Winter.
5	Nov. 19, '96	Mar. 21, '07	4 mos. 2 d's	5 lbs.	4	1600	Good.	"
10	Nov. 14, '06	Mar. 21, '07	4 mos. 7 d's	6 lbs.	7	2800	Good.	"
				22½ lbs.	19	7600		

Average honey per hive, 5⅝ lbs.
Average honey per month per hive, 1⅛ lbs.
Total number of dead bees, 7600.
Average of dead bees per hive, 1900.
Range of temperature, 28 to 56 degrees.
Average temperature, about 42 degrees.

The cellar was dry, and without any heat; but two-thirds under ground, on the south side of the house, under the living-room, with an outside entrance in the east wall, kept dark all winter, and the cellar door opened occasionally at night; a four to six inch air-space under combs, and a four-inch-leaf tray with muslin tacked on the bottom, placed on top of the hives; entrance equal to a 1⅞-inch round hole, closed with wire cloth.

W. D. KEYES.

Blairsville, Pa., March 27, 1907.

PROSPECTORS AMONG BEES.

In regard to bees going out as prospectors (Stray Straws, page 611) I will say that we have observed for years that the bees, when they bring in the first loads of pollen, run over the combs, shaking themselves, and by their peculiar actions communicate to the rest the fact that there is pollen to be gathered. Later, when all are at work they go quietly and deposit it in the comb. In case honey is gathered they give to the bees here and there a little taste. We have often seen these bees, after trying in vain to get a taste of the pollen, or after getting a sip of the honey, rush out after some for themselves. The same thing may be observed by feeding.

Binghamton, N. Y. C. W. PHELPS.

CLIPPED QUEENS SUPERSEDED.

Gentlemen:—Last season I purchased five golden Italian queens from different queen-breeders, and was successful in introducing them. Afterward the hives to which goldens were introduced became thoroughly stocked with beautiful golden bees. This spring I noticed quite a difference in the marking of the bees, and decided to examine and find out the trouble. Upon examination I found four out of the five had been superseded. I had clipped the wings of four, and these were the ones missing. They had new queens with full wings. The clipped queens were not lost by swarming. Were they superseded because of being clipped?

Huntingdon, Tenn. STOKER STACY.

[We have had a few reports where, after queens had been clipped, they were superseded; but such cases are few and far between. The difficulty can be avoided in these few cases by clipping the queen while she is on the comb, without even touching her except with the scissors. Mr. F. Greiner explained how this can be done some little time ago.—ED.]

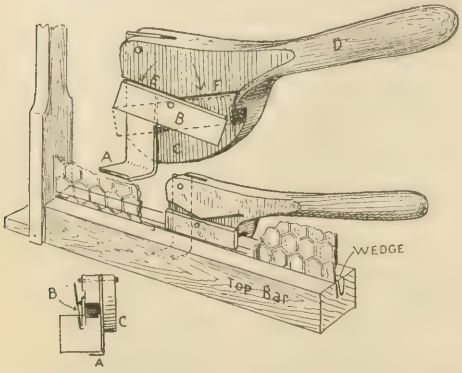
ON THE MOUNTAINS OF CALIFORNIA.

I have phoned to-day to several parties at altitudes 2000 to 4500 feet; April and May, weather cold and foggy; this month, warm; bees doing finely. Some of my colonies have the third super on. A few filled nine-frame supers last week. E. P. ST. JOHN.

Alpine, Cal., June 18.

THE DOUBLE-GROOVE-AND-WEDGE PLAN FOR FASTENING FOUNDATION IN FRAMES.

I wish to call your attention to the tool that I have invented for sinking the wedge into the groove in the top-bars when putting in foundation. I think it will do the work it was intended to do, with all ease. You will

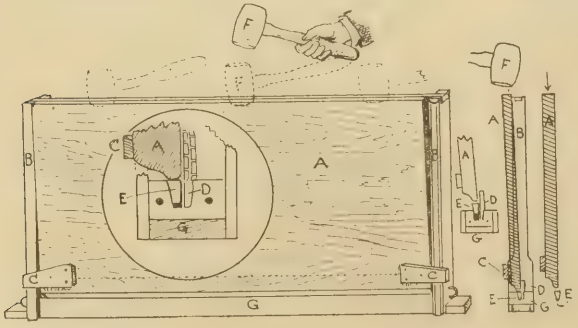


notice the lever with the hook can be made adjustable to any thickness of frame by making two or three holes so as to let the hook down or take it up as desired. Also the side bar that drives the wedge can also have two holes so as to be set lower or higher to fit any frame that would be in use. It can also be made to take different widths of frames.

After the wedge is in the proper place put the press at either end of frame and slide it along to the other end, pushing down on lever with right hand at the same time. The press can be run right up to the end of the frames. C. H. FLANARY.

Dryden, Va.

[We tried one of these tools sent us by our correspondent and found that it worked satisfactorily. But we could not do nearly as fast work as we could with the simple form and mallet which we have used for years, and which any one could make in five minutes. The construction of this is clearly shown in the illustration.



Take a board, A, ⅞ inch thick, a trifle shorter than the inside length of the frames, and about ¼ inch wider than the inside width. Sharpen one edge of this as shown in the small detail drawing at the right. Now nail on the two pieces, C C, to rest against the end-bars, and thus prevent the board from hitting the foundation when in position.

To use, stand the frame upside down, resting on its top-bar. Insert the sheet of foundation in the proper groove, and put the wedge in the other. Put the board in position so that the sharp lower edge rests directly on the top of the wedge. Three raps with a mallet or stick on the top edge of the board drives the wedge down below the surface of the wood, where it should be. The whole operation takes almost no time, and the quality of the work is of the very best.—ED.]

FIVE-BANDED AND LIGHT-COLORED BEES.

My experience with five-banded or very yellow bees (mentioned on p. 833) has been such that I have not recommended them for northern latitudes; and every queen-breeder of such stock I think ought not to do so. They are not as hardy as the darker races of bees. I have bred queens that were golden in color, and produced bees that were like gold to look upon, but I could not rely upon their wintering successfully when left out of doors. BROOKS D. COOK.

South Lyndeboro, N. H., June 24.

HOW AN UPPER ENTRANCE STOPS CLUSTERING OUT AND INCREASES THE HONEY CROP.

In Dec. 1st issue, p. 1498, Mr. W. F. Card writes about giving bees an upper entrance. I saw this in GLEANINGS before, so I thought I would try it, and I did. It helps the bees to cool them off when it gets hot in the summer, and they will not cluster on the outside of the hive in the heat of the day. They will work right on in the super, for I got more honey from those having an upper entrance than from those that had no upper entrance.

Altamont, Tenn. WM. GRETTER.

AN UNUSUAL CASE OF COMB-BUILDING.

W. A. Morris, Yonkers, N. Y., reports that he had two Danzenbaker frames of comb in which the bees started to build from the bottom-bar upward. Is this not an unusual case? He brought them down for me to inspect, and I suggested at the time that they must have had the frames in bottom side up. He responded by showing that the cells were built correctly, and was positive that they were placed in the hive in the correct way. Can you give me any information as to why they did this? The frames contained the usual one-inch strips for starters. L. W. BOYDEN.

New York.

[Yes, this was a very unusual case; but bees will enter upon all kinds of freaks at times, and this seems to be one of them. Comb-building furnishes a field for an almost unlimited amount of study.—ED.]

OUR HOMES

by A. I. ROOT

Woe unto them that are mighty to drink wine, and men of strength to mingle strong drink; which justify the wicked for a reward, and take away the righteousness of the righteous from him.—ISAIAH 5 : 22, 23.

Editor McClure, of *McClure's Magazine*, has been making a thorough investigation of the situation in San Francisco. Below I have made an extract of his report to a representative of the San Francisco *Evening Bulletin:*

What you've done here is to lay bare the exact mechanism that's revolving every American city, big or little. It's the use of politics to increase and protect vice, and it's the canker of every community in the country—a little more severe here, perhaps, but much the same everywhere. Here we have a mayor who is merely a creature of ward politics, and councilmen who represent nothing but the saloon.

May the Lord be praised that we have at least one editor at the head of a great magazine who has the courage to speak out and tell us the truth. If San Francisco were the only city in the United States of which this is true, it would be sad; but the conviction is forcing itself upon us that almost every city of any consequence, and many of our towns, even the small ones, are dominated by whisky rule. Of course, desperate efforts have been made to break away from the thralldom of this evil. We have been told through our magazines of the "shameful" work that has been going on in this or that city, and it has been brought to light and held up to the view of the people at large; and we supposed a new order of things was about to be put in force. But the reform, we are sadly forced to acknowledge, has been only transient. The brewers with their millions have subverted justice, and it is a question just now whether even "prohibition Kansas" is going to succeed in enforcing the law and banishing the brewers and their wares from her domain. May God help us in this terrible and unceasing conflict. We have great men and good men, and we have a God-fearing President—one who seems more fearless, perhaps, than any other we have ever had. But as I dictate these words on this second day of July it seems to me almost a question as to whether Roosevelt, even with the United States of America back of him, is going to make the richest man in the world stand up and testify, or go to jail Perhaps I am extreme; but it seems to me just now that no other object-lesson can be so helpful to our great republic as to see a multi-millionaire go to jail unless he obeys our laws strictly to the very letter, exactly as any common day laborer should be made to do.

It is well known, at least here in our own part of Ohio, that our neighboring city of Toledo is now and has been under the domination of the saloon for years past. When McClure was speaking of the mayor of San Francisco I could not help wondering how *many* mayors of our large cities were more or less guilty in a way similar to what the mayor of San Francisco is.

Rev. D. T. Robertson, of the East Side Presbyterian Church, Toledo, O., came out with a sermon on Sunday, June 30, that is stirring that city. From a report of this sermon in the Cleveland *Leader* of July 1 I take the following:

"There have been some things thrown at me on account of giving the stamp of respectability to the spy system; but I quote President Roosevelt as saying that 90 per cent of the most dangerous criminals could be brought to justice only through some such system. No one ever saw a rogue who felt the halter tighten about his neck but had complaint about the law and those who brought him to justice. The Board of Public Safety says we must have more police. I should like to know where are the 113 we have. I walked one night for five hours, and never came across one. The policemen seem to be in evidence only on pay day and election time. Mr. Tonson, of the Service Board, says the all-night and Sunday saloon is responsible for the present conditions in this city, and cites an instance of saloon violation of the law. There are dozens of them doing business in direct violation of the law. I was at the interurban station on Sunday, and saw an officer standing in front of a Superior Street saloon. He had to sidestep in order to let in four men who entered the front door of the place."

And again:

"I have seen the red-light districts of Chicago, New York, and Pittsburg, but for its size Toledo has the most freely patronized, most hideous, and lowest colony of segregated vice. Evil is openly flaunted, and vice hangs out its sign under the eyes and seeming protection of the police."

There is one special point in the above which I wish to touch on, and the minister has given us a most remarkable illustration —namely, that when a rogue begins to feel the halter tighten about his neck he complains of *the way* in which they succeeded in getting hold of him and bringing him to justice. The Anti-saloon League has been most severely criticised—yes, and by good Christian people—because they have employed detectives or "spies;" and when the Christian man or minister of the gospel goes into these low dives *as a spy*, some good people (or, at least, some who *pretend* to be good) hold up their hands in holy horror. Well, my friends, *I* do not like the detective and the spy business. May God help me if I shall ever be called on to do such work. What little work I have already done along that line has been only after most thorough and earnest prayer in my own closet that God would help me to do my duty, even though it be repugnant to all my better feelings. I dislike *war* also; but, dear Christian friends, I am led to feel that we had better have war, and have it right speedily, than to *continue* letting our children be led astray and ruined by the blind tigers and other tigers that go about claiming to be under the patronage and direction of our civil law. The liquor papers are now *very busy* criticising the "spy" business, even though our President tells us that 90 per cent of our most dangerous criminals would go on unharmed did we not resort to spies and detectives. The officer or policeman who stepped aside to let the law-breaker enter a saloon, was

doing only what I fear policemen are doing everywhere all over our land. May God help us in our efforts to secure some police who love righteousness and hate iniquity instead of those who love iniquity and hate righteousness. Mayor Whitlock, of Toledo, excused himself for not keeping his oath of office by saying, quoting again from Dr. Robertson,

"that the people of Toledo desired a wide-open city; and as he was chosen by the majority of the people he let the people have what they wanted."

Now, friends, are we going to elect mayors who keep their oath of office? or shall we continue to elect men who will "let the people" have what they want? It is quite evident that Mayor Whitlock is better posted in regard to what the slums want, because his acquaintance is much closer with them than with the Christian people and the God-fearing fathers and mothers of the city. This minister in his sermon alluded to the fact that they shut down on firecrackers, but left the saloons all wide open.

Day before yesterday was "stainless-flag Sunday," and a plan was arranged, although I do not know how far it has been carried out between the pastors of all our churches in Ohio, to present the matter of the stainless flag and have the pamphlets distributed. This stainless-flag address strikes right at the very root of the trouble in all our cities; and yet there are quite a good many good Christian people who object to temperance sermons; and if it is announced beforehand they will stay away from church. I fear that such is the case even in prohibition Medina; and I am afraid that that is more or less the case in all our churches. If the Christian people would only stand together unitedly, and demand emancipation from the rum power, or, in other words, a stainless flag, a great wave of righteousness and honesty and truth would sweep over our land. Yes, I know it is coming already; but these words I dictate after prayerful consideration of the subject are uttered in the hope that the day may be hastened. If it must come with bloodshed, as did the extinction of slavery, may God hasten the time; and if the blood that is coursing in my veins is needed to protect the children of the coming generation, I am ready to be a martyr to the cause. Our periodicals and newspapers exert a great influence in this coming conflict; but it does not rest alone with the editors as to what the outcome will be.

With our telephones and cheap postage, especially since our free rural delivery, it is an easy matter for every man and woman to be heard. Whenever a considerable number of people protest to the editor because he has given place to something encouraging to a low standing of morals, he will begin to be a little more careful.

See the following from the *Home Herald* for June 12:

There are more than seventy books, which, on the score of their contents, can not be carried in the United States mail. Tolstoi's "Kreutzer Sonata" and all of Zola's works are among them. An attempt is now being made by the W. C. T. U. to eliminate from the mails "books in which the hero, heroine, or any character presented as worthy of admiration is pictured as an habitual user of liquors and cigarettes without condemnation of such habits."

Now, if there is any thing I can do to help the W. C. T. U. in the above undertaking I am ready to act. Furthermore, I want to put in a plea to eliminate from the mails all magazines that uphold the use of cigarettes and the habitual use of liquors in their stories as something for boys and girls to aspire to — that is, giving place to stories that mention these things, as the W. C. T. U. expresses it, "without condemnation of such habits."

Immediately after the above came out, several periodicals ridiculed the idea; and I was especially pained to see the paper that calls itself the *National Woman's Daily* make light of it and speak sneeringly of Lucy Page Gaston and her zeal in conducting the anti-cigarette campaign. Just think of it, friends —a periodical styling itself the *Woman's Daily* casting ridicule on those who are spending their lives to protect our boys from the blighting influence of cigarettes! See the following from their issue of July 1:

It should be understood that the Woman's Christian Temperance Union war is on tobacco as well as on liquor. . . . Beyond all doubt, Lucy Page Gaston and her followers, if she has any in this crusade for a smokeless literature, mean well, but it is going to be a very difficult thing to create a literature without smoke. . . Meaning no offense, we still venture to think that many of the best friends of the much-admired W. C. T. U. will be rather disposed to pay their devoirs to the "great god Nic-o-teen," even while wishing the ladies the completest possible success, and giving substantial aid toward that success, in other branches of their good work.

The way this same daily is severely denouncing the postal department of the United States and our government reminds me of what the minister said of transgressors when they begin to feel the "halter" tightening about their necks.

Dear friends, I did not intend to make this Home paper altogether a sad one. The *Sunday School Times* for April 30 gave a whole page of protests against the cigarette business, and from that page I copy the following:

PITTSBURGH RAILWAYS COMPANY.

NOTICE TO EMPLOYEES.

April 20, 1907.

For the betterment of the service and the safety of the public, it will from this date be the policy of this Company to NOT retain in its employ men who use intoxicating liquors or cigarettes, or are in the habit of gambling. While it is the privilege of each individual to eat, drink, and smoke what he pleases, it becomes the duty of this management to have in its service only men of sober and temperate habits, PHYSICALLY and mentally able to perform the duties to which they may be assigned.

Approved: JOHN MURPHY,
JAMES D. CALLERY, Pres. Gen'l Superintendent.

When this notice was posted at the barns of the Pittsburgh Railways Company, the *The Sunday School Times* asked Superintendent Murphy his reasons for issuing the order. Here is his convincing reply:

Being an officer of a company that carries—and of course is responsible for the safety of—over two hundred and twenty-five million people per year, it becomes my moral and legal as well as my public duty to use all reasonable means to protect the lives and further the comfort of this large number of passengers. Having for some time back noticed that our accidents were increasing, upon investigating the cause I satisfied myself that the standard of our men who did not use liquor or tobacco (the latter in the form of cigarettes) was much above that of those who used

either. I therefore deemed it my duty to abate the evil so far as lay in my power to do so, and tried to uproot it and cast it out through discipline, but found this method inadequate and ineffectual. I then went further, and concluded the desired end could be attained only by removing from the service or refraining from employing all men addicted to the objectionable habits alluded to.

It is my aim and intention to pursue this policy without abatement, since I have by it proved beyond all doubt that it has raised the standard of our men. I have been criticised for the stringency of the order, especially the prohibition of the use of cigarettes; but on the other hand I have the assurance of our division superintendents (of which we have twelve), aided by my own observations, that persons addicted to the use of cigarettes, especially young men, are the most careless in their duties and less able to perform them than men using liquor in moderation. I may also mention that in seventeen years' experience as manager of public-utility corporations I have had occasion to promote many of our men from the rank of conductors and motormen to officers, and in no case has a man using whisky come up to the requirements.

JOHN MURPHY,
General Superintendent.

May God be praised for the stand against cigarettes and intoxicants that a railway company in at least one great city in our land has taken.

In conclusion I want to copy a little tract sent out by A. F. Cowles, of Towanda, Pa. I have alluded to this brother's work before. Let me say again that he gives his time and money toward sending out, free of charge, these little tracts wherever he thinks they will do any good. This one I copy is one of them. If you would like to help him and encourage him in the work whereunto God has called him, just send him some postage-stamps. I assure you he will make good use of them.

OTHERS MAY! YOU CAN NOT!

If God has called you to be really like Jesus he will draw you into a life of crucifixion and humility, and put upon you such demands of obedience that you will not be able to follow other people, or measure yourself by other Christians, and in many ways he will seem to let other good people do things which he will not let you do.

Other Christians, and ministers who seem very religious and useful, may push themselves, pull wires, and work schemes to carry out their plans, but you can not do it; and if you attempt it you will meet with such failure and rebuke from the Lord as to make you sorely penitent.

Others may boast of themselves, of their work, and of their successes and their writings, but the Holy Spirit will not allow you to do any such thing; and if you begin it he will lead you into some deep mortification that will make you despise yourself and all your good works.

Others may be allowed to succeed in making money, or may have a legacy left to them; but it is likely that God will keep you poor because he wants you to have something far better than gold — namely, a helpless dependence upon him, that he may have the privilege of supplying your needs day by day out of an unseen treasury.

The Lord may let others be honored and put forward, and keep you hidden in obscurity, because he wants to produce some choice fragrant fruit for his coming glory, which can be produced only in the shade. He may let others be great, but keep you small. He may let others do a work for him, and get the credit of it; but he will make you work and toil on without knowing how much you are doing; and then to make your work still more precious he may let others get credit for the work which you have done, and thus make your reward ten times greater when Jesus comes.

The Holy Spirit will put a strict watch over you with a jealous love, and will rebuke you for little words and feelings, or for wasting your time, which other Christians never feel distressed over. So, make up your mind that God is an infinite sovereign, and has a right to do as he pleases with his own. He may not explain to you a thousand things which puzzle your reason in his dealings with you; but if you absolutely sell yourself to be his love-slave he will wrap you up in a jealous love, and bestow upon you many blessings which come only to those who are in the inner circle.

Settle it for ever, then, that you are to deal directly with the Holy Spirit, and that he is to have the privilege of tying your tongue or chaining your hand or closing your eyes in a way that he does not seem to use with others. Now, when you are so possessed by the living God that you are, in your secret heart, delighted and pleased over this peculiar, personal, private, jealous guardianship and management of the Holy Spirit over your life you will have found the vestibule of heaven.—*Living Waters.*

Lord Jesus, make thyself to me
A living, bright reality,
More present to faith's vision keen
Than any earthly object seen—
More dear, more intimately nigh
Than e'en the dearest earthly tie.

PURE AIR COSTS MONEY.

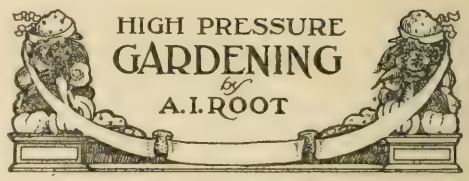
We have become so much accustomed to the expression, "as free as air," that some of you may be surprised when I explain to you that good air is not so *very* free after all. An expert in the business of warming school buildings and churches recently said to me that it is a fact that people might sometimes save almost half of their fuel by making their homes or public buildings so nearly air-tight that they would breathe the same air over again. He said the most serious obstacle in the way of furnishing pure air in winter, with a comfortable temperature, is that not only individuals but directors of schools and churches say they can not afford the additional expense of *fuel* where fresh air is being constantly brought in from outdoors. T. B. Terry, in considering this very matter, has arranged to let the cold air come first into a room; then it is taken from this room to the apartments where it is needed, after being warmed up. A strong wind will greatly increase the amount of outdoor air, especially when it blows directly into the open-air passage. For instance, if your opening is on the northwest side of the house, under a porch, for example, unless some precaution is taken to prevent a strong northwest wind from blowing straight into this opening you would have ventilation with a vengeance in zero weather; and it would take lots of fuel to warm up that volume of zero air, unless slides are arranged or there is a window to be opened or closed according to the weather. But it takes much supervision to keep regulating this open-air passage. I think likely a thermostat could be arranged, but I have never heard of one being used for this purpose. They are in very common use in regulating the ventilators of greenhouses; and florists are always in the habit of opening the ventilators to let in air in the side opposite from which the wind blows.

Now, I presume it is next to impossible to get pure air without an additional expense for fuel, and especially in many homes in the North. But, dear friends, which is most important—a little saving in fuel or a saving in doctors' bills besides the chances and inconvenience (if you will pardon the expression) of sickness and death? Well, there is another remedy, or another outlet, if you choose, but it may cost money, also, to most of us. You can go to Florida, or some similar place, during the winter time, where the outdoor air has a comfortable temperature, and is always, or pretty nearly so, literally "as free as air." And this is one reason why I have decided to pass my winters — the remaining ones that I may be permitted to live — in a climate where I can have pure air without stint or cost, aside from the expense of getting there and back again. More than all, as I have hinted before, I want to be where I can exercise every day outdoors in God's pure air and sunshine, without being cumbered with an overcoat, mittens, etc. Young people may stand it, passing a great part of their lives in close rooms where we must (or a great lot of us, at least), breathe the same air over and over again. But elderly people, with few exceptions, can not stand this continued strain on their vitality. Therefore, let us *ventilate*, even if it does cost some money. And along the same line I would say to those who can manage it, let us "migrate," even if it does cost some money. Just one more thing: Outdoor air is not *always* pure and invigorating. In my home here in Medina a great deal of the time the air is more or less impregnated with coal smoke — smoke from our own factory chimney, and the smoke from two railroads that cross each other close to our home. I am pretty well satisfied that my health is impaired by being obliged to breathe a smoky atmosphere. Perhaps the smoke from burning wood would do but little harm. Smoke from burning coal, either hard or soft, is certainly injurious to my digestion; and I am forced to think this is one reason why my health is invariably better, either in Northern Michigan or down in Florida. Of course, one must remain several weeks or months in any particular locality to be sure that such locality is a more favorable one for that particular person. We earnestly hope the time will soon come when smoke-consuming devices will be used, not only in all our factories, but in dwellings and on railroads as well.

THE GREAT WHITE PLAGUE AND FRESH AIR.

A distinguished physician, Dr. Baker, says in an address to tubercular patients:

It is an outrageous shame that so many people die needlessly of tuberculosis. Tuberculosis is generally nothing short of suicide. People coop themselves up in the stuffy, vitiated air of living-rooms all day and night, and then wonder why the "white plague" slowly chokes them to death. Get out into the fresh air that God gave you. You have no excuse for breathing poison when for a few dollars modern devices make it possible to fill your lungs with the breath of life.



ONE THOUSAND DOLLARS FOR ONE LEAF OF A SINGLE PLANT; THE NEW THORNLESS OPUNTIA; SOMETHING THAT BELONGS UNDER THE HEAD OF "HIGH-PRESSURE GARDENING," THIS TIME FOR SURE.

Luther Burbank has just sent out a new descriptive catalog of opuntias, or what has been called "prickly pear" by the women who have had them for years as house-plants. While I was down in Florida the opuntias were a bad weed in my garden. There is a great variety of them, and they are found all over the island. When they are in bloom they make the ground look yellow, and the bees work on them to some extent. Not all bear fruit, however. At one time when we were out of fruit I picked a little pailful from a single plant I found out in the woods. On account of the thorns the only way we could eat them was to stick a fork through them and peel them with a sharp knife. While in South Dakota I had one of my pleasant surprises in finding a prickly pear that grew outdoors, and wintered over safely in the open air, or in a locality where it is sometimes 30 to 40 degrees below zero. I found a similar opuntia out in the fields in the Black Hills last fall. Burbank's catalog gives us some very important information in regard to opuntias throughout the world. For instance, what do you think of the following statement which I copy from page 3?

The fruits of these and the thorny ones have long been used extensively as food, and are the principal source of food for millions of human beings for about three months in each year.

Also the following one from page 4?

The small, hard, wild thorny cactus has been a common every-day food for horses, camels, mules, oxen, growing and beef stock, dairy cows, pigs, and poultry for more than fifty years. Though millions have died froom the thorns, yet no systematic work for their improvement had been taken up until some fifteen years ago.

You who have never had experience with the thorns should read the following, page 5:

Though the wild cactus is generally prepared for stock by singeing the thorns with fire, yet this never destroys the numerous bundles of innumerable needles imbedded in the leaves, and can not always remove even all of the larger thorns. Those who have fed the wild cactus extensively, acknowledge that cattle are often seen with blood dripping from their mouths, and that their throats and tongues become at last inflamed, very painful, and hard like a piece of sole leather.

The wild, thorny cactus is and always must be more or less a pest. Millions of cattle, sheep, goats, hogs, ostriches, and other animals have been destroyed by it. The best newer thornless ones will withstand frost, flood, drouth, heat, wind, and poor soil as well as the wild ones, and will produce ten tons of fairly good food where the average wild ones will produce one ton of poor food.

In regard to the ease of culture, see this extract from page 7:

Everybody knows that Baldwin apples, Bartlett pears, and our favorite peaches, plums, and cherries, can not be raised from seeds: just the same laws hold true with the improved opuntias, but fortunately they can be raised from cuttings in any quantity with the utmost ease — more truly they raise themselves, for when broken from the parent plant, the cuttings attend to the rooting without further attention, whether planted right end up, bottom up, sidewise, or not at all.

During June, July, August, and September they will thrive under almost any treatment; the leaves, blossoms, buds, half-grown fruits, or any part of the plant, will make root and grow, even on the floor back of a cook-stove, in the pocket of your winter overcoat, or on your writing-desk.

The opuntias differ from nearly all other plants, as the cuttings must first be wilted before they will grow, after which nothing grows so readily. When received, place them in some warm sunny place and allow them to remain a week or more, after which they will readily form roots and start to grow anywhere, even on a board, a pile of rocks, or the roof of a house if you choose. When wilted, the usual way is to plant so that about one-third of the cutting is below the soil. They may be planted in an upright position, or at any angle from the perpendicular—it makes no difference to the opuntias.

In regard to the quality and uses of the fruit, I extract the following from page 8:

The fresh fruit of the improved varieties is unique in form and color, superior to the banana in flavor, and is usually sold at the same price per box as oranges, and can be produced at perhaps one-half the expense of producing oranges, apricots, grapes, plums, or peaches, as there is never a failure in the crop, which can be shipped as safely as the other deciduous fruits.

The juice from the fruits of the crimson varieties is used for coloring ices, jelly, and confectionery.

Now, there are great numbers of more or less well-known cacti advertised in the way of cuttings, at a price within the reach of almost everybody. There are, perhaps, a dozen new creations, some of them that produce "slabs," as the large leaves are called, two feet long and a foot or less wide. Some of these produce large luscious fruits entirely thornless. The most promising one, Santa Rosa, is valued at $10,000 — for the complete stock. Here is what we read on page 15 concerning the sale of a single leaf:

One leaf of this, with the right to sell in the Southern Hemisphere, including all of Africa, has been sold to Mr. John M. Rutland, of Melbourne, Australia, for one thousand dollars.

In regard to the fruiting of some of these new creations, see the following from p. 25. It is the title of a cut showing a leaf.

One leaf of improved spineless opuntia, bearing thirty-two ripe fruits which, without the leaf, weighed seven pounds.

The whole catalog is a good-sized book of 28 pages. As nearly as I can gather, it will be mailed on application by addressing Luther Burbank, Santa Rosa, Cal.

SWEET CLOVER IN THE SOUTHERN STATES.

Since it is beginning to be generally acknowledged, wherever sweet clover grows, that it is one of the best, if not the very best, means of introducing the bacteria so necessary for growing alfalfa and other legumes, a new interest has sprung up in sweet clover. Below is a report clipped from the *Rural New-Yorker* in regard to the plant in Mississippi:

In your issue of April 25 a Pennsylvania correspondent has a good word in behalf of melilotus. This plant in the North and West is usually regarded as a weed. In the South the white-flowered variety is regarded with much favor as a forage plant, and also for grazing. It is largely grown in certain sections of this State and Alabama, in the limestone regions, and when the plant is mowed at the proper stage, before there is too much wood developed in it, the quality of the hay is considered second to none of the clover family, alfalfa not excepted. It thrives to advantage only on lands strongly impregnated with lime; here it is at its best and reaches its greatest perfection. It will take root and grow luxuriantly on bare lime spots where there is no other soil on the surface of the ground. In time, left to itself, it will completely hide these unsightly bald places, and corn and other field crops can be grown profitably on the land. It has an enormous tap root that penetrates deep down into the sub soil and grains nourishment from plant food denied to other leguminous plants. It reseeds itself every two years; but if the plant is mowed (in this climate at any rate) or grazed, so that no seed can develop, the plant seems to lose its natural tendency to give up life after two years' growth, and will continue to produce good crops for several years in succession. It has been fully ten years since I have sown any melilotus seed, and yet I find it every year more or less plentiful and luxuriant on my Johnson-grass and Bermuda-grass meadows. Of course, the presence of this plant on the lands named is highly beneficial to these meadows, the coarse, deeply penetrating tap roots of the melilotus opening up the compact soil and thus conducing to the better growth of both Johnson and Bermuda grasses. Hay made from melilotus when the plant is in just the right stage of growth for best results, and perfectly cured, is a hay that is in every sense equal to the best quality of cow-pea vines, or any of the clover family.

In regard to the importance of lime or limestone soil, this is something that I had not got hold of before. Perhaps I might here that I have succeeded in growing plants with wonderful luxuriance in the sandy soils of Northern Michigan. Some seed I sowed there has produced plants as high as my head, the second year. I can indorse all the writer says in regard to its value for stock. I should say it is fully equal to alfalfa, from what experience I have had.

THE "DANDELION COW," INDIAN RUNNER DUCKS, ETC.

Mr. Root:—You ask on page 842, "Is that cow an extra cow?" Of course, she is. Many here claim that a Holstein-Jersey cross is the best cow in existence. The milk from one such cow brought over $22 at the local creamery in one month some time ago.

W. A. H. GILSTRAP.

Ceres, Cal., June 27, 1907.

Thank you, friend G. Quite a number of others have suggested that she is an extra cow, and I am glad to tell you she is still at it. Wherever we find a great mass of miscellaneous plants—sweet clover, dandelions, all the grasses, or any thing else — we just give her a chance at them. The people who claim that cattle will not eat sweet clover ought to see this one. So far she cleans up every thing indiscriminately except docks and burdocks. She has not yet attained the knack of converting these latter into good rich milk. But the milk is still first class, no matter what food she gets hold of. Surely it begins to look as if we were to have "egg-machines," "milk-machines," and last, but not least, "meat-machines." And that reminds me that the Indian Runner ducks at just 30 days old weigh 2½ lbs. each. Just think of it! from 1½ ounces to 2½ lbs. in only

30 days! I do not think the feed, besides what they picked up (in the same orchard where the cow got the dandelions), has cost over 5 cents each per duck. Is not that getting good meat cheap enough?

DANDELIONS FOR HONEY.

The two articles in regard to dandelions were read with very much interest, as I have always considered it a very valuable plant for bee-keepers, as it comes into bloom so early in the season, and being a plant yielding both pollen and honey. The market gardeners at Belmont, Arlington, Beverly, and other surburban places near Boston, Mass., have for years been raising dandelions for the New England trade; and, being a plant that seeds very heavily, and spreading by being cut, the land in some sections of the State is like a bed of gold when in bloom. Nothing better than dandelions for greens.

In 1894 I was working in the apiary of Mr. J. D. Goodrich, East Hardwick, Vt., Vermont's veteran apiarist and practical queen-breeder. The fields were golden when the dandelions were in bloom; and the bees, being extra strong for the time of year, stored honey very fast from the dandelions, so we had to extract it from several colonies; also put on some extracting-supers to give the bees more room so as not to crowd the brood-chamber with honey. I have never seen any thing like it since from the same source.

Pure dandelion honey is of fine flavor, a very light green as to color, but granulates very quickly, being nearly solid in three days after extracting if not sealed from the air.

Mr. Root, I think you have an extra good cow, and would sell for a good price here—$75.00 or more. BROOKS D. COOK.

South Lyndeboro, N. H., June 24.

CAN BEES HEAR?

I like to study bees and chickens, and all domestic animals—in fact, all animated nature, especially when I am able to lend a helping hand. But I like to talk to bright boys who want to *learn* more than to do any thing else in the world. While at Dry Knob, Mo., last fall, spending an evening, a young bee-keeper called, and, soon after, another one. The name of the latter was Joseph M. Tietz. Well, I do not know that I ever spent a happier evening than in talking with those two boys, answering their numerous questions and giving them encouraging words in battling against obstacles that seemed to lie in the way of their progress and across the pathway from earth to heaven. The incident was called to mind by the following letter:

I believe it was Dr. Miller who asked, "What have we got to prove that bees can hear?" I am not certain that is right, but, as well as I remember, it is what Mr. A. I. Root told me last fall when in Laclede County. Here is a very simple way to prove that bees can hear; and, not only that, but that their hearing is very good.

At the close of day, when the bees have ceased work, and you can hear that comfortable droning in the hive, go to the back of the hive, stoop down, and bring your hands together so as to make as loud a report as possible. Listen and you will hear that loud roar of disturbance. Wait a moment and clap your hands again; another roar will be heard. At the end of two or three clappings (if they have been loud enough) you will see bees running excitedly out of and into the entrance, hunting for the racket.

You do not have to be right at the hive for them to hear it. With your hands one foot from the hive, and your ears two feet from the hive, they can very easily hear you, and so can you hear them. I tried it on several colonies the other evening with the same effect on all of them. Please try it.

Oakland, Mo., April 29. R. D. WILSON.

While I would call the above experiment quite conclusive, I know some urge that the bees felt the vibration of the clapping hands; to which I would reply that, if I am correct, *all* sound is vibration, and I myself am pretty well satisfied that bees hear just as human beings or other animals hear; and, as our young friend proves, their hearing is very acute.

OUR MILLIONAIRES AND DIVORCES.

I have several times made comments in regard to the way our modern millionaires are trampling not only law but decency under foot, putting away their old wives who labored hard and faithfully to help accumulate the wealth (no doubt many times harder and *more* faithfully than the men themselves) that they might be unhindered and unhampered in chasing after some sensational actress. Dan Hanna's recent divorce and third marriage have called forth more comment and protest than almost any thing heretofore. If I remember correctly, after he had been divorced from two wives he has recently (and almost immediately after the divorce) married another one, and a divorced one at that. The editor of our Medina *Gazette* sums it up in a terse and forcible way that might seem pretty severe to some people, but I think he is only taking the stand that should be taken by every home paper in our land. Here it is. What do you think of it?

Dan Hanna's frequent divorces and marriages make a fine commentary on the divorce laws of this nation. When he gets sick of a wife he simply casts her off, forces a divorce by his nasty conduct and the lure of a big alimony, and then—marries another one! This is done by *law*. How can respect for marriage and the home thrive when *law* permits this sort of legalized libertinism? It is such as Dan Hanna that do more injury to the morals of this country than all the common criminals in it, and the divorce laws become a public stench because of such reprobates.

Now, friends, this is a serious matter. We might argue that if men and women agree to this sort of thing it is their own affair; but how about the children born of such marriages? and how about the example these rich and many times influential men set before all our children—our boys and girls? What will become of the homes of our land if this thing continues? Or shall we give up entirely having homes for our people and our children? May God help us; and may he help our good President in the firm stand he takes in defense of our homes and the unborn children of the future.

IN THE HEART OF MICHIGAN

Did you know that within one hundred miles of me are over three-fourths of the bee-keepers of Michigan? Are you one of them? If so you will find it to your advantage to write for my new catalog. A full line of Root's Goods at Root's Factory Prices. Hilton's double-walled hives are used more than any other in my State. It has stood the test of thirty years. . . . . I ship goods promptly. Wholesale or retail. . Cash or exchange for beeswax at all times.

George E. Hilton - - Fremont, Michigan

NOW is the Time to Order Your

BEE-SUPPLIES

AND SAVE MONEY

IT will cost you only one cent for a postal card to get our **delivered prices on Dovetailed Hives, Sections, Section-holders, Separators, Brood-frames, Foundation, Smokers, Extractors, Shipping-cases, etc.** It may mean a saving to you of many dollars. It is the natural advantage we have over others that enables us to make you the Best Price. There are no better goods than ours, and we GUARANTEE SATISFACTION or REFUND your MONEY.

We MANUFACTURE and keep in stock all standard Bee-goods, and can ship promptly.

MINNESOTA BEE-KEEPERS' SUPPLY COMPANY

NICOLLET ISLAND, No. 20. (JOHN DOLL & SON, Props.) MINNEAPOLIS, MINN.

BINGHAM BEE-SMOKER AND KNIFE.

What catalogs say :

The A. I. Root Co., Medina, Ohio: "The cone fits inside the cap so the liquid creosote runs down inside of the smoker."

Chas. Dadant & Son, Hamilton, Ill.: "This is the smoker we recommend above all others, and it has given universal satisfaction."

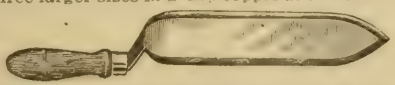
G.B.Lewis Co., Watertown, Wis.: "We have sold these for a good many years, and never a complaint. They include all improvements."

Marshfield Mfg. Co., Marshfield, Wis.: "The original direct-draft Bingham Smoker is the best smoker made."

The Bingham Smokers and Honey-knives have been the standard in America and every European country 29 yrs. There is no *smoker* so *old*, so *new*, so *perfect*. Accept thanks for 30 yrs. liberal patronage.

BINGHAM SMOKERS. Name.	Size of barrel.	Price of 1	Price of 3	Postage.
Smoke Engine	4-inch	$1 25	$3 45	25
Doctor	3½ "	85	2 40	25
Conqueror	3 "	75	1 95	25
Large	2½ "	65	1 65	25
Little Wonder	2 "	50	1 35	15

Three larger sizes in heavy copper at 50c ea. extra.



Bingham Uncapping-knife, 70c; postage 10c.

T. F. BINGHAM, FARWELL, MICH.

TO THE

BEE-KEEPERS OF CANADA.

WE are pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we do not offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

E. GRAINGER & COMPANY,

Deer Park,

Toronto, Ontario, Canada.

CANADIAN AGENTS FOR
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

MARSHFIELD GOODS

MEANS

Quick Shipment, Honest Goods, Low Freight

Our sections are manufactured from young basswood timber.
Hives are almost clear lumber—they are beauties.
Shipping-cases made strong and substantial, nice, smooth, and perfect.
Send for our free catalog of supplies.

Marshfield Manufacturing Company, Marshfield, Wisconsin, U. S. A.

JOBBERS FOR
Central Pennsylvania
. . . for . . .

ROOT'S GOODS.

TRY THE DANZ.
COMB-HONEY HIVE

The Danzenbaker hives I got last season have given splendid satisfaction; in fact, I have kept my bees outside this winter, which is seldom attempted in Manitoba, and up to date they have come through in splendid shape. I think the hive did it.
Yours truly, LAURENCE C. CLARKE.
Morden, Man., March 5, 1907.

Send for catalog. Best shipping facilities in the State.

Frank W. Prothero
Dubois, : : : Pennsylvania

North Texas . .

. . Bee-keepers

will find Dallas the best point from which to purchase supplies. We have a carload of ROOT'S GOODS IN STOCK, and sell them at the Factory Prices. Don't forget that we can furnish any thing in the way of Field or Garden Seeds, Plants, and Poultry Supplies. Our large illustrated catalog for 1907 free on application. Mention GLEANINGS when you write. . . . . .

Texas Seed
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Dallas, : : : : : Texas

Bee-Supplies

It is not how much one boasts of himself, but it's what others say that counts in this world.

If you want the best goods made, promptness and accurateness in the execution of orders, and be your own judge in *A Fair and Square Deal all the way through*, send to us at once. Catalog free.

C. M. SCOTT CO., 1006 E. Wash. St., Indianapolis, Ind.

ROOT'S New Goods. Free Catalog.
BEE-SUPPLIES
AT SPRINGFIELD, MASS.
F. R. DANIELS,
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DEWEY AUTOMATIC FOUNDATION FASTENER.
"Your automatic starter-fastener is all you claim for it—the best on the market."—DOOLITTLE & CLARK.
$5.00 reward. I will pay the person securing the greatest number of starters, in 15 minutes, this reward to establish a record Write for particulars and testimonials.
E. H. DEWEY, Great Barrington, Mass.

SWARTHMORE QUEEN-REARING OUTFIT

Prices of Complete Outfits:

Outfit No. 1--Experimental
POSTPAID, $1.50
1 Cell-bar, 1 Holding-frame,
16 Waxed Flange Cups, 12 Transfer-cages.

Outfit No. 2--Amateur
POSTPAID, $3.50
2 Cell-bars, 1 Holding-frame,
35 Waxed Flange Cups, 18 Transfer-cages,
1 Needle, 1 Cell-stick.

Outfit No. 3--Professional
BY FREIGHT OR EXPRESS, $7.50
2 Blank bars, 2 Cell-bars,
3 Holding-frames, 1 Incubating-cage,
1 Cage-pocket, 1 Grace Cell-compressor,
1 Grafting-plug, 100 Flange Cups,
2 Double mating-boxes, 2 Swarth. nursery-cages,
1 Bar-holder, 24 Transfer-cages,
1 Swarm-box with lid, 1 Needle, 1 Stick.

Prices of Separate parts:

		post. extra
Bar-holder	$ .10	.04
Blank Bar	.05	.04
Bottle Feeder	.10	.05
Bulb Filler and Feeder	.75	.08
16-hole Cell bar	.10	.02
Cage-pocket	.25	.09
Flange-cups, unwaxed, 1c each; per 100.	.75	.09
Flange-cups, waxed, 2c each; per 100...	1.75	.14
Grace Cell-compressor, each	1.75	.14
Grafting-needle, each	.15	.01
Grafting-plug, each	.10	.01
Grafting-stick, each	.10	.01
Holding-frame, each	.10	05
Incubating-cage, each	.35	.07
Double Mating-boxes, complete, $1.00; 10	7.50	
Nursery-cages, complete, waxed cell-cup	.35	.05
Nursery-cages, no cups	.25	.04
Swarm-box, with lid	1.00	
Swarm-box, lid only	.25	
T Stands, each	.10	.06
Transfer-cages	.10	.02

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Northwestern Bee-keepers!

We are headquarters for the ROOT supplies for the States of Montana, Minnesota, the Dakotas, and Western Wisconsin.

You can save freight by ordering from this branch. A complete line of bee-keepers' supplies always in stock.

Secure a catalog at once.

BEES and QUEENS.—Your orders will be attended to.

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to all points in the South and Middle West.

Send for our free illustrated catalog of

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We sell at factory prices.
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Manufacturers and Jobbers of Dairy, Creamery, Ice-cream, and Poultry Supplies.

ITALIAN

QUEENS

AND NOTHING BUT ITALIANS

A superior improved strain, Northern-bred, are hardy, and vigorous; always come out strong in the spring. Our stock is well known, and not necessary to say more here. :: :: :: :: :: :: ::

Send for circular and list of testimonials.

Prices of Queens after July 1.	1	6	12
Select queens	$ 75	$4 00	$7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	5 00	
Straight five-band breeders	5 00		
Two-comb nuclei, no queen	2 25	12 00	22 00
Three-comb nuclei	3 25	17 00	32 00
Full colony on eight frames	5 00	25 00	

Add the price of queen wanted to nuclei or colony.
Can furnish Danzenbaker or L. frame.
We employ 500 swarms in our business.

QUEENS NOW READY!
SAFE ARRIVAL AND PURE MATING GUARANTEED.

Address all orders to

QUIRIN-THE-QUEEN-BREEDER
Bellevue, Ohio.

BEES and SUPPLIES
— FROM —
NEW YORK CITY.

For fourteen years we have been furnishing every thing the Eastern bee-keeper needs. Our office and warerooms are at the same old stand—105 Park Place, New York. Full colonies Italian bees in new hives, $9.00. Catalog free.

Apiaries, Glen Cove. L.I. I.J.STRINGHAM.

ROSE LAWN QUEENS

ABHASIANS: In order to distinguish our superior Caucasians of the genuine imported Abhasian stock from the common dark Caucasian, we have termed them "ABHASIANS." These are the YELLOW CAUCASIANS and possess all the valuable characteristics of the race in addition to their color, which commends them to the lover of bright color.

Untested queens, $1.50; tested, $2.00.

BANATS: The backward season renders it impossible to ship these before July. Choice untested queens from imported stock, at $2.00.

ABHASIANS OR BANATS imported direct to customer, $6.00.

Golden and red-clover Italians ready for shipment.

ROSE LAWN APIARIES, College View, Neb.

ITALIAN QUEENS and BEES

I can supply select untested Queens at 75 cts. each; $7.50 per dozen. Orders for early delivery will receive careful attention.

David S. Hurst, Box 102, Letohatchee, Ala.

QUEENS!

Caucasians, Italians, Cyprians, and Carniolans. Prices in April, May, and June: Caucasian, one extra-select best breeding-queen, $3.00; one imported direct from Caucasus, $4.00. Italian and Carniolan: one best extra-select breeding-queen, $2.00; one imported Italian or Carniolan queen, $2.50. Cyprian: one extra best select breeding-queen, $2.50; one imported direct from Cyprus, $3. Prices in July, August, and September, 50 cts less than in May and June. Special prices for 50 and 100 queens. Caucasian, Italians, Cyprian, and Carniolan queens bred—the best imported breeding-queens. The addresses must be plain, payments by postal money-orders. Queens guaranteed to arrive in good condition, U. S. or Canada. 1000 Nuclei.

ERM. HAUNSCHILD,
Weissbach b. Pulsnitz i. Sa., Germany.

MINNESOTA QUEENS

Nothing Better. Try Them.

Three-band and Golden Italians.

We warrant our bees free from disease of any kind, and guarantee safe arrival of all queens. We want your orders and will fill them promptly on and after June 1st, at 75 cts. untested, and $1.25 for tested of either strain. A postal will bring you a circular. Send your orders to

MENNIE & FENTON,
Pine Island, . . Minnesota.

Taylor's Strain of Italians is the Best

Long tongues and goldens are the best of honey-gatherers; 18 years a specialty, breeding for the best honey-gatherers. Untested, 75 cts. each, or $8.00 a dozen; tested, $1.00 each, or $10.00 a dozen: select tested, $1.50 each. Breeders, the very best, from $3.00 to $5.00 each. Carniolans same price as Italians. Try them. We sell nuclei and full colonies. Bees in separate yards. Safe arrival guaranteed. Send all orders to

J. W. TAYLOR & SON, Beeville, Bee Co., Texas.

"Better than an Island" Queens

There are no other bees within five miles, and so pure mating is guaranteed. The fastest trains stop here, and hence when you order queens they are not away from the colony long enough to impair their usefulness. The *Banat* bees are my specialty. They are the best and gentlest bees in the world. They work when others are idle and make snow-white comb. Queen-breeders should secure their breeding-queens from this pure stock, imported from Austria. Order now. Laying Banat queen, $2.00; laying golden Italian queen, 75 cts.; tested queens, one year old, double these prices; breeders from $5.00 to $15.00.

DELE COLLINS, PH. D., :: EMPORIUM, PA.

3-BANDED ITALIAN BEES.

The best all-round bees on earth. My stock is composed of selections from my own strain of 3-banded Italians that were awarded diploma at the Pan-American Exposition, and The A. I. Root Co. clover stock.

Tested queens, $1.50; select tested queens, $2.00; fair breeding queens, $3.00; extra select breeders, $5.00—ready to go promptly. Untested 1907 queens, $1.00; select untested queens, $1.25—ready early in March. Yours for a prosperous 1907.

W. O. VICTOR,
Queen Specialist, HONDO, TEXAS.

Queens that Please

are not always "just for looks." Hear what one of my queens has done, and that before April 15 of the present season. "*Dear Sir:*—The queen I purchased of you last fall has already given me over 200 lbs. of honey this season. I think that is good for so early in the season. Have your bees done as well? M. A. SALAZER, Falfurrias, Texas." I breed the Leather or Red-clover stock of Italians; also the Holy Land and Carniolan races in separate yards. Of the Red-clover stock I can safely say there are none better. I have a few left of those extra-fine breeding queens. If you are going to requeen your apiaries, one of these breeders will be of untold value. Remember, I place a guarantee behind every Laws queen. Price of queens, each, $1.00; six for $5.00. Breeding queens, $3.00 to $10.00. Circulars free.

W. H. LAWS, Beeville, Bee County, Texas.

NONE BUT THE BEST

QUEENS

are sent out by our firm; should any prove unsatisfactory, we promptly replace them. Try our strain of three-band Italians; they will not disappoint you. Tested queens, $1 each; untested, 75 cts., $8 per doz.

J. W. K. SHAW & CO., LOREAUVILLE, IBERIA PA., LA.

Try the Robey strain of three-banded Italians that have become so famous all over the country as honey-gatherers. W. L. Coggshall and E. W. Alexander have both said in their writings to GLEAN tracting they always found better filled combs when they came to colonies containing the Robey queens. Many of the largest honey-producers of this and other countries use the Robey queens and pronounce their bees high-rollers for honey. Warranted queens, 75 cts. each, $4.25 for six. Full colonies, with queen, $4.00 each. Safe arrival and satisfaction guaranteed, or money refunded.

QUEENS

L. H. Robey, Worthington, W. Va.

HERE IS YOUR CHANCE

Select Italian Queens by the hundreds after July 15. Virgins, one to 5 days old, 30c; doz., $3. Untested, 60c; doz., $7. Tested, $1; 2-frame nucleus, $2; full colony, $10. Big crops of honey prove the stock. Cash with orders.

GEO. H. REA, Maplewood Apiary, R. 2, Reynoldsville, Pa.

Moore's Long Tongue and Golden

Fine select untested queens, $1; 6, $5; 12, $9. Tested, $1.50; 6, $8. Breeders, $3.50. Safe arrival gar'd.

Queens

W. H. RAILS, - ORANGE, CAL.

Yellow from Tip to Tip!

My Adel bees and queens are very handsome. Every queen a breeder, and guaranteed to produce golden queens and beautiful bees; non-swarmers, very gentle, and hustlers for honey. Each queen, $1.00. Catalog ready. **H. ALLEY, Wenham, Mass.**

Caucasian and Long-Tongue Italian Queens.

1905, '06 Queen-breeder in Apiary of Dept of Agriculture, Washington, D. C.

Both Races.	1	6	12		1
UNTESTED,	$ .60	$3.35	$6.50	TESTED	$1.25
SELECT "	.75	4.00	7.50	SELECT TESTED,	1.50

Satisfaction Guaranteed. Descriptive Cir. free.

LESLIE MARTIN,
Birdcroft Apiaries, Lebanon, Tenn.

Queens from 65 Cents Up!

Bred from Root's Imported Italians. Write for prices, stating wants. . .

C. M. Church, Arnold, Pa.

QUEENS of MOORE'S STRAIN OF ITALIANS

Produce workers that fill the supers, and are not inclined to swarm. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Mr. W. Z. Hutchinson, editor of the *Bee-keepers' Review*, Flint, Mich., says: "As workers, I have never seen them equaled. They seem possessed of a steady, quiet determination that enables them to lay up surplus ahead of others. Easier bees to handle I have never seen."

My queens are all bred from my best long-tongued three-banded red-clover stock (no other race bred in my apiaries), and the cells are built in strong colonies well supplied with young bees.

PRICES: Untested queens, 75c each; six, $4; doz., $7 50. Select, untested, $1.00 each; six, $5; doz., $9.00.

Safe arrival and satisfaction guaranteed.

Descriptive circular free. Address

I am now filling orders by return mail.

J. P. Moore, Queen-breeder, Rt. 1, Morgan, Ky.

Golden Italian Queens

Guaranteed—"Nuff Ced." Untested, 75 cts; six, $4.00; dozen, $8.00. Select, 25 cts. extra. Tested, $1.25 up. Your order right back, if you say so, if order can not be filled in two or three days.

J. B. CASE, PORT ORANGE, FLA.

Westwood Red-clover Queens.

No better hustlers flying; will get honey where other bees fail. Try them and be convinced. Nuclei a specialty. Also full colonies of ten frames each. Safe arrival guaranteed. Price list sent on application.

HENRY SHAFFER, 2860 Harrison Ave., Station L, Cincinnati, Ohio.

RED-CLOVER and CAUCASIAN QUEENS.

4-frame nucleus, nice painted hive and fine queen, $3.75; tested queen, $1; untested, 75c; average queen, 65c; Caucasian queen, $1 each. They beat all records for honey.

C. ROUTZAHN, BIGLERVILLE, PA.

MOTT'S LONG-TONGUED

IMPORTED QUEENS!

Also Goldens. Nuclei a specialty. Untested, 75 cts.; tested, $1.25. Write for prices. Postal-orders drawn on Decatur, Mich. **E. E. MOTT, Glenwood, Mich.**

ITALIAN QUEENS

Red-clover and Golden

Untested: 1, $1; 6, $5. Select untested: 1, $1.25; 6, $6. Hardy, Prolific, Gentle. Great Honey Gatherers.

Satisfaction guaranteed.

W. A. SHUFF, 4426 Osage Ave., Philadelphia, Pa.

QUEENS!

Golden beauties. Yellow from tip to tip. Untested, 75 cts. each; $8.75 a dozen. Tested, $1 each; $11 a dozen; 3-banded or red-clover queens same price. Remember we guarantee every queen.

Daniel Wurth & Grant, Pitkin, Ark.

Make money orders payable on West Fork, Ark.

Italian Queens

Golden, Three-banded, or Leather-colored. Write for circular to-day. Prices right. Queens all right.

Robt B. McCain, Rt. 1, Oswego, Ill.

Special Offer.

For the next ninety days I will sell my choice Italian red-clover honey-queens at the following prices: untested, each 75 cts.; half doz., $4; tested, $1 each; six, $5. Every queen guaranteed to give entire satisfaction.

Fred Leininger, Ft. Jennings, O.

IMPORTED QUEENS

We will import queens at the following prices: Banat, Abkhas, Gray Caucasians, Cyprians, $3; yellow Caucasians and Lenkoran, $4; brown Swiss, $5; Italians and Carniolans, $2.50, and guarantee them to arrive alive.

L.A.Lowmaster & Sons, Upper Sandusky, O., R. 5.

BUSHEL CRATES.

Very best make with beveled corners, all hard wood, made up, 11 cts.; in flat, 8 cts.

Full line of Dovetailed hives, sections, smokers, and every thing needed in the apiary, and sold at a discount.

Honey and Beeswax wanted, cash or trade.

Send for free catalog.

W. D. SOPER, Jackson, Mich.

"IF You want BEST GOODS QUICKEST, order of PEIRCE.

ROOT'S GOODS AND PRICES.

EDMUND W. PEIRCE,

136 W. Main St. Zanesville, Ohio.

If You Want the Bee-book

that "covers the whole apicultural field more completely than any other published," send $1.20 to

Prof. A. J. Cook, Claremont, Calif.

FOR HIS

"Bee-keepers' Guide"

Liberal Discount to the Trade.

THE SWARTHMORE LIBRARY.

A series of booklets on bee subjects by E. L. Pratt, of Pennsylvania, known to the bee-keeping world as "Swarthmore." These books are full of the most valuable information. The Swarthmore method of queen-rearing is spoken of as the most important innovation in bee-keeping of recent years:

INCREASE. The first of the series. Any one desiring to enlarge his apiary should learn the Swarthmore way. Price, postpaid, 25 cts. French edition entitled "Accroissement," 50 cts. postpaid.

BABY NUCLEI. The using of little frames and a handful of bees for mating queens has created quite a stir in the queen-rearing business. From this booklet you get your information direct. Price, postpaid, 25 cts. French edition entitled "Nuclei Miniatures," 50 cts. postpaid.

COMMERCIAL QUEEN-REARING. A complete description of the Swarthmore methods of queen-rearing in regard to cell-getting. Price, postpaid, 25 cts.

SIMPLIFIED QUEEN-REARING. Revised edition. It tells the honey-producer how to rear queens by the very simplest method ever published. Good queens for little money and little trouble, in just as effective and economical plan for the bee-keeper who works for profit. Price 25 cts. postpaid

SWARTHMORE QUEEN-REARING TOOLS. Complete outfit or separate parts. Write for price list.

ORDERS for these books should be sent to your regular dealer in supplies, or to the publisher of any bee-journal. The trade supplied by THE A. I. ROOT CO., Medina, O., distributing agents for E. L. Pratt.

How to Keep Bees

By Anna Botsford Comstock

228 pages. 32 pages of illustrations.

A charmingly written manual describing clearly and in detail the outfit, first steps, and methods. The author's well-known literary ability has combined with her enthusiasm for a subject to produce a very unusual volume. It is a handbook for those who keep bees for happiness and honey, and incidentally for money. It serves as well as an introduction to the more extended manuals already in the field. "Finally with all due deference to the authors of the excellent books on bee culture which we have already, my opinion is that this new book, 'How to Keep Bees,' is the best one for a beginner, or one who does not wish or expect to keep more than a dozen colonies, that has yet come before the world."—*A. I. Root, in Gleanings, July 1, 1906.*

Chap. 1, "Why Keep Bees," urges honey, perhaps money, recreation, love of nature study, and the need of bees in "a perfect garden," as good reasons for keeping bees. The second chapter tells "how to begin" in a small way, and we may get all the necessary detailed information for management from later chapters, arranged in order of demand for information.

Price $1.00. Postage 10 cents extra.

Money refunded to any dissatisfied purchaser.

The A. I. Root Co., Medina, O.

Classified Advertisements.

Notices will be inserted in these classified columns at 20 cents per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Help Wanted.

WANTED.—Six salesmen wanted to introduce our new State surveys. An absolute new idea and a splendid opportunity for energetic men.
RAND, MCNALLY & COMPANY, Chicago, Ill.

For Sale.

FOR SALE.—Opaline honey-jars, all kinds; send for price list. HAROLD E. SHORE, Germantown, Pa.

FOR SALE. Japanese buckwheat, $1 per bushel; sack not included. IRVING LONG, Marceline, Mo.

FOR SALE.—Fine job-printing outfit.
C. A. STEBBINS, Broad Creek, Va.

FOR SALE.—I have 800 Langstroth frames of extracting-comb at 12 cents apiece. M. ISBELL,
Norwich, N. Y.

FOR SALE.—Ten extracting combs in L. supers, $1.75 in 5 lots. Other new and used supplies.
J. E. THOMPSON, Carpentersville, Ill.

FOR SALE.—Alexander wire bee-veil, guaranteed to protect the face from any stings, 75c each, or 3 for $2.00 postpaid. FRANK ALEXANDER, Delanson, N. Y.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1907 send your name and address to FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE.—Best Wisconsin sections, per 1000, $4.00; No. 2, $3.40; plain, 25 cts. less. Discounts on Danz. hives and other Root's goods; also berry-boxes. Italian bees for sale. H. S. DUBY, St. Anne, Ill.

KODAK and Camera users, send us your developing and finishing. Send for price list. A full line of Kodaks, films, and all Photo Supplies.
FURNAS & MADDOX, 552 A, Louisville, Ky.

FOR SALE.—60-lb. cans. Just received three cars honey in new cans and cases; look good as new. Empty cases in quantity lots, 30 cts.
J. A. BUCHANAN & SONS, Holliday's Cove, W. Va.

FOR SALE.—One 3 H. P. gasoline-engine, and 1 Parks wood-working machine, run 3 months; $125.00 if sold at once.
M. A. JONES, Atwater, Ill. R. F. D. No. 45.

FOR SALE.—The following foundation-mills. Wish to dispose of them at once. Write for sample if interested, and fuller information will be given about any mill.

Mill No. 1—14-in., old-style high frame, in perfect order, price $15.00.

Mill No. 2—6-in., old-style high frame; has had a pin run through the rolls, otherwise is in good order; price $8.00.

Mill No. 3—12-in. new style, large rolls, used but very little, in perfect order: price $25.00.

Mill No 4—12-in. blank rolls, used but little, in perfect order; price $20.00.

Mill No. 5—6-in. mill, new style, in perfect order, used but little; price $12.00.
W. W. BLISS, Duarte, Cal.

FOR SALE.—Homestead farm crops in their season, consisting of honey, grapes, pears, apples, etc.
C. J. BALDRIDGE, Kendaia, Seneca County, N. Y.

FOR SALE.—Or will exchange for pure honey of good flavor and body: 50 Danz. hive-bodies, 20 Excelsior covers (old patent), 5 Miller feeders. The hives have been in use one and two seasons; are painted with the exception of 10. What do you offer?
JOHN VAN DEN BERG, Jr., Mahwah, N. J., P.O. box 5.

Real Estate for Bee-keepers.

FOR RENT.—Fine farm; write for particulars.
MARY F. MARTIN, Manchester, O.

FOR SALE.—Good bee and farm range, about 130 acres, 2½ miles southwest Escondido, San Diego Co., Cal. Price $2600. FRIEDRICH HASSE, Escondido, Cal.

FOR SALE.—320 acres, stock, tools, and bees, at $16.00 per acre. Plenty of wood and running water; eight miles back from the Pacific coast.
J. KAETS, Vista, San Diego Co., Cal.

FOR SALE.—Orange grove with good house and out-buildings and 50 colonies of bees, in Sorrento, Lake County, Fla. Also 15 colonies in Ohio. Good reason for selling. Address C. W. MCCOLLEY,
Tontogany, O.

FOR SALE.—Cider, sorghum, and jelly mills on one acre of land. Also 11 village lots, house, barn, honey-house, bee-cellar, and bees. It will give one yearly work; good pay. I am going to New Mexico to rear queens. Write at once. E. E. MOTT, Glenwood, Mich.

FOR SALE.—The oldest and best bee-supply business in the South. Two-story brick factory, fully equipped, two large apiaries, and a good trade in queens and bees. Reason for selling, approaching old age, and other interests. Full particulars by mail. Address
BEE-SUPPLIES, Box 474, Montgomery Ala.

FOR SALE.—Small homestead, first-class buildings, fully equipped apiary, in one of the most desirable locations to be found. Will sell for less than the improvements can be replaced for. This was the home and the apiary of the late B. Taylor. Write for particulars. JEWELL TAYLOR, Rt. 5, box 23,
Preston, Minn.

FOR SALE.—Seven-room house with cellar—two-story; stone-basement barn, 36x48; three acres of good land with plenty of fruit-trees and grapevines, located on Canada St., Munnsville, Madison Co., N. Y., in the Stockbridge Valley—a very desirable location for a bee-keeper, with plenty of basswood timber, clover, buckwheat, etc. Several years ago my brother kept a large stock of bees here and was very successful; located on the O. & W. R. R., nine miles south of the city of Oneida. Price $1800, with $800 cash, and balance on long time at 6 per cent if desired. Any further information will be given by
R. H. WOOLVER, Munnsville, N. Y.

FOR SALE.—652 acres of choice land in the prairie-belt of east Mississippi, situated 12 miles east of Macon, Miss. Telephone and R. F. D.; 100 acres in young hard-wood timber; 400 acres in pasture, Bermuda, melilotus, lespedesa, white clover, and blue grass predominating; about half this land will grow alfalfa, which can be cut six or seven times each year. Also 700 stands of Italian bees in three yards; my average for 15 years has been about $8.00 per stand—no disease, no failure in 15 years; 75 head of high-grade Jersey cows; butter sells for 20 cts. in summer and 25 cts. in winter, and the demand has never been filled. Improvements—7-room house, barn accommodating 52 cows; barn for horses; 10 cabins, 400 acres fenced in four pastures, best of water in abundance. Fine and healthful climate. Write for further particulars.
GEO. A. HUMMER, Prairie Point, Miss.

Bees and Queens.

QUEENS—Red-clover strain; imported mothers, leather color, $1. A. W. YATES, 3 Chapman St., Hartford, Conn.

FOR SALE.—17 colonies of Italian bees (Root stock) in chaff hives. Must be sold.
A. J. PRESSEY, M. D., 900 Fairmount St., Cleveland, O.

FOR SALE.—Queens from bees that gather honey: also full colonies of bees. HAROLD HORNOR,
Jenkintown, Pa.

FOR SALE.—Bees, 35 colonies in 10-frame L. hives. All in splendid condition. C. E. PHILLIPS,
R. Route 5, Springfield, Mo.

FOR SALE.—35 years with the bees. Five-banded golden Italian bees; queens, 75 cts. each.
J. LINGENFELTER, Akin, N. Y.

FOR SALE.—Bees, queens, and bee-keepers' supplies (Root's goods), at factory prices.
F. W. VAN DEMARK, Mehan, Okla.

FOR SALE.—Some mismated and black queens at 25 cts.; untested queens until Sept. 15th at 40 cts.
B. F. AVERILL, Howardsville, Virginia.

FOR SALE.—By return mail or money refunded: Italian queens, each, 75c; 6 for $4. Caucasian queens, each $1; 6 for $5. Warranted purely mated.
D. J. BLOCHER, Pearl City, Ill.

FOR SALE.—Red-clover strain of Italian queens exclusively; no better honey-gatherers in existence. Warranted purely mated queens, 75 cts.; three for $2. M. O. office, Schwenksville.
F. M. MAYBERRY, Lederachville, Pa.

FOR SALE.—Mechanic Falls, Me., branch of The A. I. Root Co. will ship full colonies, nuclei, and queens of same grade direct from Mechanic Falls, Me., at regular catalqg prices. Safe arrival and satisfaction guaranteed.

FOR SALE.—My experience with red-clover bees and circular of queen-bees for the asking. Queens reared by the most improved methods to get good long-lived queens. Root red-clover stock, the best that money can buy; 300 a month.
A. H. KANAGY, Milroy, Pa.

Poultry Offers.

FOR SALE.—Homers for squab-breeding; mated birds. MISSOURI SQUAB CO., St. Louis, Mo

Wants and Exchange.

WANTED.—10-frame chaff hives. Must be free from disease. D. HART, Barkhamsted, Conn.

WANTED.—Bees. State what kind, on what frames, and price. H. H. JEPSON, 182 Friend St.,
Boston, Mass.

WANTED.—To exchange Remington typewriter for type or any thing of value in a small job-printing office. FRANK LACEY, Danbury, Conn.

WANTED.—To rent a good farm for term of years in good honey locality favorable for out-yards. Western States preferred. If you want good tenant and mean business, write J. C. CLEMANS, Crawfordsville, Iowa.

WANTED.—To know you (if you are a bee-keeper) personally. To that end we will make a demonstration with live bees at the Minnesota State fair and also at the Wisconsin State fair this fall (September). Make yourselves known to us and we will show you our specialties. We also want to learn your method of handling bees. PUTNAM & PEAKE, River Falls, Wis.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—ROOTS AND HERBS. The season is at hand for the collection of these goods, and we buy large quantities of all kinds. They have to be gathered and dried before they are ready for the market. We issue a price list and also a book giving information as to weeds used in medicines, which we send upon receipt of the necessary postage, 5c. In writing, mention this advertisement. J. L. HOPKINS & CO.,
100 William St., New York City.

Honey and Wax Wanted.

WANTED.—Fancy white Ohio honey, comb and extracted. Will pay tip-top price either in cash or bee-supplies. E. W. PEIRCE, 136 W. Main St. Zanesville, O.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.
R. A. BURNETT, 199 S. Water St., Chicago, Ill.

WANTED.—Comb and extracted honey in any quantity; state quality, quantity, and price f. o. b.
THE WAXELBAUM-HEARD PRODUCE CO., Macon, Ga.

Honey and Wax For Sale.

FOR SALE.—California extracted honey, all grades; case or car load lots
RAYMOND E. FAIRCHILD, Redlands, Cal.

FOR SALE.—800 pounds of pure beeswax for sale. Refuse from wax-extractors wanted. Will pay cash.
W. L. COGGSHALL, Groton, N. Y.

Bee-keepers' Directory.

QUEENS.—Clover stock. Experience and methods count. Write me. H. G. LARUE, LaRue, Ohio.

ITALIAN queens bred for honey, untested, 75c each.
GEO. H. PLACE, 816 No. 49th St., Omaha, Neb.

Extra honey queens and choice mountain honey.
Francis J. Colahan, Bernardo, San Diego Co., Cal.

QUEENS.—Pure Gold, Red-clover, Caucasian, Banat.
ROSE LAWN APIARIES, College View, Lincoln, Neb.

ITALIAN QUEENS.—Golden and leather, 60c each; worth $1.00. G. W. BARNES, Box 340, Norwalk, O.

Bee-keepers' supplies, Italian queens. Send for a free catalog. ARTHUR RATTRAY, Almont, Mich.

ITALIAN BEES and queens—Red-clover strain imp'd mothers. A. W. YATES, 3 Chapman St., Hartford, Ct.

ITALIAN BEES, queens, and Root's bee supplies.
E. SCOGGIN, Carlsbad, N. M.

I club a high-grade Italian queen with GLEANINGS, new or renewal. W. T. CRAWFORD, Hineston, La.

WANTED.—500 colonies of bees in Texas, Arizona, or California. N. E. MILLER, Box 373, Logan, Utah.

ITALIAN BEES and queens—red-clover and golden strains. E. A. SIMMONS, Greenville, Ala.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York City.

ITALIAN bees and queens bred for honey; price list free. B. F. YANCEY & SON, Angleton, Tex.

FINEST Golden and red-clover queens, Caucasian and Carniolan. DANIEL WURTH & GRANT, Pitkin, Ark.

ITALIAN AND CAUCASIAN bees and queens of best quality; price list free. A. E. TITOFF, Ioamosa, Cal.

MAPLEWOOD APIARY.—Choice comb honey, Italian bees and queens. GEO. H. REA, Reynoldsville, Pa. R. 2.

ROOT'S SUPPLIES at factory prices; wholesale and retail. ANTON G. ANDERSON, Holden, Mo.

ITALIAN BEES, queens, and bee supplies. H. H. JEPSON, 182 Friend St., Boston, Mass.

ITALIAN BEES, queens, nuclei, and bee-keepers' supplies. A. T. DOCKHAM, Rt. 1, Box 95, Eagle Bend, Minn.

ITALIAN BEES, queens, beeswax, honey, and bee-keepers' supplies. M. E. TRIBBLE, Marshall, Mo.

FOR SALE.—Bee-keepers' supplies. Write for catalog. Lengst & Koenig, 127 S. 13th St., Saginaw, Mich.

FOR SALE.—Golden and red-clover Italian queens. WM. A. SHUFF, 4426 Osage Ave., Philadelphia, Pa.

ITALIAN BEES and queens—red-clover and golden strains. E. E. MOTT, Glenwood, Cass Co., Mich.

SWARTHMORE Golden-all-over, Caucasian, Banat, Carniolan, Cyprian queens. E. L. Pratt, Swarthmore, Pa.

QUEENS. Free list giving safe method of introducing, ready Feb. 15. E. E. LAWRENCE, Doniphan, Mo.

ITALIAN BEES, queens, honey, and ROOT'S bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

FOR SALE.—Root's bee-supplies, wholesale and retail; factory prices; catalog free. Beeswax wanted. W. E. TRIBBETT, Staunton, Va.

Improved Carniolans always winter best, breed up strongest early in the spring; the finest comb-honey builders. (Italians for those preferring them.) Catalog free. W. W. CRIM, Pekin, Ind.

GOLDEN-ALL-OVER Caucasian Banat bees and queens. We book orders for early queens from our best imported breeding stock for honey, with 600 twin mating-boxes. THE SNYDER APIARIES, Lebanon, Pa.

QUEENS.—Improved Red-clover Italians bred for business; June 1 to Nov. 15, untested queens, 60c; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

IMPROVED ITALIAN QUEENS now ready; nuclei and colonies about May 10, Danzenbaker or L. frames; 20 years a queen-breeder; 500 colonies to draw from. Circular and testimonials free. QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

ANGEL'S GOLDEN BEAUTIES and his bright three-banded Italian Queens have but few equals and no superiors. A fine large queen of either strain for $1.00; an extra select breeder for $2.50. I have had 12 years' experience at queen-breeding. Address SAMUEL M. ANGEL, Route 1, Evansville, Ind.

JAPANESE BUCKWHEHT.

We have a supply of choice Japanese buckwheat for seed at $2.50 per bag of 2 bushels; $1.50 per bushel; 85 cts ½ bushel; 45 cts. a peck, bags included; shipped by freight or express at your expense. By mail, postpaid, at 13 cts. per lb.

SECOND-HAND 60-LB. CANS.

We have on hand from 100 to 200 boxes of good second-hand 60-lb. honey-cans, two in a box. The cans are free from rust on the inside, and very little on the outside. The boxes are repaired and in good condition. We offer these in 5-box lots or over at 40 cts. a box; 25 boxes at 35 cts. a box; 50 boxes at 30 cts a box. These prices are for shipment from Medina only.

HALF-POUND TUMBLERS.

In making up the two pages of honey-packages in our catalog this year we omitted the half-pound tumbler. We have these packed 32 dozen to the barrel at $5.50 per barrel, or packed in partitioned cases of four dozen each, ready to reship when the tumblers are filled with honey, without additional packing; parchment or wax-paper discs also included; $1.00 per case; 10 cases at 95 cts.; 25 cases or over at 90 cts.

A B C OF BEE CULTURE.

We want to hear from any dealer or other person having one or more copies of the last edition of the A B C of Bee Culture in perfect condition to dispose of. We shall need every copy available for orders before the new edition is ready in the fall. Several have already reported. Let us hear from others. The price of the new edition will be $1.50 postpaid; $1.25 with other goods by express or freight, and a corresponding increase in the wholesale prices. This is made necessary by increased size, better paper and printing, and consequent increased cost to produce the book.

QUEENS.

At last we are in position to furnish queens on demand. The season, as all bee-keepers know, has been very late. The turn has come, however, and Italqueens now are more than usually good, especially those from the famous Vernon Burt stock, which we mentioned last year. We can furnish just what is wanted.

Of Caucasians we can furnish all grades — untested, tested, select tested, and breeders. If you are in the market for good queens for any purpose we are in position to serve you. Generally speaking, queens raised in summer are better, stronger, and more uniform than those reared very early or late in the season. See prices on page 990.

OUR NEW YORK OFFICE.

Our office in New York has removed to the *Evening Post* building, in Vesey St., opposite the cemetery of St. Paul's church, one of the landmarks of New York. The new office is somewhat nearer Broadway, only the Astor House intervening between. Our warehouse is in Hoboken, at the foot of 7th Street and River Road, which gives us very close connections with the great transatlantic steamers and the great railroad systems which terminate in New York. Our telephone connection is 543 Cortland. Call our manager up, and he is at your service with all the unequaled facilities of the port of greater New York. If you are in a very great hurry for goods, just let him know.

FAULTLESS SPRAYERS.

This is one of the most useful little implements ever invented, and this is the time of year when it is needed to spray shrubs, plants, and especially potato-

vines, to kill the bugs. It is also used as a kerosene sprayer on cattle to keep off flies. They are so cheap that you should have several, each loaded with the different mixtures needed for various purposes. We have some 20 to 30 dozen, which we offer, to close out, at 27 cts. each; three for 75 cts.; $2.50 per dozen, made all of tin. With galvanized iron tank, 35 cts. each; three for $1.00; $3.50 per dozen. We could not replace this stock to sell at these prices. Some of our dealers also have a supply on hand.

Special Notices by A. I. Root.

CRIMSON CLOVER, DWARF ESSEX RAPE, ETC.

Now is the time to sow crimson clover—the quicker the better. It may winter all right if you do not get it in the ground before August; but the last of July or the fore part of August may be better. A little further south it gets root enough, even when sown in September and October; and we have had pretty fair success with it when sown in corn the last time it was cultivated. One of our exchanges suggests that you can put in dwarf Essex rape at the same time. Rape will furnish feed in the fall, and the crimson clover may be fed in the spring, and both will benefit the ground when plowed under in the spring.

We have a good article of crimson clover which we can furnish at the following prices: Bushel, $4.50; half-bushel, $2.40; peck, $1.25; 1 lb., 10 cts.; by mail, 20 cts; 3 lbs. by mail, 50 cts.

From 8 to 15 lbs. of seed are needed per acre. On our enriched underdrained ground we have never had it fail to winter over when sown reasonably early.

For price of dwarf Essex rape, see page 858, June 15. A leaflet on either crimson clover or dwarf Essex rape will be mailed free on application.

STAINLESS-FLAG SUNDAY; THE DEMAND FOR COPIES OF THE "STAINLESS FLAG," ETC.

When I agreed to furnish 100,000 copies of the Stainless Flag provided the Anti-saloon League would agree to distribute them in such a way that they would be *read* and *used*, I was a little fearful that the general interest would not be great enough to take care of so many. The outcome, however, has proven to be one of my "happy surprises." Just as soon as the last journal was out, applications began to come in. Very few asked for only one copy. Some wanted five copies, some ten. One man said he could probably distribute fifty copies where they would be read and do good. A little later on, one wanted 500 copies, and now one good brother who is superintendent of the Anti-saloon League in a large city thinks he can use 1000. In fact, the demand was so great that the friends will have to wait till more are printed. Just now we are sending out single copies only, and I hope you will understand that your orders for the remainder will be taken care of as soon as we can get the pamphlets. Wayne B. Wheeler, the Ohio superintendent who has the matter in charge, wishes us to state that you should each apply to your own State superintendent of the Anti-saloon League. Each State is supposed to furnish the "Stainless Flag" pamphlets; therefore when you order a number of copies, say more than five or ten, apply to your State superintendent instead of us. I am not able just now to give you the addresses of the different State superintendents, but I think you can find out by a little inquiry.

I will try to furnish, in our next issue, the addresses of the superintendents in all the different States.

On 5 or more copies I think we shall have to ask applicants to stand postage or express.

THE CONSTRUCTION OF MACADAM ROADS.

The above is the title of a new bulletin, No 29, just from the Department of Agriculture. It is clear up to date; and if studied and followed it ought to be the means of saving our nation thousands of dollars by telling us just how to spend our time and money in perfecting beautiful and substantial roads throughout our country. I was particularly interested in the subject of drainage, and that is almost the first thing to be considered in making any sort of road. We are told that bridges and culverts should always be constructed under the direction of a careful and competent engineer. There are two extremes in this matter of sluiceways and culverts. One extreme is to have them so small that they can not carry off the water. The other extreme is going to too great an expense where only a small outlay is needed. And this latter extreme is where the graft business gets in. It is bad to make a culvert that can not carry off the water, or gets smashed by the traffic over it in just a short time; and it is also bad to put in expensive iron sluiceways when a comparatively small tile or sewer-pipe would do the work. We have some very good stone roads in our locality; but so far they have cost about a half more than the engineer's estimates; and after they were made, some of them almost went to ruin because they were not properly cared for. This bulletin says the maintenance of a macadam road should begin on the day the road is completed. Too much emphasis can not well be put on this point. It is tremendously expensive to have puddles of water standing for days and weeks in any kind of road. The increasing number of automobiles is constantly making necessary better roads; and the swiftly moving cars, we shall have to confess, are doing a considerable amount of damage to good roads by picking up the loose sand and dust and having it blown off in the fields. It seems that coal tar, oil, and asphaltum will have to be used to *preserve* a nice smooth road.

This bulletin is well illustrated, and contains reports from different States that have made big headway in making good roads; and it also gives us some very careful estimates as to the cost, etc. So far as I can learn, this bulletin is sent free on application to the Department of Agriculture, Washington.

"WATCH AND SEE US GROW;" THE INDIAN RUNNER DUCKS.

They are just six weeks old to-day, July 12, and one of them weighs almost four pounds. I could not get his exact weight, because he made such a lively kicking. My method of feeding may have had something to do with their remarkable growth. Their feed is ground corn and oats or chop, such as we use for horses. This is mixed with skim milk or sour milk. I give them just what they will eat up clean and no more, and feed them only when they get hungry enough to come up and tease for their rations. During rainy weather, when they can find plenty of angleworms and insects, they do not seem to care much for their feed; but at other times they come around for it about three times a day. When the chopped feed is wet up with water it does not seem to sustain them as long as when it is wet up with milk. With the milk they do very well on two feeds a day. When there is no milk, however, it takes about three feeds.

Convention Notice.

PROGRAM OF THE EIGHTH ANNUAL MEETING OF THE TEXAS BEE-KEEPERS' ASSOCIATION, COLLEGE STATION, TEXAS, JULY 23-25.

The annual address by the President.
Reading of the minutes of last meeting.
Report of the Secretary.
Business of the association.
Discussions.

1. Making hives at home; some facts and figures, by O. P. Hyde, Floresville.

2. Why I prefer the shallow divisible hives and supers throughout, over deeper ones, by Louis H. Scholl, New Braunfels.

3. Some short cuts in running a large number of out-yards, by W. O. Victor, Hondo.

4. Are the Holy Land and Cyprian bees an all-purpose bee for the average bee-keeper? by W. H. Laws, Beeville.

5. Baby or large nuclei. Which are in most extensive use, and why? by Willie Atchley, Beeville.

6. Bee-keepers' exhibits at fairs and as an advertising medium, by C. S. Phillips, Waco.

7. The pure-food laws and honey prices for Texas bee-keepers, by Udo Toepperwein, San Antonio.

8. How are the funds appropriated for foul-brood inspection used? by A. F. Conradi, College Station.

The question-box is again to be one of the main features of the program, in which all bee-keepers present may take part and ask such questions that are of interest to them. A large attendance is expected. There will be a low rate of one cent a mile, round trip, to College this year.

LOUIS H. SCHOLL, Sec'y and Treas., New Braunfels, Texas.
W. O. VICTOR, Com. on Prog.

POOR HONEY CROP

in 1906, but we sold in Michigan

1,143,000 Lewis Sections

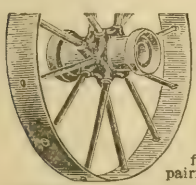
Six Carloads Now In.

The rush is now on. Do not send your orders to the one-horse dealer and be disappointed. We ship goods the same day order is received. Our shipping facilities are the best in Michigan—74 freight and 55 express trains daily.

A. G. Woodman Co.

Long-distance phones: Bell, 181; Citizens, 3120.

Grand Rapids, Mich.

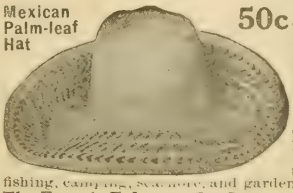


STEEL WHEELS

with wide tires double the usefulness of the farm wagon. We furnish them any size to fit any axle. Cheaper than repairing old wheels. Catalogue *free.*

EMPIRE MFG. CO., Box 91A Quincy, Ill.

Mexican Palm-leaf Hat



50c Hand-woven by Mexicans in Mexico, from palm fiber; double weave, durable, and light weight, with colored design in brim. It retails at $1; sent postpaid for 50c to introduce our Mexican hats and drawn-work. Same hat plain, 40c; both for 75c. Large, medium, and small sizes. Fine for fishing, camping, seashore, and gardening. Hat booklet free.

The Francis E. Lester Co., Dept. A A, Mesilla Park, N. M.

AMERICAN POULTRYMAN

Most Practical Poultry Journal Published. Devoted to Profitable Farm, Poultry, and the allied Interests of the Farmer and Ruralist, their wives and children.

26th year. Beautifully printed and illustrated. Up-to-date and helpful. Best known writers; show how to succeed. Specially edited for women and children. **50 cents per year. Special introduction offer to new annual subscribers until Sept. 1, 1907.** Only 25 cents, or for 30 cents we will include a large illustrated poultry book invaluable to every one interested. Stamps accepted. Sample copy free. Don't miss this offer.

AMERICAN POULTRYMAN,
Department B. C. Springfield, Ohio.

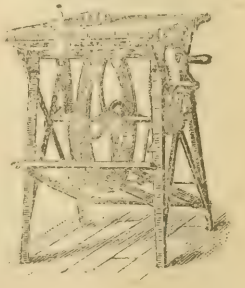
BARNES' HAND and FOOT POWER MACHINERY

This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, etc.

MACHINES ON TRIAL

Send for illustrated catalog and prices. Address

W. F. & JNO. BARNES CO.
545 Ruby Street
ROCKFORD, ILLINOIS



METAL MOTHERS.

Complete fireproof Hatching and Brooding plant for $7.50; 2 qts. oil will hatch and brood the chicks. Our nest system is the latest discovery. Full line poultry supplies. Lowest prices. Free catalog. Write to-day.

CYCLE HATCHER CO.
Box 223. Elmira, N. Y.

LICE AND HOW TO GET RID OF THEM

Lambert's Old Reliable "Death to Lice" simply exterminates all kinds of lice on poultry. One can of Lambert's will save dozens of dollars in the hatching season. Use it on your setting hens, **no lice** on the chicks. Sample 10c. 100 oz. $1. 1907 Pocket Book "Pointers" free.

O. K. STOCK FOOD CO., 687 Monon Bldg., Chicago.

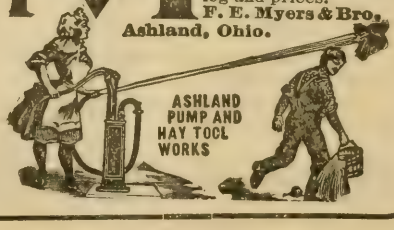
SPRAY PUMPS

"TAKE OFF YOUR HAT TO THE MYERS"

MYERS

The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers. Pumps, Hay Tools & Barn Door Hangers. Send for catalog and prices.

F. E. Myers & Bro., Ashland, Ohio.



Price List of
Bees and Queens

Home-bred Italian Queens

	Oct. to June.	June to Oct.
Untested queen	$1.25	$1.00
Select untested queen	1.50	1.25
Tested queen	2.50	2.00
Select tested queen	3.50	3.00
Breeding queen	6.00	5.00
Select breeding queen	9.00	7.50
Extra select breeding queen, one year old	12.00	10.00

Imported Italian Queens

Best imported queen.....$5.00 Fair imported queen.....$3.00

Southern-bred Italian Queens

For those who desire to get pure Italian stock at a moderate price, we are prepared to furnish queens direct from our breeders in the South at following scale of prices:

	Oct. to June.	June to Oct.
Untested queen	$1.00	$ .75
Select untested queen	1.25	1.00
Tested queen	1.75	1.50
Select tested queen	3.00	2.50

5-banded Italians, Carniolans, or Caucasians

These will be furnished at the same prices as our home-bred Italian queens.

Nuclei and Full Colonies

We are prepared to furnish one, two, and three frame nuclei and full colonies of bees in eight-frame Dovetailed hives or Danzenbaker hives. The nuclei are put up in light shipping-boxes made of basswood, the sides of which are only three-sixteenths inch thick, and the ends one-half inch. The top and bottom are covered with wire cloth. This makes a very light package, affords plenty of ventilation, and is strong enough to stand shipping from 500 to 1000 miles. The bees so put up almost invariably go through in good order with little or no loss.

What Can be Done with Our Nuclei

Any of our nuclei, even the one-frame, will make good strong colonies by fall if properly handled.

Prices of Nuclei

	Oct. to June.	June to Oct.
One-frame nucleus, without queen	$ 3.00	$ 2.00
Two-frame nucleus, without queen	4.50	3.00
Three-frame nucleus, without queen	5.50	3.50
Colony in eight-frame Dovetailed hive, no queen	10.00	7.50
Colony in ten-frame Danzenbaker hive, no queen	11.00	8.00
Colony in ten-frame Dovetailed hive, no queen	12.00	9.00

Purchaser should select a queen from the list above for each nucleus and include the price of queen.

Where a customer desires queen's wings clipped a charge of 25 cts. extra will be made.

The A. I. Root Co. Medina, Ohio.

Either Golden or Leather colored.

The Stock with a Reputation.

ITALIAN QUEENS

"One of your queens made a record of 350 pounds of nice comb honey in 1904."
JOS. A. RENECKE, Seneca, Kan.

Prices of queens after June 15:	1	6	12
Select untested	$ .75	$4.00	$7.00
Tested	1.00	5.00	9.00
Breeders	3.00		

Two Carloads of Root's Bee-keepers' Supplies.

Mfrs. of Weed New-Process Comb Foundation.

BUCK & WILSON
BUTLER CO. AUGUSTA, KANSAS

PROMPT SHIPMENTS

If you are in a rush for supplies at present, send us your orders. We have a large stock of

Root Co.'s Supplies

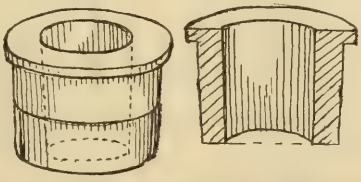
on hand to fill orders promptly. Also a fine lot of Italian

Queens and Bees

in one, two, and three frame nuclei and full colonies. Send for our forty-page catalog, etc.

John Nebel & Son Sup. Co.
Montg. Co. :: High Hill, Mo.

SWARTHMORE INNER SHELLS



SWARTHMORE HOLDING SHELLS

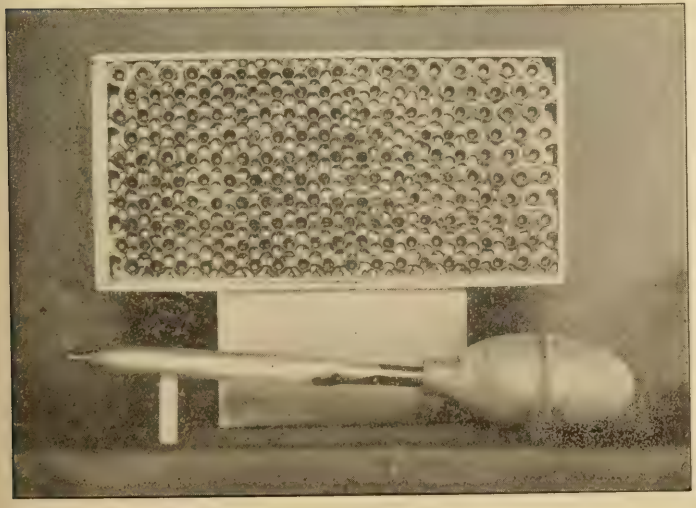
SWARTHMORE DIE FOR INNER SHELL

We are now prepared to furnish these items at following prices:

	Unwaxed per 100	Postage
Inner Shells,	65c	5c
Holding Shells,	65c	5c

If waxed, add $1.00 per 100

Die for Inner Shell, . 35c



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The A. I. Root Company
Medina, :: Ohio

WE ARE NOT IN A TRUST

Bee-hives, Sections, Brood-frames, Extractors

Every thing that bee-keepers use at **Lowest Prices.** Quality the highest. We've been making them twenty-five years.

American Bee-keeper. A profusely illustrated practical bee-journal which we have published for 17 years, **50c Yr.**

Sample copy and our 1907 illustrated catalog and price list free. Address

THE W. T. FALCONER MFG. COMPANY
DEPARTMENT G . . . . . JAMESTOWN, N. Y.

NEW GOODS! BIG STOCK!

NEW WAREHOUSE ROOT'S GOODS PROMPT SHIPMENT LOW FREIGHT

Every Thing for the Bee-keeper at Savannah, Georgia.

We are now prepared to furnish promptly a full line of supplies; choice new stock just from the factory. **Bees** and **Queens.** We have large apiaries of fine stock. Book your orders at once, as there will be a heavy demand this season. Catalog sent free. Correspondence solicited.

HOWKINS & RUSH, 241 Bull St., SAVANNAH, GA.

Beeswax!

Dadant's .....

It Excels Foundation

Wherever you are you can get our goods. Write us and we will either make you prices or will tell you where you can get our foundation nearer to you. We have agents everywhere. . .

Bee-supplies

We handle every kind of bee-keepers' supplies and only the very best. Early order discounts given now on supplies and foundation. Write us before selling your beeswax or buying your season's supplies. . . . . .

Dadant & Sons, Hamilton, Ills.

ROOT GOODS for the West

Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS.

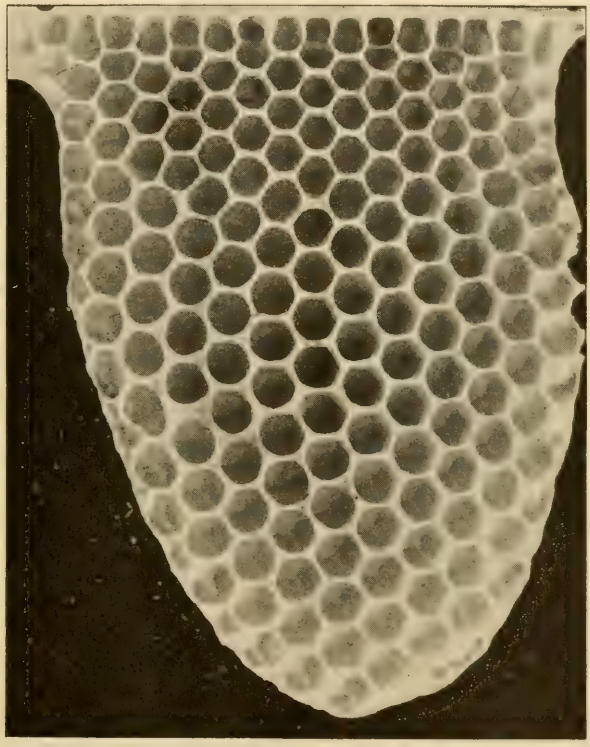
My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

Write for estimate with liberal discount for orders sent in now.

JOSEPH NYSEWANDER
565-7 W. 7th St. Des Moines, Iowa

GLEANINGS IN BEE CULTURE

Vol. XXXV *August 1, 1907* *No. 15*



"The Story of Honey-comb"

By E. F. Bigelow

The A. I. Root Company, *Medina, Ohio, U. S. A.*

Entered at the Postoffice, Medina, Ohio, as Second - class Matter

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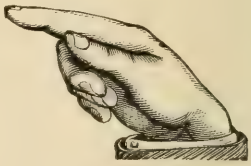

The "Root Quality" non-drip kind;
ready for immediate shipment.

Sections and Foundation

BY FIRST EXPRESS.

BEESWAX WANTED

M. H. HUNT & SON

REDFORD, **MICH.**

THE SWARMING SEASON

is here. Are you prepared? Why not order your supplies now, and take advantage of

Low Freight Rates

from TOLEDO, which places our goods in your door cheaper than you can get them elsewhere. We afford you every advantage in both Poultry and Bee Supplies. We sell The A. I. Root Co.'s bee-supplies, Model Incubators and Brooders, Prairie State Incubators and Brooders, Poultry Supplies of all kinds.

Our Large Illustrated Catalog

illustrates and describes our complete line; tells how to raise bees and chickens successfully. . Free upon request.

The Griggs Bros. & Nichols Co.

523 Monroe St., Toledo, Ohio.

APICULTEURS

des pays de langue Francaise.
Nous vous informons que

L'Apiculture Nouvelle

Revue mensuele illustree,

est tiree de:

Gleanings in Bee Culture

augmentee et completee par des collaborateurs Europeens, reconnus comme Apiculteurs eminents.

L'Abonnement d'un an est envoye franco pour tous pays de l'Union Postale, contre l'envoi par mandat poste de 7.50.

Un numero specimen, ainsi que notre catalogue francais de tous les articles de la

A. I. ROOT CO.

est envoye gratuitement sur simple demande, adressee a

Emile Bondonneau,

Agent General pour l'Europe et les Colonies

de A. I. ROOT CO.,

142 Faubourg Saint Denis 142 Paris (10e)

France.

L'Edition Francaise de l'A B C de l'Apiculture est egalement parue.

C. H. W. WEBER

Headquarters for . . .

BEE-SUPPLIES

Distributor of Root's Goods Exclusively at Root's Factory Prices

GIVE ME your orders for the **Best Goods Made.** You will be pleased on receipt of them. You will **save money** by ordering from me. My stock is complete; in fact, I keep **every thing** the **bee-keeper** needs. **Cincinnati** is one of the best **shipping-points** in the Union, **particularly in the South,** as all freight now **goes through Cincinnati.** Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly **free.**

WANTED.

Fancy White Comb and White Clover Extracted HONEY.

Queens and Nuclei

Let me book your orders for queens. I breed the finest **Golden Italians, Red-clovers, and Caucasians.** Can furnish **Nuclei** beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White Sweet-scented Clover, Alfalfa, and Alsike.

C. H. W. WEBER

Office and Salesroom, 2146-48 Central Ave.
Warehouse, Freeman and Central Avenues.

CINCINNATI, OHIO, U. S. A.

Honey Markets.

GRADING RULES.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

The prices here quoted are wholesale, or what the honey brings on arrival.

DENVER.—We have had only a few cases of new fancy white comb honey in, which sold readily at $4.00 per case of 24 sections. It is not likely that this figure will be obtainable for any length of time. We quote light amber extracted at 6¾ to 7½, and white at 7½ to 8½. We pay 24 to 26 cents for clean yellow wax delivered here.

THE COLORADO HONEY-PRODUCERS' ASSO'N,
July 15.

ST. LOUIS.—There are a few more lots of comb honey arriving in this market, and we quote: fancy white, 15 to 16; No. 1, 14 to 15; light amber, 13 to 14; broken and inferior, less. Extracted, light amber, in 5-gallon cans, 6 to 7; in barrels, about 4½ to 5; Southern, in barrels, 3½ to 4½; in 5-gallon cans, 1c more. Beeswax, firm at 31 for choice pure. All impure and inferior, less. R. HARTMANN PRODUCE CO.,
July 22. St. Louis, Mo.

INDIANAPOLIS.—New fancy white comb honey sells to the retail grocery trade in lots of one to ten cases at 17½ to 18; best grades of extracted in five-gallon cans sells for 9½ to 10; some foreign extracted offered at slightly lower prices. Beeswax plentiful, and sells for $35.00 per 100 pounds.

WALTER S. POUDER,
July 22. Indianapolis, Ind.

KANSAS CITY.—The market here is bare of new honey. A few cases are coming to market, but stock is not as good as former season. Most bee-keepers in this section report a light flow of early honey. We quote the market here to-day at $3.50 for fancy white comb down to $2.75 for amber and off grade; extracted, 8½ to 9. C. C. CLEMONS & CO.,
July 22. Kansas City, Mo.

CINCINNATI.—The demand for extracted honey does not come up to expectations, which is probably due to the lateness of the season. Quotations range about the same as published recently. Amber in barrels, at 5½ to 6¾, according to the quality. Fancy white extracted honey in crates of two 60-lb. cans at 9c. As yet, there is no new comb honey on the market. We are paying 28c cash, and 30 in trade, delivered here, for choice yellow beeswax free from dirt.

THE FRED W. MUTH CO.,
July 3. No. 51 Walnut St., Cincinnati, O.

CHICAGO.—Very little honey of the yield of 1907 has come on this market. What has come in the way of white comb has sold readily at 16c. There is no call for other grades at the present time. Very little demand for extracted, and a tendency not to take it at over 7c for the best grades of white. Beeswax continues to sell well at 32c. R. A. BURNETT & CO.,
July 8. 199 So. Water St., Chicago, Ill.

CINCINNATI.—The market on fancy comb and white-clover extracted is entirely exhausted. We quote you light amber in barrels at 5¾ to 6c; in cans, 1c per lb. higher. We are selling beeswax at 32c; market dull. C. H. W. WEBER,
July 8, 2146 Central Ave., Cincinnati, O.

DETROIT.—Market very quiet with very little old honey left, and no new honey offered yet. Season will be about two weeks late in this respect. No prices can be given except No. 1 or A No. 1 will bring a good price if offered early. Beeswax, 27 to 29c.

M. H. HUNT & SON,
July 10. Redford, Mich.

ZANESVILLE.—There is an increasing demand for honey, consumers turning, of necessity, to extracted, there being no comb on the market. I quote pound jars at $2.20 per dozen wholesale. For good quality of beeswax I pay 33 f. o. b. Zanesville, in exchange for bee-supplies. EDMUND W. PEIRCE.
July 19. 136 W. Main St., Zanesville, O.

ST. PAUL.—No honey offered for sale, and no prices quoted at present.

W. H. PATTON, Sec. Board of Trade,
July 12. St. Paul, Minn.

LIVERPOOL.—The market prices remain unchanged, but there has been good inquiry. Honey, Chilian and Peruvian, 3½ to 4¼; California, 3½ to 8½; Jamaican, 3¾ to 6¼. Beeswax, prices unchanged; market steady. Chilian, 30 to 31½. West Indian, 29¼ to 31. TAYLOR & CO.,
7 Tithebarn Street.

HAVRE. Beeswax, 32 to 33. Marseilles.—Beeswax, 31 to 32 cents. Honey stationary at last month's prices.

WANTED, COMB HONEY

WRITE US WHEN YOU HAVE ANY TO OFFER.

WE PAY THE DAY SHIPMENT ARRIVES

THE FRED W. MUTH CO.,

51 WALNUT ST. CINCINNATI, OHIO.

EVANS & TURNER

COLUMBUS, OHIO

WANT TO BUY 1907 CROP COMB HONEY

Write us immediately, naming price on different grades. We want to hear especially from Michigan and Wisconsin Producers

WE WILL BUY AND SELL

HONEY

of the different grades and kinds.

If you have any to dispose of, or if you intend to buy, correspond with us.

We are always in the market for WAX at highest market prices.

HILDRETH & SEGELKEN,

265-267 Greenwich St. 82-86 Murray St.

NEW YORK.

The Danzenbaker 20th Century Smoker

Pat. Oct. 3, '05, June 4, '07.

Awarded Highest Prize

A GOLD MEDAL

St. Louis, 1904.

IS THE BEST, STRONGEST, COOLEST, CLEANEST, CHEAPEST, AND LARGEST SMOKER SOLD FOR A DOLLAR

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to **CLOG WITH SOOT.**

ALL THAT IS CLAIMED.—N. E. France, Platteville, Wis., General Manager of the National Bee-keepers' Association says:

I have given your 20th Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

SURPASSES ALL OTHERS.—Mr. Grant Stanley, Nisbet, Pa.—"After giving the Danzenbaker 20th Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until the fuel is all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker."

BEST IN TWENTY YEARS.—M. D. Andes, Bristol, Tenn.—"I have used the 20th Century Smoker one season. It has given me entire satisfaction. In my twenty years of bee-keeping I first used the old stand-by Clark smoker, and I believe I have tried all the different makes, as I am always looking for the best, and will say that your smoker beats them all up to date."

NEVER TOO HOT TO HOLD.—Dr. Reginald Munson, Washington, D. C.—"I am well pleased with the 20th Century Smoker. It keeps fire well without getting too hot to hold on continuous use, and makes smoke enough to satisfy the most critical."

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Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

Published by
THE A. I. ROOT CO., Medina, Ohio

J. T. CALVERT, Business Manager

POSTAGE IS PREPAID by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian postage is 30c per year. For all other countries in the Postal Union add 60 cents per year postage.

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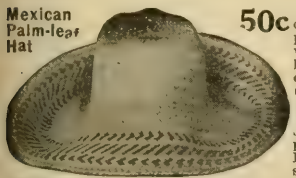

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Most Practical Poultry Journal Published. Devoted to Profitable Farm, Poultry, and the allied Interests of the Farmer and Ruralist, their wives and children.

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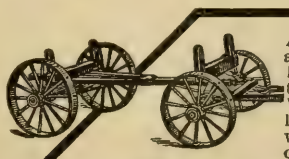

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Low Down Wagons

soon earn their cost on any farm.

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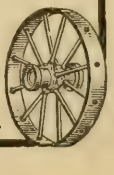

for farm wagons. Straight or staggered spokes. Any size wanted, any width of tire. Hubs to fit any axle. For catalogue and prices, write to

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Gleanings in Bee Culture

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THE INDUSTRIOUS HEN.

This is the leading poultry journal of the South published at Knoxville, Tennessee, in the hot-bed of poultrydom. It is a handsome 9x12 magazine of 50 to 80 pages, printed in colors, and the best that comes to our table. Its corps of writers are thoroughly trained and practical men and women, and its one dozen on more departments are each presided over by an expert in his line. It publishes more original poultry news, beautifully illustrated, than the majority of poultry journals, besides its many pages of departments, as follows: Turkey, water-fowls, pigeons, Angora goats, bees, dogs, pet stock, nut culture, veterinary, dairy, hogs, and boys. Any one of these departments is worth the subscription price, 50 cents.

Perhaps you may have overlooked the advertisement of the Myers lock-stitch awl on another page, yet it has to do with one of the neatest and cleverest inventions for farm use ever brought before the public. Small as it is, this awl makes a lock stitch just as a modern sewing-machine does. It is invaluable for repairing shoes, harness, carpets, sails, gloves, mittens, saddles, robes, comforts, fur coats, and similar articles. It costs a dollar, but it is easy to see how it can very easily save a dollar in making repairs, to say nothing of the saving of time and trouble in carrying a thing to town to have it mended. It should captivate every farmer in the land. The C. A. Myers Co. are anxious to secure agents of the sale of the lock-stitch awl in all localities east of the Mississippi. Their address is 6537 Woodlawn Av., Chicago, Ill. Write them, mentioning GLEANINGS.

We desire to call attention again to the advertisement of the Ohio Cooker Co., of Toledo, O., who are making a bid to secure the services of competent persons to push their steam cookers in all localities not now covered by their agents. They claim to have a good thing for all housekeepers who desire to lessen the labor and drudgery of the kitchen, more particularly during the trying months of summer, when to go near a stove is quite uncomfortable. It is also claimed these utensils require much less attention, as there is no danger of burning the food while other duties are being attended to.

We think there is no question that the modern steam cooker is a very valuable adjunct of a home kitchen, and a very large number have been sold, and the demand is constantly increasing, both in this and other lands. Possibly the reader has tested one at home, and is, therefore, in position to speak with authority on the matter. Any one who has actually tried one ought to make a good sales agent to others, and we believe the company will make such a one a liberal offer. The better way in any case would be to write to the company, asking for terms before the territory is taken up. Please mention GLEANINGS in replying to all advertisements.

NOT GIVING A SQUARE DEAL.

Sometimes we receive complaints like the following: "You claim that all the advertisements in your journal are responsible. Now, I sent to —— the queen-breeder for two untested queens, and he sent me two queens, and one died before it got out of the cage, and the other was not much better than a yellow-jacket, and that did live long enough to lay a few eggs and then died. I wrote him about it, and then he sent me a black queen, and that has one wing cut off, so that must be an old queen. I did not take notice of the other two, if they had their wings cut off or not, but surely they were old queens. So he has my money and I have nothing for it. Now do you think that an honest man? I think such a man should be crossed off the list."

In this case we know the breeder very well, and the kind of stock he puts out, and entertain a high opinion of both. It is clear the queens were sent, and both arrived alive; but on complaint he sent another. This we think shows an earnest desire to give a square deal, as he was not obliged to replace a queen which arrived alive. As to the color, opinions differ, but a great many want bright-yellow queens. In this case the breeder thought he would satisfy his customers better by sending leather-colored stock, as the buyer wanted them for honey production. All the way through the breeder did his best, even going to the trouble of clipping the queen's wings gratis, and yet his customer was unsatisfied. It seems clear to us there is no ground for our interference with this deal, but it is evident one correspondent does not understand the meaning of our guarantee. We do not hold ourselves responsible for these little differences of opinion. If we did our troubles would never end.

JOSEPH HORNE CO.

PITTSBURG :: PENNSYLVANIA.

What Clearance Prices Mean.

Merely to show the feminine readers of GLEANINGS how cheaply they can buy things in our Mail-order Department, at the present time, the following is submitted at random:

15c and 18c White Dotted Swisses,	10c yd.
35c White Figured Swisses .	15c yd.
10c Colored Wash Goods . .	5c yd.
15c Colored Wash Goods . .	7c yd.
30c Natural Linen	18c yd.
85c India Silk	35c yd.
85c Striped Louisines Silks . .	45c yd.
75c and $1.00 Mohairs . .	40c yd.
75c and $1.00 Voiles . . .	40c yd.
75c and $1.00 Black Panama .	40c yd.
$1.00 and $1.25 Black Serge .	60c yd.

And we could go on and on and print any amount of like illustrations. Suppose you communicate with our Mail-order Department.

Only Sand, Cement, and Water are used in making Concrete Building Blocks

No Experience Necessary

Only common labor required. With our instructions, the beginner can make as good blocks as an experienced mechanic.

Own a Factory

There is big money in their manufacture. Start with one or two machines and make them pay for a big equipment. We outfit you with the best machines at reasonable prices, on easy terms.

Send for our new catalog. It tells all about mixing.

Medina Concrete Machinery Co.

22 Court Street Medina, Ohio

MYERS LOCK STITCH AWL

Makes same stitch as sewing machine. Repairs shoes, harness, carpets, awnings, sails, gloves, mittens saddles, robes, comforts or fur coats. You need one, your neighbor needs one every day.

Costs only $1.00, prepaid. Get one and secure the agency in your locality. Every one buys it. Great opportunity for agents east of Mississippi River. One agent sold 100 in 4 days. Write for booklet B 8

C. A. MYERS CO.,
6537 Woodlawn Ave., Chicago, Ill.

"IF You want BEST GOODS QUICKEST, rder of PEIRCE.

ROOT'S GOODS AND PRICES.

EDMUND W. PEIRCE,

136 W. Main St. Zanesville, Ohio.

Italian Queens

Golden, Three-banded, or Leather-colored. Write for circular to-day. . Prices right. . Queens all right.

Robt. B. McCain, Rt. 1, Oswego, Ill.

BREEDING-QUEENS

AT THIS SEASON OF THE YEAR better queens are bred than at any other. This is natural, as the conditions are most favorable to a high organic development of the queen. For this reason this is the time of times to look around for a breeding-queen of high quality. By watching the performance of a queen now, we are in a good position to judge what she can do. Those who intend to get a new breeder for next season's operation ought to bear this in mind and get in their order for what they will need in ample time. Even if they do not require the queen at once it would be safer and better in every way to order now what is needed.

Spring compared with summer is a poor time to order select breeding-queens by mail for several reasons, and we advise parties desiring an extra-fine breeder to send their orders now. If desired we will retain the queen till next spring, sending it at the first favorable opportunity. We desire to impress on our customers that it takes careful observation during the height of the breeding season to determine just what a queen is worth as a breeder for producing fancy stock. Prices are as follows:

Breeding-queen	$5.00
Select Breeding-queen	7.50
Extra-select Breeding-queen	10.00

Special breeding-queens at $25.00 and up a matter of correspondence.

THE A. I. ROOT CO., MEDINA, O.

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Fourteen lines to inch.

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Preferred position, inside pages, 30 per cent additional.
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Cash discount, if paid in 10 days, 2 per cent.
Bills payable monthly.
No medical or objectionable advertising accepted.

"A Square Deal."

We believe that every advertisement in this paper is backed by a responsible person. But to make doubly sure we will make good any loss to paid subscribers sustained by trusting any deliberate swindler advertising in our display columns, and any such swindler will be publicly exposed. We protect subscribers against rogues, but we do not guarantee to adjust trifling differences between subscribers and honest responsible advertisers. With regard to the classified columns, we can not protect our readers from what they consider bad trades, where there is room for a good deal of difference of opinion. This would be impossible; but we do protect them from all deadbeats and swindlers. Of course we are not responsible for the debts of an honest bankrupt sanctioned by the courts. Notice of the complaint must be sent to us within one month of the time of the transaction, and you must have mentioned GLEANINGS IN BEE CULTURE when writing the advertiser.

FAIRS AND EXHIBITIONS.

We are anxious to give all the attention we can to fairs and exhibitions in the columns of GLEANINGS, and to facilitate the insertion of notices of premium lists we respectfully ask our friends to send in their communications in ample time. The demand on our columns is so great we are obliged to arrange matters of this kind much ahead of time.

It is our earnest desire to give as much prominence as possible to exhibitions which have for their object the increase of sales of honey and beeswax, and with this end in view solicit the cordial coöperation of all practical bee-keepers who have this subject to attend to in their locality.

PRELIMINARY NOTICE OF THE BEE SHOW OF THE WORCESTER COUNTY BEE-KEEPERS' ASSOCIATION, HORTICULTURAL HALL, WORCESTER, MASS., SEPT. 13, 14.

Conditions of Exhibition:—1. The exhibition is strictly free to all. There are no entry fees. There are no charges for space. The exhibition is free to the public.

2. The purpose of the exhibition is threefold: To bring together for display and competition the products of bee-keepers; to bring together for competition and display the products of manufacturers, publishers, and tradesmen; to educate the public.

3. A first, second, and third prize (consisting of a ribbon) will be granted in each scheduled exhibition. An award of merit will be granted all worthy displays by manufacturers, tradesmen, and others whose exhibit is not provided for by numbers 1 to 15 of the schedule.

4. The hall is central, large, well lighted, and fully equipped with tables, covers, dishes, elevator, etc. For special conveniences, communicate with the Secretary or Mr. A. A. Hixon, Horticultural Hall, Worcester, Mass. Exhibits may be sent so as to reach the hall any time the week of Sept. 8, and will be taken care of till the exhibition. Program will be published in GLEANINGS for Aug. 15.

HARDY BEES.

Bees of the Superior Stock, furnished by J. P. Moore, of Kentucky, are the best honey-gatherers I ever owned. They are gentle—smoke is seldom necessary in handling them, and very little at that. In addition to that, they are very hardy, seem to have more than the ordinary amount of vitality. We had a very striking example of this last spring at one of our apiaries in Northern Michigan. About one-half of the bees were of this strain, and the others of several different strains. The Moore strain of bees were quiet all winter, consuming very little honey, coming out in the spring fully as strong as they went in. Then, still further, they "stood up" during the trying weather that followed after they were set out of the cellar. When colonies of other strains were dwindling away and succumbing to the cold, these bees held their own: and when the harvest opened up the last of June, they certainly were far ahead of all the other bees that we had in the North. They were treated the same last fall, kept in the same cellar, protected and fed the same in the spring, but they came out ahead. It was simply in the *breed of the bees*. We are planning now to requeen all of our apiaries with this strain of bees, and I know that it will bring us big profits.

I can furnish queens of this strain (they will be sent out by Mr. Moore) at $1.00 each, or I will send the Review for 1907 and one of these queens for only $1.50. There are about a dozen sets left of the Review for 1906, and those whose orders come in before these back numbers are gone will receive a set free.

W. Z. HUTCHINSON, Flint, Mich.

BY EXPRESS

Sections and Foundation

THE SAME DAY

ORDER IS RECEIVED

The A. I. Root Co.

Syracuse . . New York

Our discounts on BEE-SUPPLIES are still in effect.

WE furnish EVERY THING needed in practical bee culture, at lowest prices. We make the DOVETAILED, LANGSTROTH, and ALTERNATING HIVES. The most practical, *up-to-date* hives are the MASSIE HIVES. We make them. Have you seen them? Have you received our new 1907 catalog? It is surely the easiest catalog to order from you ever saw. It is so easy that you can not make a mistake in your orders; a child can order from it as well as an adult. It is something new and entirely different from any you have ever seen. Write us a postal card for it to-day. It is free.

Address Kretchmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa. :: Trester Supply Co., 103 S. 11th St., Lincoln, Neb.

Catalogs issued in German and English.

A Four-per-cent Investment.

WITH the money absolutely safe and always available is an ideal disposition of individual savings. This bank accepts deposits in any amount, and pays four per cent interest —compounded every six months.

Our booklet describes our methods and management, and explains the advantage of our simple banking-by-mail system.

Write for the Booklet To-day

Assets over One-half Million

THE SAVINGS DEPOSIT BANK COMPANY

MEDINA, OHIO

A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.
E. B. SPITZER, Cashier.

NOTICE

Free Lecture and Demonstration on Bees, Season 1907, Tuesdays and Fridays, 10 to 12 o'clock, A. M., 10 Vine Street, Philadelphia, Pa.

So great has been the interest, and so numerous the calls, to see our bees, from parties who have not the time to visit our Jenkintown apiary, that we have arranged our plans to set aside Tuesday and Friday during the season of May and June, from 10 to 12 o'clock, to give a public demonstration for any one, whether a customer or not, to call and have explained to him the marvelous work of the honey-bee.

While our apiary, of some forty or fifty colonies, has always been open to inspection, yet the calls to see the bees coming at all hours of the day, many times when we were rushed with other work, were necessarily hurried and unsatisfactory, and were confined mostly to our customers. We now invite the general public, and a much more complete and general demonstration will be given. By giving us your name and address on entering the office, veils will be furnished you and your friends, so there will be no danger of being stung.

P. S. Our Jenkintown apiary is always open by appointment to visitors. Ask for

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The American Bee Journal is now a monthly, size 8x11, 32 pages, handsomely illustrated outside and inside. It is wide-awake, bright, up-to-date. Edited by George W. York who has been connected with it for nearly a quarter of a century. Mr. York is well-known wherever bees are kept or honey produced. He is President of the Chicago-Northwestern Bee-Keepers' Association.

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Established 1889

In Love with the Hoosier Queen.

By the Bee Crank.

Sounds romantic, doesn't it?

Mr. Whitney says that $250.00 would not be a queen's ransom.

Why?

Because she's a good queen.

She came from Pouder.

Here's the letter Mr. Whitney wrote to the "Bee Crank":

Wolcottville, Ind.,
July 16, 1907.

WALTER S. POUDER,
Indianapolis, Ind.

Dear Sir: — The Hoosier-Italian queen (named Evelyn) has her family in the second story, and her young bees are beauties. Wish I had ten colonies like hers. Two hundred and fifty dollars would be no temptation to me. Fraternally yours,

E. N. WHITNEY.

That's the kind of letters I get from my pleased customers all over the world.

Sometimes they come from men who have bought queens of me.

Sometimes from men who ordered supplies and wanted them in a hurry.

Sometimes from men who noticed that Pouder's goods always arrived in good condition.

Sometimes from men who sent me beeswax.

No use talking, it pays to deal with the "bee crank" if you want goods quick, or if you want goods that give satisfaction after they come "quick."

Remember I sell Root's goods at Root prices, and save you money on transportation charges, and save you time.

And don't forget that I pay highest market price for beeswax.

Get my new catalog—free.

A select untested Hoosier-Italian queen by return mail for one dollar. Six for five.

Walter S. Pouder.

513-515 Massachusetts Avenue, Indianapolis, Ind.

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Company, Medina, Ohio

E. R. Root, Editor A. L. Boyden, Advertising Mgr.
H. H. Root, Asst. Ed. J. T. Calvert, Business Mgr.
A. I. Root, Editor of Home Department

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STRAY STRAWS

by Dr. C. C. MILLER

MINUTE DETAILS are given by Dr. Bruennich, *Schweiz. Bztg.*, 221, of a case in which there seems no possibility of mistake wherein larvæ were removed from Doolittle cups and put in cells of the bees' own construction.

REFERRING to large entrances, page 970, I may say that my entrances are two inches deep, and there is no trouble about the front row of sections being well finished. And I don't have any winter case over the super either.

DR. BRUENNICH says (*Bienen Vater*, 12) it is better to breed from colonies which supersede queens in their third year, while still young and vigorous, than from colonies whose queens continue a year longer, but doing poor work in the last year.

MR. EDITOR, please tell us how Mr. Alexander gets two or more queens to work together in the same brood-chamber. [Mr. Alexander promised to write this matter up fully after he had had one more season to test it. We may reasonably hope that by fall he will tell us more of his findings.—ED.]

POSSIBLY the common expression, when two queens, mother and daughter, are found together, that they *are laying* side by side, is not true as often as we think. Devauchelle (*Apiculteur*, 144), reports a case in which were only eggs and a few hatching drones, showing that the old queen had ceased laying 21 to 24 days previously.

E. W. ALEXANDER has made a good job in showing up the advantages extracted honey has over comb honey. Surely he is wise to extract if he can get three times as much extracted as comb. How many can say the same? Might it not be added that a sufficient reason for his preferring extracted is his great buckwheat yield?

PROF. COOK, p. 955, referring to autumn foliage, says hard maple is a close rival to soft maple. Here it is just the other way, only the rivalry is not close. Hard maple is transcendently beautiful, soft maple falling very far behind it. [In our locality the soft maples are much more beautiful, and earlier to furnish pollen.—ED.]

AS POSTSCRIPT to what Prof. Cook says, p. 954, it might be added that views in Germany vary as to the value of phacelia. Some praise it as fodder for stock and for nectar, and some condemn it. A patch that I tried did not show any value for either purpose. As it is a native of California, Californians ought to tell us of its value there, and I have made several calls for such information, but without response. Prof. Cook, what is the value of the plant with you?

THE NULLIFICATION of the Illinois cigarette law, as mentioned by you, Bro. A. I., p. 947, while regretable is only partial, and I'm not sure but the best part is left intact. It is still a crime for any one in Illinois under 18 years of age to smoke in public, and boys who are not allowed to "show off" in public before that time will in very many cases have sense enough at 18 to let tobacco alone. Besides, the great probability is that the next legislature will enact the law without any such flaw in the title.

DESIRE HUILLON (*Apiculteur*, 134) reports an interesting series of experiments to determine the weight of nectar. Some just deposited in cells at 11 A.M. weighed 1310 grams to the liter. A sample taken 90 minutes later was precisely the same density. At 5 A.M. next morning a liter weighed 1353 grams. Have we not generally been taught that evaporation went on more rapidly? Of course, it is not always the same. [These figures seem a little strange in view of the fact that the bees, after gathering in a good supply of nectar, are busy all night, supposedly evaporating it down. It would seem

that this might be an isolated case, occurring when the general atmosphere within and without the hive was saturated with moisture.—Ed.]

An American bee-keeper, having an apiary of choice colonies, the fruit of long and patient selection, introduced Italian bees into his apiary. In a few years the greater part of his colonies were poor; the revenue of his bees was diminished; he was obliged to eliminate all that was worthless and begin all over again. That's the story in *Le Rucher Belge*. Now who can give us the name of the American bee-keeper who thus suffered from introducing Italians? [This does not seem to dovetail with the facts. The editor of *Le Rucher Belge* must have been reading the bee-journals carelessly or else he would not have singled out an isolated case that does not anywhere near represent the facts.—Ed.]

Washing honey off the fingers with earth is disapproved by D. M. M., *British Bee Journal*, 232; and in the next breath he says, "When folding sections, handling foundation, wiring frames, and especially when dealing with surplus honey, the fingers must be kept rigidly clean." Friend D. M. M., I plead guilty to using mother Earth as a cleanser, and I don't see any harm it does while opening hives and handling frames; but I don't do any of the things you name while in the apiary; and when I leave the apiary I wash my hands. You say, "Nothing beats cold water." Yes, cold is very good, and warm water not so bad; but it takes more time to tramp off for the water-dish than to grab up a handful of soil without leaving the hive. I give you my solemn promise, though, that I'll not handle sections, foundation, etc., without first washing off the soil.

Accident, perhaps, as often as design, leads to some new plan in bee-keeping. Some years ago I piled over a colony four stories of empty combs to be taken care of. To make sure that the bees would traverse the whole lot I put one or two brood in the top story. Some three weeks later I was surprised to find bees flying through a crack under the cover; and upon examination I found a laying queen in the upper story. There was no excluder in the pile; but the bees, feeling isolated by distance, reared a queen of their own, and the accident of a hole under the cover allowed the young queen opportunity for fertilization. I published the case, I think in Gleanings, and, if I mistake not, that was the beginning of all this rearing of queen-cells over colonies with laying queens. [We can not be sure, but we are of the opinion that the feasibility of rearing a queen in an upper story was demonstrated long before the instance to which you refer. Perhaps some correspondent can help us out. —Ed.]

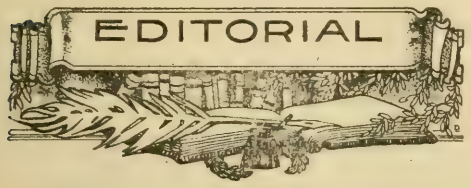
Suppose two queens are introduced at the same time, either in two cages or in the same cage, will not the bees accept both? [You could not ordinarily release two queens at the same time; for when they got together there would be a fight between them, with the probable result that the bees would ball one or both. But if two queens were caged at the same time, each in a different cage, after the proper time had elapsed it would make no difference to the bees which queen they had, providing one was not more timid than the other. A timid queen, especially if she squeals in fright, is always more liable to attack than one which acts when first released as if she had always been in a hive. We are practicing the dual plan of introducing every day. We let out one; and after she begins to lay she is caged and sold. Almost immediately the second one is released and accepted. By the time she begins to lay, another is ready to be released, and so the process continues. This is being enacted as a regular thing at our north yard, and any visitor who may come will be shown the whole performance.—Ed.]

E. S. Roe, in reply to a question on page 754, says he has often seen eggs in drone-cells as shallow as or shallower than worker cells. That knocks away a prop in support of the compression theory. But it by no means settles the case in favor of the queen-will theory. Who knows that some peculiarity of position of the queen standing over drone-cells, even if still shallow, may not make the difference in fertilization? Mind you, I don't say which theory is correct; I don't know; but I must say that the preponderance of argument does not yet appear in favor of the queen deciding the sex of eggs by the mere act of her will. Let me now ask another question. Does any one know of a queen laying worker-eggs in normal drone-cells? Years ago I thought I'd force a queen to do so. I took from a colony its combs and gave it all drone-comb. The bees swarmed out rather than to live in such a place. It is well known that a young queen in a weak after-swarm, if she has any will at all in the matter, has a will for worker-eggs only. Give her drone-comb in the center of the brood-nest; and if the sex of eggs depends on her will, why does she not lay worker-eggs in the drone-cells? "You've known them to do so?" I beg your pardon, are you sure they were *normal* drone-cells? I've known workers to be reared in drone-cells, but not *normal* drone-cells. The workers had changed them by putting on a rim of wax, thus narrowing the mouth of each cell before the queen laid in them. Why could she not will to lay worker-eggs in them before the bees changed them? [We have received numerous other statements, all certifying to the facts set forth in the letter published on page 754; but the evidence set forth by these others is even more conclusive. In some cases the drone-cells have been shaved down to within $\frac{1}{4}$ inch deep. The queen laid therein, and the eggs produced fully developed drones. So much evidence has come in to this effect that we are unable to give space to it all, and we are, therefore, of the opinion that we may conclude that the diameter of the cell and the depth of it have nothing to do toward making the egg male

or female. In this connection it is interesting to note that Swarthmore has succeeded in getting a queen to lay in artificial queen-cell cups. It will be remembered that these cups are about the same shape and proportion as an ordinary teacup, only miniature in size. But, small as they are, the diameter is a great deal larger than that of the ordinary drone-cell. The eggs that the queen lays in these cups will develop females or young queens.

Yes, there are instances on record of queens laying worker-eggs in normal drone-cells; but they are so rare that we may practically say the queen never does so. In this connection see the article by Ralph Benton, on page 1025 of this issue.

Do we understand you to mean that the general consensus of opinion does not favor the view that the queen can at will, and with full knowledge of what she is doing, lay drone or worker eggs? Our best bee-keepers have not generally favored the idea that external circumstances govern the sex of the egg, or, to be more exact, that the size or depth of the cell had any thing to do with it.—ED.]



THE DEATH OF L. STACHELHAUSEN.

THE following note was received just as we were closing up the last forms:

Dear Gentlemen:—Sorrowfully I have to let you know that my dear husband, Mr. L. Stachelhausen, died on the 7th of July, after a severe suffering of eleven months. Hoping that the bee-keepers will keep him in kind remembrance, I am respectfully

Cibolo, Texas. MRS. L. STACHELHAUSEN.

Mr. Stachelhausen was a German bee-keeper of international reputation, and the bee-world on both sides of the Atlantic is losing a valuable man. More particulars will be given later.

FOUL-BROOD INSPECTION FOR MISSOURI.

MR. M. E. DARBY, of 408 East Commercial Street, Springfield, Mo., has been appointed by the State Board of Agriculture inspector of apiaries for that State under the new foul-brood law passed at the last session of the legislature.

It is now the bounden duty of all who have the interests of bee-keeping at heart in old Missouri to assist in every possible way to stamp out the disease we call foul brood.

The chief work of a foul-brood inspector is to *prevent* the spread of the disease; and unless bee-keepers keep him informed, Mr. Darby can not do this. If he secures loyal support the trouble can very probably be stamped out or its ravages greatly mitigated.

THE LEBANON COUNTY BEE-KEEPERS' CONVENTION.

THERE is one place in the United States where the bee-keepers are undeterred and unafraid, and that is in Lebanon Co., Pa. On June 29 they held their annual meeting at the Snyder apiaries, near Lebanon, in the face of a northeast storm. The apiary selected is fully up to date, containing 100 colonies of Banat, Caucasian, and Italian bees in first-class hives, all nicely arranged. The inclement weather caused the speeches to be made in the barn of the owner, S. K. Snyder. The following prominent bee-keepers made addresses: Prof. Cyrus Boger, W. Shilling, E. L. Pratt, E. L. Brown, Dr. Henry Townsend, S. K. Snyder, Harold Horner, W. A. Selser, and H. C. Klinger. Over a hundred bee-keepers were present, and, in spite of the weather, greatly enjoyed the occasion.

THE QUESTION OF HONEY-LABELS, AGAIN.

IN our last issue, p. 950, we publish a letter from Secretary Wilson, giving his ruling on the use of certain honey-labels which the General Manager of the National Bee-keepers' Association had submitted to him. In a word, it will be remembered that the Secretary said it was not necessary to label pure honey; but if a label were used it must not be misleading.

It will also be recalled that we were not entirely clear whether a bottler of honey who purchased from other bee-keepers or from other States would be permitted to use the usual words "put up by," even though the product so labeled was pure honey. Accordingly we addressed a letter to Secretary Wilson, enclosing copy of our editorial on page 950 of last issue, and asked for a ruling on the point as to whether (to take a concrete case) John Jones, of Blankton, Ohio, who does a general bottling business in pure extracted honey which he buys, but which he does not produce, would be permitted to use the wording on a label reading "Pure extracted honey put up by John Jones, Blankton, Ohio." In response to this we received a letter from Secretary Wilson under date of July 3, which is here given:

DEPARTMENT OF AGRICULTURE,
OFFICE OF THE SECRETARY,
WASHINGTON.

Mr. E. R. Root:—I wish to acknowledge receipt of your communication of the 26th ultimo, together with an enclosure of an editorial on the subject of labeling honey. I have read this editorial with great interest.

In my opinion the labeling of extracted honey should be based upon the following considerations:

There are two classes of extracted honey with which the law has to deal so far as labeling is concerned; 1. That which is sold in interstate commerce by the person who extracted the honey; 2. Extracted honey sold by persons other than the one who does the actual extracting. In the first case, the person who does the actual extracting may, if he desires, label such extracted honey "John Jones' Honey," as in the case of any other product labeled by the actual producer. In other words, if John Jones had actually extracted the honey in question he could put it up under his name without his name being qualified in any way. In the second case, if John Jones shipped into interstate commerce extracted honey from other sources than his own labor, he would not be looked upon as the actual manufacturer, in which case, in accordance with Food Inspection Decision 68, John

Jones would be obliged to modify his name by such a phrase as "Distributed by." The phrase "put up by" does not seem to be particularly happy, because it could be with like truth applied to the person who bottles his own product as well as to the person bottling extracted honey from other sources.

It is the intention of the law that labels on all food products should not be misleading in any particular, and it seems to me that if extracted honey is labeled under the conditions as outlined above, there can be no question as to the names given on such labels being misleading. Respectfully,

July 3. JAMES WILSON, Secretary.

Circular No. 68, to which reference is made, does not say any thing about "put up by;" but it does say that a person, firm, or corporation using goods manufactured or produced by some one else may use the words "prepared for," "manufactured for," "distributed by;" but the phrase "sold by" is "not satisfactory." As honey is not "manufactured," bee-keepers do not care any thing about "prepared for," "manufactured for," and the only phrase that would apply to the bottler who buys pure honey of other producers would be the words "distributed by," and this must not be set in type smaller than eight point (or brevier) caps.

The editor happened to be in Washington early in July, and while there called upon Dr. Bigelow, who is acting in charge during the absence of Dr. H. W. Wiley, Chief Chemist of the U. S. Department of Agriculture. Dr. Bigelow, one member of the committee, stated it was his opinion that the words "put up by" could not be accepted by the committee, in view of the fact that the general public would not draw a distinction between "produced by" and "put up by." When the latter phrase was used the consumer might infer that the honey "put up by" John Jones actually came from John Jones' bee-yard, and was, therefore, of his production. To that extent he believed that the words "put up by" would be misleading, and therefore contrary to the general provisions of the law. This is in accordance with the letter by Secretary Wilson, as will be noted in the next to the last paragraph; but we stated that the words "distributed by," which would be acceptable to the committee, would, on the other hand, give a wrong impression to the general public. For example, John Jones had built up a business upon a fine quality of honey that he actually produced, and that, when the supply from his own yards gave out, he would actually be compelled to go out into the open market and buy a product that would be equal in purity, quality, and flavor to that which he had been producing in his own yards. If he were compelled to use the words "distributed by" the public might assume that he went out into the open market and bought honey upon which he placed no guarantee of quality, even if it were assumed that it was pure. We suggested that perhaps the words "bottled by" might be acceptable, and asked for his opinion upon it. He freely said he did not think there would be any objection to that wording, provided no other statement was made implying that the bottler was also a producer of the contents of the package.

We referred this question to a number of extensive bottlers of honey. Some of them have had the impression that they would be permitted to use the words "put up by," but in our opinion this would be an unsafe wording in view of the ruling of Secretary Wilson; for you will note that he says the phrase "put up by" "does not seem to be particularly happy, because it could be with like truth applied to the person who bottles his own product as well as the person bottling extracted honey from other sources."

It should be clearly understood that the national law applies only to *interstate* and territorial business. If the small bottler disposes of his product within the borders of his own State he is subject only to the laws of that State; but he must clearly bear this in mind, that, if any of his honey should by a second or third party be shipped without the borders of the State, and the labels should not be in conformity with the national law, he would be rendering himself liable; and it is, therefore, important that both the small bottler as well as the large one who does and expects to do an interstate business, have his labels so worded that there shall be no question upon the point.

Two or three bottlers have submitted to us the labels reading as follows: "John Jones' honey, Blanktown, Ohio." The Department has already ruled that such wording is contrary to the provisions of the law, because it is clearly implied, although it is not exactly so stated, that a honey bearing that label was produced by bees owned by John Jones.

Another bottler submitted to us a label reading as follows: "Pure extracted honey sold by John Jones." But food-inspection decision No. 68 clearly bars out the words "sold by" on a product manufactured or produced by some one else.

It is possible that the Department may yet accept the words "put up by," with the understanding that it means only packed by or bottled by. We have been informed that Dr. Wiley, in some conversation that he had with a prominent bottler of honey, stated that, in his opinion, "put up by" would be permissible; but apparently that opinion does not seem to be shared by two other members of the committee, Wilson and Bigelow.

In view of the fact that *any time* upon complaint (of a competitor, we will say) a prosecution may be entered against a bottler using a label that was even slightly misleading it would be wise to err on the *safe* side and adopt such wording as is recognized in the pure-food decisions already issued, or over the signature of the Department officials. While there is no published opinion authorizing the use of "bottled by," it would seem to be clear that, in view of the fact that such language can not possibly be misleading, there could be no objection to and no liability by the use of such wording.

In this connection it would be well to state that the Department officials refuse to pass upon any particular label used by any individual or firm. It will, however, give an opinion for an association of or a general

class of people. Mr. E. W. Pierce submitted one or two of his labels to Dr. H. W. Wiley, and received back the following letter that will explain itself:

DEPARTMENT OF AGRICULTURE,
BUREAU OF CHEMISTRY,
WASHINGTON, D. C.

Mr. E. W. Pierce:—Replying to your letter of January 27, I regret to have to inform you that we are not authorized to criticise or approve labels submitted in connection with the enforcement of the Food and Drugs Act. Our attitude in this matter is explained in Food Inspection Decision No. 41, a copy of which is enclosed. It is my personal opinion, however, that, so long as the names adopted by you as distinctive names do not deceive the purchaser regarding the character or source of the product which he purchases, they will be in compliance with the law.

Respectfully,
Feb. 2. H. W. WILEY, Chief.

In a recent statement sent out by the Bureau of Chemistry (F. I. D. 41) this statement was made: "The Department will not give its approval of any label. Any printed matter upon the label implying this Department has approved it will be without warrant."

Later:—Since the foregoing was written the following letter to Walter S. Pouder will explain itself:

DEPARTMENT OF AGRICULTURE,
BOARD OF FOOD AND DRUG INSPECTION,
WASHINGTON, D. C.

Mr. Walter S. Pouder:—In reply to your letter of the 13th inst., I regret to state that it is not within the province of this Bureau to criticise or approve labels which are submitted to it in the enforcement of the Food and Drugs Act. Our attitude in this matter is definitely stated in Food Inspection Decision 41, a copy of which is enclosed. As a matter of personal opinion, I see no objection to the phrase "put up by" as it appears upon your label, provided the goods are actually bottled by you. I have no criticism to offer on the butter labels. Respectfully,

FREDERICK L. DUNLAP,
July 17. Acting Chairman.

We would say that Mr. Pouder has over a hundred thousand of his honey labels, bearing the words "Pure Honey, put up by Walter S. Pouder." One of these he referred to the Board of Food Inspection, Washington, D. C., and the foregoing letter is the response.

The fact is, there are many honey-bottlers who have hundreds of thousands of labels printed with the words "put up by," meaning pure honey purchased and bottled by the undersigned on the label. Dr. Wiley and Dr. Dunlap have both expressed themselves as personally seeing no objection to the words "put up by," meaning bottled by. But, unfortunately, there is as yet no official sanction of the wording.

We are referring this to the Board of Food and Drug Inspection, and asking, on behalf of thousands of bee-keepers who can sell more than they can produce that a definite ruling on the point be made. As it is, bee-keepers are uncertain what their rights are in the matter.

We might explain that the words "put up by" have always meant that the honey under such label was not taken by the person whose name is on the label from his bees, but was a pure honey which he has bought of persons of known probity and honor, and a honey which he knows from his own expert knowledge of honey to be pure, of good quality and flavor.

WEATHER CONDITIONS AND HONEY-FLOW; A SEASON OF SURPRISES.

SINCE our last issue there has been a sudden change for the better. An abnormally late flow of honey from clover started up in many of our Northern States, beginning as late as the 18th. Basswood is starting to yield well, and the promise of a flow from that source is fairly good. In some cases, at least, clover came, went out of bloom, and then, strange enough, bloomed again and began to yield nectar. In recen ttrips over the Northern States we find there was never more white clover, and alsike is unusually abundant. The fine honey weather, hot days and nights, with frequent rains, is beginning to bring the nectar into the blossoms. California and the West are showing up a little better. In fact, there is no knowing what this season's disappointments and surprises may bring forth. At best the crop will be light, and prices, to say the least, should be firm. Indeed, they should rule high in view of the new pure-food laws, both State and national.

We sent requests to a few leading bee-men, honey-buyers, and supply agents for reports on the honey season, the same to reach us on the 20th. Two of them from the far West are telegrams. We give the responses just as they have come in, below. While they do not show anything very great, they show a change.

CALIFORNIA.

Crop complete; eighty cars; quality extra good; mostly sold, highest prices. H. J. MERCER.
Los Angeles, Cal., S. W., July 20.

The Riverside *Press* says: "Reports from bee-men throughout this section indicate that the honey crop this season will be in excess of that of last year, but not nearly as large as it should be for a normal season. One great reason for this is the cool spring which has kept many of the flowering shrubs from blooming at the usual time. Bees as a rule are in excellent condition, however, and the bee-men generally are quite encouraged with the outlook for the rest of the season."

The Fowler *Ensign*, Fresno Co., says, "County Bee-inspector J. J. Bowen filed his regular monthly report with the supervisors. The bees throughout the county are reported as being in a highly unsatisfactory condition, and the outlook for the season is not promising. As a result of this poor condition of the apiaries, home-grown honey will probably reach the top-notch figure this year. In the Coast Range Mountains the bees are working up to the average."

COLORADO.

Colorado's crop to date averages about 8 lbs. per hive. If conditions are favorable a fair yield may be secured. Regarding prices on carload lots I would say that, so far as I can size up the situation at present, I think $3.25 F. O. B. Colorado common points would not be too much, and we expect to hold up to that price if we have any thing to ship out from here.
July 20. F. RAUCHFUSS, Mgr. Col. Honey-producers' Asso'n.

GEORGIA.

I have taken no honey as yet, nor have I heard of anybody who has. Bees are now gathering some honey.
La Fayette, Ga., N. W., July 18. J. A. CLEMENT.

ILLINOIS.

Season abnormally late, and there is no telling yet what the outcome will be. Clover is now yielding; began June 28. May make an average crop if it keeps late enough, but may stop short any time. No basswood to amount to any thing here. Haven't the first super finished yet. C. C. MILLER.
Marengo, Ill., N., July 19, 1907.

Bees will not be able to get any surplus here — too much rain. I think they will make enough to winter.
Elvaston, Ill., N. W., July 20. C. S. CALDWELL.

I was at our yard yesterday for a little while, and I found the bees doing very nicely. Honey seems to be coming in rapidly. R. Russell, of Glencoe, reports that several of his colonies have nearly completed the two supers of comb honey. C. E. Woolgerth, of Monee, reports about the same. We have received several similar reports. Owing to the lateness of the season, of course it will be useless to expect a large crop; yet the prospects seem to be quite favorable.
THE A. I. ROOT CO., per R. Boyden, Mgr.
Chicago, Ill., N. W., July 22.

INDIANA.

Within the past few days clover has been secreting freely; but the season is practically over, and very little surplus can be expected from my territory. Fortunately I am getting some large shipments from Michigan and Wisconsin.
Indianapolis, Ind., C., July 19. WALTER S. POUDER.

IOWA.

It is very wet here; bees are doing better than one could expect. It rains almost every day. We shall get some honey, but the crop will be small. J. SCOTT.
Farley, Ia., E., July 19.

We had a cold spring. Bees failed to increase till June 10; plenty of clover and 30 acres of alsike; rain, and cold nights; no nectar in flowers. July 19 linn blossomed; no bees on the flowers; hot; rain almost every day; 1400 sections on, no extracting; two miles, plenty of linn-trees at both apiaries; no honey; barely enough to feed larvæ. JAS. CORMAC.
Des Moines, Ia., C., July 20.

You call for reports. For Central Iowa, eight yards, 100 lbs. extracted; 400 more to take; bees are still on white clover a little. I fed a ton and a half up to the time clover began.
Colo, Ia., C., July 18. D. E. LHOMMEDIEU.

White clover came out promising, and the bees were doing well; but such heavy rains came that the flow stopped about a week ago. I have extracted a little, and got about 25 lbs. per colony. A. L. DUPRAY.
Camanche, Ia., C., July 23.

MASSACHUSETTS.

Clover is yielding a little honey; fair crop from basswood.
Boston, Mass., E., July 18. H. H. JEPSON.

Prospects in Eastern Massachusetts good. White clover yielded fairly. WISEELL RICHARDSON.
West Medford, Mass., E., July 21.

MICHIGAN.

The clover season is over; one-fourth crop; in Kalkaska, Antrim, and Charlevoix Counties, raspberry season is nearly over; two-thirds crop, mostly on account of bees not being in good condition. Basswood in Northern Michigan will open about Aug. 1. E. D. TOWNSEND.
Remus, Mich., C., July 20.

I report about half a crop; white clover scattering, and very little basswood; no swarming. E. N. WOODWARD.
Hillsdale, Mich., S., July 22.

The bees are just booming. We have had plenty of rain and warm weather to keep the blossoms continuing. We expect a good crop of honey. L. K. FLICK.
Wolverine, Mich., C., July 22.

Honey comes in very slowly this summer; prospects for a crop very poor at this time. Bees are gathering some from white clover, some from raspberry and other sources; basswood not yet open. F. PALMER.
Paris, Mich., C., July 19.

Bees are doing finely now. Basswood is in full bloom, and honey is coming in right along. Supers are well filled in my yard, and the honey is of fine quality. F. ALDERMAN.
Rushton, Mich., S. E., July 22.

MINNESOTA.

I have just returned from the Snelling apiary, and find the strong colonies are working finely in the supers. The Como apiary is doing still better. Reports from Mrs. Wingate and others around Minneapolis are to the effect that bees are all just booming. Probably the honey crop will be about medium in this locality. MRS. J. C. ACKLIN.
St. Paul, Minn., S. E., July 18.

MISSOURI.

Bees have done fine work the past 16 days. I think a two-thirds crop a fair estimate. H. PETEFISH.
Oronogo, Mo., S. W., July 20.

NEW YORK.

Bees are doing well. Clover is yielding well; weather warm and muggy; good honey weather; basswood not yet open. A bee-keeper here just now says he noticed one tree just opening, but this was in an exposed place. Mr. House says it will open the 20th. Our bees are doing well on clover. We think the season will be much better than last year. One party here this morning thinks he will get 100 lbs. from some colonies. A yard of six colonies has one super now nearly finished to each hive, and basswood still to be heard from. Most of the bee-keepers we see report a good yield so far.
Syracuse, N. Y., C., July 17. F. A. SALISBURY.

The prospect for clover honey is very poor in this locality; basswood is three weeks late. It usually commences to bloom about July 4th. It will be nearly another week before it blossoms here. E. W. ALEXANDER.
Delanson, N. Y., E., July 20.

The honey season is poor so far. I made my first extracting yesterday; bees just commencing on basswood, which is blooming freely; large acreage of buckwheat sown.
Kendaia, N. Y., C., July 20. C. J. BALDRIDGE.

We are having a good flow of white honey.
Auburn, N. Y., C., July 19. W. H. GIFFORD.

Weather conditions for the past two weeks have been very favorable. Immense quantities of white clover are reported now in bloom; basswood is just out. New Jersey and Long Island reports are flattering—from two to three supers on each hive. THE A. I. ROOT CO., per L. W. Boyden, Mgr.
New York, N. Y., S. E., July 17.

Basswood opened the 15th of July. Bees are doing well on that. I think the crop will be about the same as last season.
Chittenango, N. Y., C., July 20. B. HALL.

OHIO.

I have never seen a better flow of nectar. I shall get 50 lbs. of comb honey per colony. J. C. ATKINSON.
Beaumont, O., S. E., July 19.

We find Cincinnati and territory almost an entire failure. There are certain places in Kentucky getting some honey.
Cincinnati, S. W., July 17. C. H. W. WEBER.

There will be some honey in Southern Ohio. I have received a number of encouraging reports during the past few days. With favorable weather we shall have two weeks of honey-flow yet, which will mean in some locations a very fair yield. Some of my bees which I did not think would store a pound of surplus will, from present indications, fill a super. Others may fill two. E. W. PEIRCE.
Zanesville, O., C., July 19.

ONTARIO.

Reports generally are from fair to excellent, with the exception of a very limited number who report dry weather. There are fewer bees than last year, but there will be much more honey than last, as last year very few sections produced any surplus white honey. R. F. HOLTERMANN.
Brantford, Ont., S. W., July 17.

Bees are still working on clover. The flow has been good. Strong colonies are storing a strong surplus; but there are so many weak ones in the small number remaining that the honey crop will be light. Basswood promises well.
London, Ont., S. W., July 17. F. J. MILLER.

PENNSYLVANIA.

In New Jersey, where some of our apiaries are located, it will be one of the biggest years for white-clover honey that the State has ever seen in the history of the oldest bee-keepers; but that does not mean such an awful sight, as New Jersey is not a very large honey-producing section. Pennsylvania, Delaware, and Maryland will have an average yield of white clover. Not much basswood throughout the East, but it is just beginning to open up, and may yield slightly.
Philadelphia, Pa., S. E. WM. A. SELSER.

No surplus white honey in this section of the country. Basswood will not bloom this year. E. A. COREY.
Linesville, Pa., N. W., July 22.

Honey entirely a failure. CHAS. LONGANECKER.
Sigsbee, Pa., S. W., July 20.

TEXAS.

This part of Texas has made two crops of honey this year. My first crop was taken off the latter part of April, and the second one July 8; and if we get rain in August and September we shall make the third crop, which can be taken about Oct. 1. We are having very dry hot weather now.
Oakville, Texas, S., July 18. R. C. RUTHERFORD.

VERMONT.

Outlook for honey is poor—I should think less than half an average crop; basswood not yet open, but the outlook is poor.
Middlebury, Vt., W. C., July 17. J. E. CRANE.

WEST VIRGINIA.

No honey in our locality as yet; season still wet; bees are in rather good condition for fall bloom. V. H. DEAN.
Wayne, W. Va., S., July 20.

WISCONSIN.

Lots of clover; no honey in it; basswood bloom very light. I don't look for any honey. A. A. ERICKSON.
Rockton, Wis., W., July 20.

Since July 7, bees have averaged 4 lbs. 8 ounces per day from white clover. Bright warm weather prevailed. The prospect is good for another ten days. C. J. THIES.
Pepin, Wis., W., July 17.

One-third crop of white clover; the same of basswood; the prospect is poor; basswood just opening, two weeks late; bees are very weak. W. J. PICKARD.
Richland Center, Wis., S. W., July 17.

Our clover crop closes to-day—half a crop, or 60 lbs. per colony, 20,000 lbs. Basswood bloom is good, but nothing in it. The clover honey I got is fine. Letters received to-day report: Santa Paula, Cal., a third to half a crop; Western Iowa, clover, two-thirds of a crop; wet; Northwest Wisconsin, clover a fair crop; no basswood; Northern Illinois, half a crop; sweet clover good. All report the season late. Markets are active, and prices promise to be better than last year. I get 20 cents for comb and 10 for white extracted, retail trade.
Platteville, Wis., S. W., July 20. N. E. FRANCE.

It is now possible to secure from the Forest Service of the United States exclusive bee-ranges in which the bee-keeper is protected from overstocking by others on all of the forest reserves now controlled by the government. So far as we can learn from the "Use Book" of the Forestry Department no charge will be made for this exclusive right. In this respect this government is more liberal than that of Victoria, Australia, which charges a cent per acre for the same service.

Page 468, Nov. 22, 1906, *British Bee Journal* states that the New Zealand government has introduced a bill, "The Apiaries Act, 1906." In addition to *foul brood* it seeks to suppress bee-moths and any other diseases or pests from time to time declared by the Governor in council. This latter is a very wise precaution, and enables immediate action to be taken when new enemies appear.

CANADIAN PROSPECTS.

At this date of writing the outlook for a Canadian crop of honey has much improved. During the last three weeks we have had warm and hot weather—much of it sultry. Strong colonies have done well; and in this section, at least, basswood-trees have an abundance of buds. Many colonies have perished; but the present outlook is decidedly favorable; however, no one can tell what the future may bring forth. There has been a great deal of swarming.

STORES FOR BEES—WHEN TO SUPPLY THEM.

W. Z. Hutchinson, *Review*, page 136, in writing, rightly draws attention first to food a colony needs for winter stores, then refers to what many in discussion and practice ignore—the food needed for rearing bees in the spring. With one apiary he rather favors spring feeding; with several apiaries, giving enough in the fall. This is generally sound practice, but it is not always safe. I favor and try to practice giving *enough for spring* use in the fall, and then spring feeding in small quantities for stimulative purposes.

MORE PROFITABLE BEES.

Canadians have been looking with interested eyes to the United States to bring forward or discover to civilization a better bee than has been known to us, and now we are told there is no result from that world-circling trip made at the expense of the United States. Bee-keepers of whatever nationality should feel grateful to the United States for this effort, and somehow or another I have a hope that this will not close the efforts of the United States or some other country to endeavor to secure a more profitable bee for the modern bee-keeper. Selection and breeding can in any case be gone on with.

QUEEN-CLIPPING.

Page 685, GLEANINGS, Dr. Miller and E. R. Root want to leave the wings on one side of the queen, as they "want one pair of wings by which we might pick her up." What a savage condition the fathers of bee-keeping are in! I took Dr. Miller to be more gently disposed, and when at Medina I did not notice Ernest carrying the baby about by one arm. Previous education and lack of thought accounts for many of our actions. To take the queen up by the thorax and hold her in that way is a method much to be preferred. Propolize slightly the thumb and finger before beginning work; and if you scrape your hives well when the season opens and propolis is scarce, write to J. L. Byers for some of his surplus. It was Wm. McEvoy who taught me to clip the wings on both sides of the queen, and *he made no mistake.*

NECTAR SECRETION.

On page 394, Mr. Alexander, upon the subject of nectar secretion, states, "My friends, the time will come when many of you will realize that what is commonly called the 'season,' which is the condition of the ground as to proper moisture and the temperature, and the electrical condition of the atmosphere at the time the flowers are in bloom, will have a thousand times more bearing on our surplus than the amount of bloom or the number of colonies we may have in one apiary." This is worth repeating. A parallel we find in a spring well with a good head. Dip a pailful out of it, and it immediately fills up again; and so it is with the nectar in blossoms under above conditions. In my locality, however, buckwheat appears to yield the best in cloudy, hot, muggy, sultry weather, with an abundance of moisture in the ground. Mr. Alexander prefers "a clear sky and a bright hot sun with no wind."

POLLEN-CLOGGED COMBS.

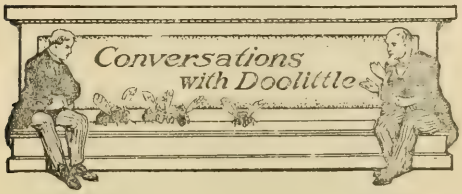
After keeping bees in a good many sections and with different ways of management, comparing this with the experience of others, I am firmly convinced that management has more to do with pollen-clogged combs than has locality. Next comes the nature of the queen. Since I have adopted the system of practically never having queenless colonies, having large brood-chambers and seeing that they are not clogged with honey, and having prolific queens, I have not had to free my combs of pollen by any artificial method. By the above I mean that, under proper conditions, the bees will use up the pollen for brood-rearing about as fast as they bring it in. Of course, I do not ignore the fact that with us, at least, early in the season when pollen is plentiful and honey comparatively scarce in the fields and woods, pollen accumulates somewhat to be balanced later on when honey is abundant and bees bring in much less of the pollen.

HOW TO LIFT A HIVE.

The editor of the *Bee-keepers' Review* states, in a footnote, "When I pick up a hive I step up behind it, reach down, and put a hand, or the finger ends, in a hand-hole on each side; raise the hive, and rest the back end of

the hive against the front of my person, and walk off with the hive If I took the hive up by the end holes, holding the side of the hive against my person, there would be a swinging of the frames at every step I took. I have seen a novice take up a hive in that manner, and there was a 'clack,' 'clack,' 'clack,' of the frames at every step he took."

The above is very true. If there were no bee-space above the frames, the queen-excluder or cover of the hive would prevent the swinging of the frames. Where colonies have to be moved about much I very much prefer this latter method of spacing. In carrying a hive I prefer holding the cover of it against my person. In moving about as I do, and having employed many men in teaming, etc., I find that, after showing men this method, they much prefer it to resting the back of the hive against the body. The weight is better distributed, and the hive does not require to rest in part against the muscles which move the legs in walking.



HOW TO TELL WHEN BEES ARE GATHERING.

"Hello, Doolittle! How are the bees doing this year?"

"Well, Smith, the bees have done very little so far, and it is now July 10. Our apple-bloom was an entire failure, owing to the bad weather. Then we had lots of rain till within a week, since which the bees have been getting little more than a living, though for the past five days very thin nectar can be shaken from the combs in the afternoon of the warmer days."

"Is your clover in full bloom yet?"

"Well, hardly. Every thing is about two weeks late I was noticing the buds on the basswood this morning, and I should say that it would be July 20 before the very earliest would open."

"Well, that *is* late. How late did you ever know it before?"

"July 16; and all the way from that to July 1 as the earliest."

"Quite a variation, surely. Have you a little time for talking to-day?"

"I will take a little time if you wish. What is on your mind at this time?"

"I have been told that a person can tell when bees are gathering honey and when they are not by simply looking at the bees at the entrance of the hive; but I must confess that I can not to any satisfaction. Will you tell me how it is done?"

"This is somewhat hard when very little nectar is coming in; but when the bees are gathering freely any one should be able to tell by simply looking at the entrance."

"I have looked, and am not able to tell. Tell me how to look."

"Well, when the bees are heavily loaded or gathering freely they will fall short of the entrance when coming in with their loads. In other words they will drop before they reach the alighting board; and if the yield of nectar is profuse they will drop all about, on top of the hive, down in the grass, etc., and often five to ten feet from the hive. This is especially true with a profuse yield from basswood during the early morning hours."

"But I had supposed that these early bees which dropped down were carrying water."

"Bees carrying water do sometimes fall short of the hive; but it is seldom that more than two or three bees are seen falling when carrying water, while with plenty of nectar from the basswood the ground about the hive will be covered with them speaking approximately."

"I see. I will bear that in mind in the future. But how can I tell when nectar is coming in slowly?"

"Wait till about three or four o'clock in afternoon, at which time, as a rule, the bees will be at work the strongest, and the sun will be shining at the right angle, if your hives face the south, so that you can see right through a bee, as it were, when, by placing the eye close to the ground, you will discover that the bee which is carrying nectar looks transparent compared with those which are carrying nothing."

"How about the water-carriers?"

"They will be still more transparent; but as the water-carriers are few in number beside those that carry nectar, when any nectar is to be had, you should not be fooled by these. Now, if you will put one of your colonies on a pair of scales, one that has a pointer that marks off the pounds and ounces, and then make your observations at a time when the scales tell you that a little honey is coming in, and from that to a good yield, you will soon see how you can tell at any time about what the bees are doing."

"I had not thought of that. Do you have a hive on scales?"

"Not of late years. I used to keep one thus, and this had much to do with my judging from outside appearances; but of late years it has not been difficult for me to tell what the bees are doing."

"It is quite easy to tell when bees are gathering pollen."

"Yes, but not so easy always to tell what source all the pollen gathered comes from."

"It is easy to tell dandelion pollen."

"Yes, from its color, resembling the color of the bloom. But all flowers do not give pollen of the same color as the blossom."

"I supposed they did. I have seen bees gathering pollen from Indian plantain and from corn tassel, and the bee-gathered pellets were of the same color as the bloom."

"Yes, you are perfectly right there; but did you ever note the color of pollen coming from white clover?"

"I supposed the white clover yielded only honey."

"Have you never noticed a dark greenish-brown pollen on the bees at this time of the year?"

"Yes, but I never knew where it came from."

"That is from white, red, and alsike clover."

"How do you know?"

"By watching the bees when on the clover-blossoms. This same pollen is what is stored in the combs mostly to carry over the winter, and the same that our fathers used to call "bee-bread."

"Is that so? I have seen piles and piles of bee-bread, but had no idea it was clover pollen. Do bees that gather pollen gather honey also, or are there two classes?"

"What do you mean by two classes?"

"Just this: One class of bees that gather only pollen during their lifetime, and another class that gather only nectar or honey?"

"Then I should answer that there are not two separate classes"

"What then?"

"The field bee may gather nectar and no pollen, or it may gather pollen and no nectar, doing the same on the same day. In other words, the same bee may gather only pollen in the forenoon and only nectar in the afternoon."

"Is not the most of the pollen gathered in the morning?"

"That depends upon what the pollen is being gathered from. Mainly, it would be right; but with hard maple and the clovers, especially the clovers, the most will be gathered in the afternoon, for the reason that the bees gather very little from the clovers before 9:30 A. M."

"Do bees gather both pollen and honey at the same trip?"

"Not from corn-tassel, Indian plantain, and such like pollen-producers only; but where flowers yield both honey and pollen, both are gathered on the same trip."

"But some claim bees do not gather both on the same trip, do they not?"

"Yes. I was noting only a short time ago that so good an authority as Dr. Miller gave utterance to this in the *American Bee Journal;* but doubtless he had not thought of examining a bee coming in with that greenish-brown pollen from clover, for had he done so it is almost sure he would not have penned what he did."

"Perhaps he would call that bee-bread and not pollen."

"I hardly think that, for there is more clover pollen gathered during each year than from any other plant or tree which blooms, owing to the time of the flowering of clover covering a much longer period than any other one kind of tree or plant. But only the close observer notices this pollen, as it is so near the color of the pollen-baskets of the bees, so they go in with it unobserved, while the lighter-colored pollen attracts the eye just the instant the bee is noted."

"But how do you know that bees carry both nectar and pollen on the same trip when working on clover?"

"By catching a returning bee and dissecting it, or causing it by gentle pressure of the abdomen to throw out the nectar on the tongue."

"That is proof, sure. Now just one more question and I must be going. You told us in one of your conversations to keep combs of honey for feeding in the spring, but you did not say how to keep the honey in them from granulating. How is this done?"

"I take no special pains to prevent the granulation of the honey in such combs. In fact, I never thought of the matter before. I leave them with the bees till I clean all honey off the hives in the fall, when it is piled away in the hives, just as left by the bees when they are run down off it through a Porter bee-escape. At the out-apiary these hives are simply stacked up as was given in "A Year's Work at the Out-apiary," and left thus till I wish to use them for feeding in the spring. Those at the home apiary are carried to the storeroom in the shop, and so left till wanted in the spring or early summer, and I never had any granulated honey thrown out at the entrance from such combs, that I remember. Honey soon liquefies, where granulated, when with a good colony of bees during the summer heat, which often comes during May in this locality. If I had any trouble from granulated honey being thrown out of the hive by the bees I would store the combs in a warm room during the winter, so that the honey might remain liquid."

Be careful not to allow caged queens or bees to remain in the sun or any hot place. A few days ago I caged a queen with the usual escort to take to an out-apiary. The cage was in the pocket of a dark-colored coat which was left lying on the wagon-seat. Two or three hours later all were dead.

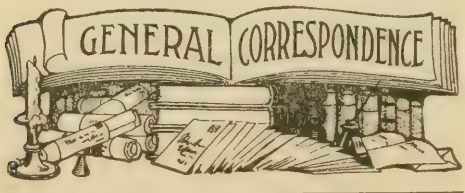
We all know how bees will collect around a cage that has held a queen. Has any one noticed that drones will do the same? It is new to me; but yesterday, among the bunch of bees that gathered on a cage that had held a queen for several days, were three drones.

Bicycle trousers-guards have been recommended for keeping the bees from crawling up where they are not wanted. A light rubber band is even more effective. A supply of them can be kept in the pocket at all times, and they do not weigh much or take up much room.

Will C. W. Dayton or any one else tell us why naturally built comb should not last just as long as that built on foundation? One would infer from his article on p. 838 that he believed otherwise. We will grant that naturally built comb may contain more drone comb than is desirable, which will need to be replaced. Accidents will happen to combs, making holes that the bees are apt to fill with drone comb, making these combs in time less desirable unless they are kept patched up. But are not these accidents just as likely to happen to a comb that was originally built on a full sheet of foundation as to one naturally built?

WOODPECKERS.

In GLEANINGS for Nov. 15, 1906, is an illustration of damage done to hives by woodpeckers. These were much more considerate than the woodpeckers here, boring only through the hand-holes, where the damage could be easily repaired. I have seen hives here where the giant woodpecker had chiseled great jagged holes in the upper edge of the hives, beginning at the crevice between the hive and cover, and doing a great deal of damage. This giant woodpecker makes itself a great nuisance here by boring holes into buildings, apparently out of pure mischief, as sometimes several holes will be bored close together through perfectly sound wood. I have had to shoot a number to keep them from filling our house full of holes; and while at this writing a vigorous rap-rap-rap on the gable end of the house called me out to settle with the mischief-maker.



FEEDING BACK EXTRACTED HONEY.

How this Plan Can be Made Profitable in the Production of Comb Honey; the Importance of Thinning the Honey and Feeding During a Natural Honey-flow.

BY E. W. ALEXANDER.

[This article deals with a very seasonable subject, particularly this poor year when there will be many unfinished sections. The knowledge of how to complete them, thus rendering them fit for the market, is important. Incidentally this will supplement the article by J. E. Hand in this issue.—ED.]

On page 645 friend Reddout calls my attention to this subject. He can hardly see why there should be such a difference of opinion on this subject as there seems to be. I also can not see how there could be any variation in the results, only such as would naturally follow from the difference in the time of the season in which the feeding was practiced, the quality of food, and in the way in which it was given.

My first experience along this line was something over 30 years ago. The honey fed was thick extracted, and fed in its natural state after the August harvest was past. This I fed for the purpose of finishing up partly filled sections. I soon found this was a very unnatural time of the year for bees to build comb, as nearly every night was quite cold, with frequent frosts. I also found that it took on an average a little more than 3 lbs. of extracted honey fed in this way to produce 1 lb. of comb honey, and it frequently granulated in the sections in a short time so as to spoil their take.

I next tried thinning the honey with boiling water to about the consistency of nectar. This made a great difference in results. The bees took it from their feeders more readily, and it did not require nearly as much honey to fill their sections, and I was not troubled any more with its granulating in the combs; but I was not satisfied to stop here when I could see that it required nearly 2 lbs. of extracted honey to produce one of comb, and I realized that I was fighting natural law in trying to force my bees to produce comb honey decidedly out of season.

My next step was to make extracted honey very thin with hot water, and feed it to certain colonies producing comb honey during the entire summer harvest, giving each colony about all it could handle during the night. At first I was afraid it would have a tendency to check their work during the day; but, not so. It seemed to act as a stimulus to still greater activity when they could go to the flowers. Then I felt I had solved the problem of producing comb honey from extracted. There were no more partly filled sections to bother with; no more travel-stained sections to sell at a reduced price, but every one nicely filled out clear to the wood, and well capped.

I then found I had at my control for about 60 days as rich a harvest for the colonies I ran for comb honey as I could desire, and with not a break of even a day it was a pleasure to see those sections filled with choice comb honey.

I don't think it possible to feed thick extracted honey to bees for the purpose of producing comb honey so as to derive any profit from it after the honey-producing season is over. I think that nearly all those that have ever tried it, and went only so far along this line, have given it up in disgust. But when I took up this line of the business I went much further than any I had ever heard of, and made it a success.

The day is coming when the comb-honey producer will find it as I have stated above. He will have complete control of his harvest for comb honey simply by keeping a few more colonies and running them wholly for extracted honey to help his comb-honey colonies along during those natural changes of the atmosphere which frequently cause the flowers to stop secreting nectar several days at a time. Then the bees stop working

in their sections, their combs turn yellow, and, if the honey-dearth lasts many days, as it sometimes does, it requires a good harvest to start them at work again in their sections, and then those sections will never sell for the highest market price. This can all be prevented when there is a good feeder under every hive, and tanks full of extracted honey.

There must be many comb-honey producers who can throw some light on this subject; and, although I am out of this class, and giving only my own mite of experience when I produced comb honey, I should be much pleased to hear through GLEANINGS the experience of others.

I repeat that, in order to produce comb honey from extracted at any profit, it must be done during hot weather while the bees are gathering nectar from the flowers; and the honey, before it is fed, must be thinned with boiling water to about the consistency of nectar. To feed thick extracted honey out of season to produce comb honey is a waste of both time and honey; and the small amount of comb honey that is produced is likely to granulate and became unsalable.

This is one of those leading subjects which should receive our attention until our markets are free from so much unsalable honey as we often see. With the knowledge and appliances for producing honey we now have, no man is excusable for putting a poor article on the market; and it is a duty we owe to ourselves and each other to condemn this practice wherever we see it. I can not see how locality can make much difference in this matter; but I can readily see that, if honey is thinned to the consistency of nectar with boiling water, it will have a tendency to prevent its granulating; and if fed to bees in this condition during the season when it is natural for them to build comb and are gathering nectar from the flowers, a short slim harvest can be changed to a long rich one, for the bees will simply be helped to carry out their natural instinct, and success will be the result.

Delanson, N. Y.

DOES IT PAY TO EXTRACT SECTIONS?

The General Problem of Unfinished Sections.

BY G. C. GREINER.

As a rule, this question will have to be answered in the negative. It is too much fussing for the little gain derived from the operation. However, there are exceptional cases when it is not only desirable but in a small way profitable.

During the many years of my bee-keeping, conditions have occasionally been such that I felt the desire to extract sections; but as I thought it could not be done without running too much risk of breaking the combs from the wood, and, besides, not having any convenient rig to do the job in a satisfactory way, I have never, until lately, made the attempt. I have always let my bees do the extracting — that is, any unfinished sections which I reserved for next season's bait-combs I set out for the bees to help themselves. This is an easy way to get these sections cleaned out; but it has the disadvantage that the colonies that don't need any feeding get it all or nearly all, while those that are sorely in need of stores get very little if any.

We may take it for granted that no bee-keeper would even think of extracting finished sections, or even such unfinished sections as could be profitably disposed of as chunk honey, or used otherwise to advantage But some seasons produce a certain kind of unfinished sections that seemed to be made for the extractor. According to the peculiarities of different seasons' honey-flows, we have, as mentioned in a previous article, two distinct types of unfinished sections. One kind is partly built out, some not larger than the inside of a hand, but all drawn out, filled with honey, and every cell capped over, while the other is all built and drawn out, filled more or less with honey, but little, if any, capped. The past season produced in this locality, with the exception of very little finished honey (where bait-combs had been supplied) the latter kind.

During the five days of white-clover honey-flow, lasting from the 26th until the 30th of June, honey was gathered in such quantities that the comb-builders had all they could

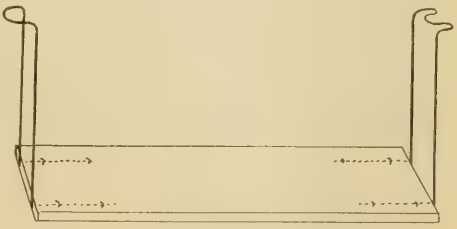


FIG. 1.

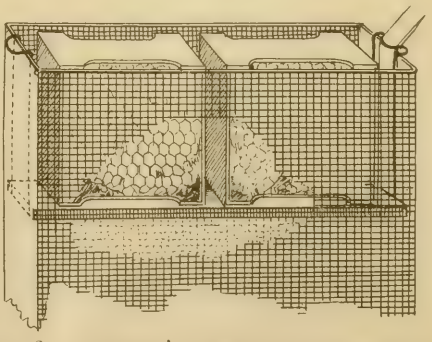


FIG. 2.—GREINER'S COMB-BASKET RACK FOR HOLDING SECTIONS IN THE EXTRACTOR.

do to furnish storage for the incoming nectar; and when the combs were built and drawn out they were also filled with honey, and about ready to be capped. Just then the honey-flow ceased; and so complete was the following failure that not the least progress was made in sections for the remainder of

the season, although enough was gathered most of the time for bees to live on and to store a little in the brood-chamber. This explains why the largest share of our crop consisted of just such unfinished sections as could be extracted with very little trouble; and as extracted honey was so very scarce, the little that those sections contained looked big in my eyes, which induced me to try the extractor.

As I said before, I had no convenient way to extract sections; but being anxious to try the experiment, a few minutes' work solved the problem.

The accompanying drawing, Fig. 1, represents a little adjustable shelf that is suspended by wire hooks into the upper part of the extractor-basket, as shown at Fig. 2. It is made of half-inch lumber, and fits loosely into the comb-basket. The dotted lines show the position of the wires on the under side of the shelf, where they are fastened by two little staples clinched above. The shelf should not be hung too low. If the sections project above the basket enough for a hold, it will make it all the more convenient. If we use the precaution of reversing the basket twice, or, in other words, if we reverse the basket after part of the contents is thrown out from one side by moderate speed, before trying to make a clean sweep, it is almost impossible to detach the combs from the wood or even bend them out of shape, if they are reasonably fastened to the sides. They will bear the same speed as regular extracting-combs.

Simple as this little arrangement may seem, it does the work to perfection; and I am surprised that I did not put this scheme into practice years ago. It may be well enough to let bees have access to our sections after they are passed through the extractor. Although they are in very good condition for winter storage without it, the little trouble will improve them for next year's use.

La Salle, N. Y.

WHAT WE OWE THE GERMANS AND WHAT THEY OWE US.

BY DR. C. C. MILLER.

It is greatly to be regretted that in this country there is so much ignorance among bee-keepers, editors and all, as to the great debt of gratitude we owe Germany for the devices and discoveries of her able and patient investigators. Unfortunately the same may be said as to conditions on the other side. Although in some German bee-journals American methods are in good credit, in others there is too much tendency to say that any good thing in America came from Germany. Conspicuous is the utter ignoring of Langstroth's claims, giving to Dzierzon entire credit for the invention of movable combs. The truth is, that the two men each worked independently, without knowing what was done by the other. But Dzierzon's invention was not a movable *frame*, only a top-bar requiring the comb to be cut away at the sides each time it was lifted out, and the last comb could be taken out of the hive only by first removing all the others; and it is well known that for years Dzierzon would not use a movable *frame*.

And now Doolittle's laurels seem to be threatened. In *Bienen-Vater* is given a full account of artificial cell-cups invented by William Wankler, and his method of queen-rearing, with illustrations. Well, it is nothing strange that the two men should conceive of the same thing, and that takes away nothing from the credit of either. But in *Deutsche Imker aus Boehmen*, p. 35, occurs this: "Since 1880 Wankler has carried on queen-breeding on a large scale; *he can be considered as the real inventor of the American method of queen-rearing*, for at the exposition in Munich, 1883, Frank Benton had Wankler fully explain his method, then bought from Wankler several drawings, as well as the glossometer, and subsequently made known and spread this method in America."

I do not know how much Mr. Benton did toward making known what he learned from Wankler, but I have kept pretty close track of bee literature in this country, and I do not remember ever to have seen mention of it. This much is certain: Doolittle made and used artificial cell-cups *before 1883*, and until this year of our Lord 1907 he never had any inkling from Mr. Benton or any one else that any thing of the kind was done in Germany until it was learned from America; and it is safe to say that the American method of queen-rearing would have been exactly what it is to-day if Wankler had never been born — this without in the least detracting from any credit due Wankler. It was his misfortune rather than his fault that his countrymen were so slow to recognize any good thing in what he had done, as he himself relates in *Bienen-Vater*. Neither, by any means, do I mean to say that the entire credit belongs to any one man for the present condition of American queen culture. Mr. Doolittle would be the first to give credit to a number of others for their part.

After all this is said, I want to stop where I started, by saying that very few bee-keepers in this country realize the debt of gratitude we owe to pioneers across the sea for all we have learned—are still learning—from them.

[Honor to whom honor is due. The first man (so far as known) to use the grafting or transposition method of rearing queens was John L. Davis, of Delhi, Michigan, who briefly described his plan in GLEANINGS for September, 1874. The so-called Doolittle cell cups were perfected a little later, and are described and illustrated in GLEANINGS by W. L. Boyd, of Hamilton, Ohio, September, 1878, page 323. A certain Yankee by the name of A. I. Root adopted both of these inventions at once, and succeeded with them. It is very likely Wankler learned these things from American sources. Let me whisper, doctor, the Germans are *slow* on bee-keeping. —W. K. M.]

THE STORY OF HONEY-COMB.

How it is Built; Why the Cells are Six-sided; Cross-section Views of Cells from Comb Built at Right Angles to Glass; the Wise Man and the Fool.

BY EDWARD F. BIGELOW.

[The following article by Prof. E. F. Bigelow, the nature-study man, lecturer, and one of the editors of *St. Nicholas Magazine* on the subject of honey-comb, its construction and development, is one of the best if not *the* best that was ever written. The photographs are superb, and instructive as well as interesting. The article as a whole will be incorporated in the next edition of our A B C of Bee Culture, now in process of revision, and, later on, made the subject of a special booklet.—ED.]

For many years the theories as to wax-production were far from the truth. Somewhere between 1744 and 1768 it was discovered that wax is produced between the plates on the lower side of the worker bee's abdomen. The honor of this discovery is usually ascribed to a Lusatian peasant of unknown name. But Thorley, a quaint writer of 1744, speaks of "six pieces of solid wax, white and transparent like gum within the plaits."

Wax is produced at the will of the bee, and when called for by the necessities of the hive. The wax-producing bees obtain a somewhat high temperature usually by close clustering, although they sometimes hang in slender festoons and chains.

"Wax is not chemically a fat or glyceride, and those who have called it 'the fat of bees' have grossly erred; yet it is nearly allied to the fats in atomic constitution, and the physiological conditions favoring the formation of one are curiously similar to those aiding in the production of the other. We put our poultry up to fat in confinement, with partial light; to secure bodily inactivity we keep warm and feed highly. Our bees, under Nature's teaching, put themselves up to yield wax under conditions so parallel that the suitability of the fatting-coop is vindicated."—*Cheshire.*

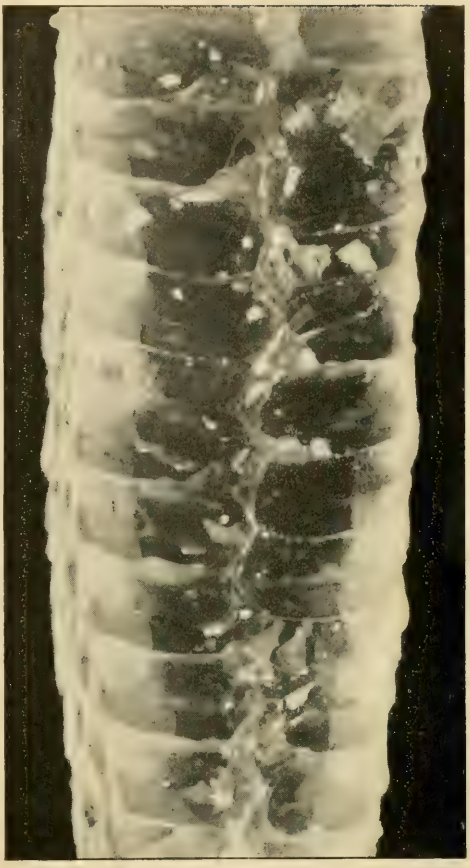


FIG. 1.—EDGE OF HONEY-COMB BUILT NEXT TO GLASS—ENLARGED VIEW.

The cells are partly filled with honey. This illustration shows that the cells are not straight and horizontal, but curved and slanting upward.

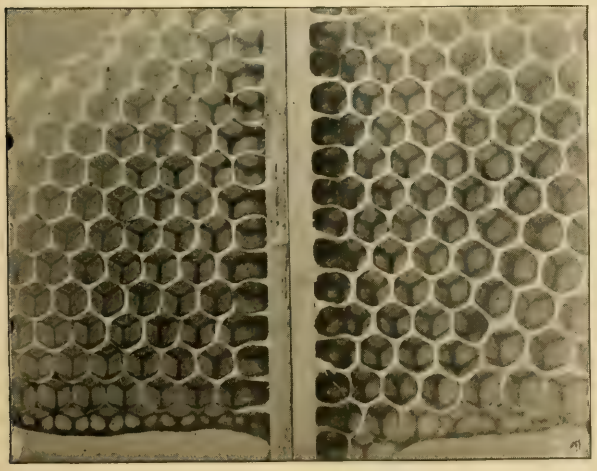


FIG. 2.—CIRCULAR CELLS

The elongated-attachment cells much resemble the soap-bubble forms shown in Fig. 3.

On the inner side of the eight plates lining the lower side of the abdomen are about 140,000 glands (Cheshire), from which the wax is secreted as a white liquid, which hardens on exposure to the air. When first formed it is white and very brittle, and is pulled out from between the plates by the pincers on the hind legs. The pieces of wax are then passed to the front legs, and thence to the mouth, where they are made plastic by the addition of various materials in the saliva and by thorough mastication.

From this raw material the sculpture bees make three kinds of cells. First, at certain times of the year, when a new queen is needed, they build a few large, almost perpendicular, peanut-shaped cells. The two other

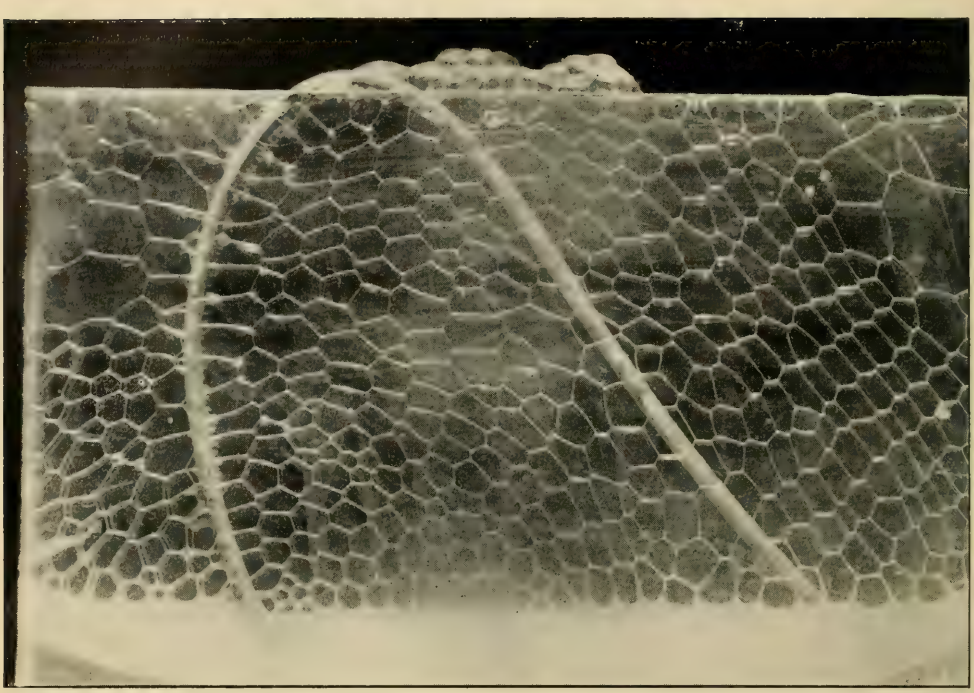


FIG. 3.—SOAP-BUBBLES BLOWN BETWEEN TWO PIECES OF GLASS TO SHOW THE RESEMBLANCE TO HONEY-COMB.

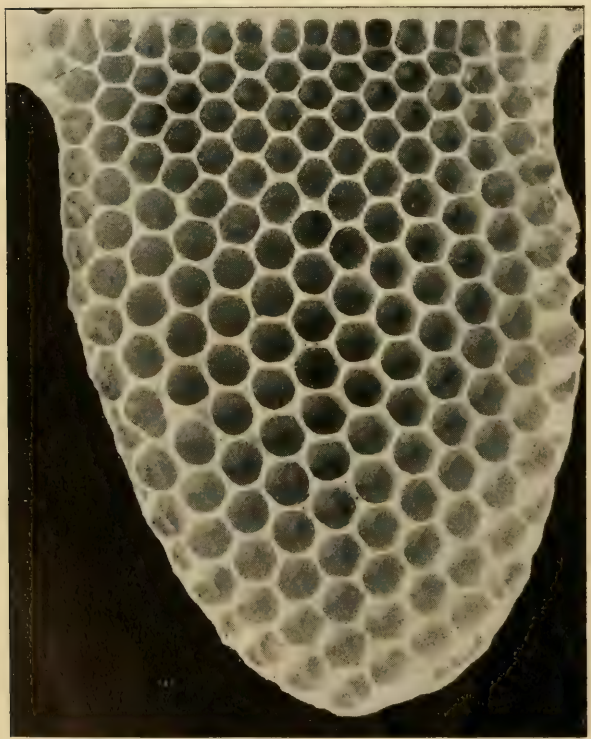


FIG. 4.—A COMBINATION OF WORKER AND DRONE CELLS. None of the angles are sharp, and most of the cells are circular.

kinds, drone-cells and worker-cells, are practically the same in form, the drone-cells differing in being larger. As their names imply, they are used for rearing drones (the male bees) and workers (undeveloped females). Both kinds of cells are nearly horizontal, slanting upward slightly from the center to the exterior of the comb. Both kinds are used for the storage of honey, and this slight inclination facilitates the filling of the cell, and prevents the honey from running out before the cap is added. See Fig. 1.

All three forms are *primarily* cylindrical. The queen-cells, isolated from the others, always remain cylindrical. All solitary bees (not honey-bees) make such cells. The hexagonal form is due largely to mutual pressure, and partly to optical illusion. Cells near the edge of the comb, where it is attached to some support, are either circular or elongated circular. See Fig. 2.

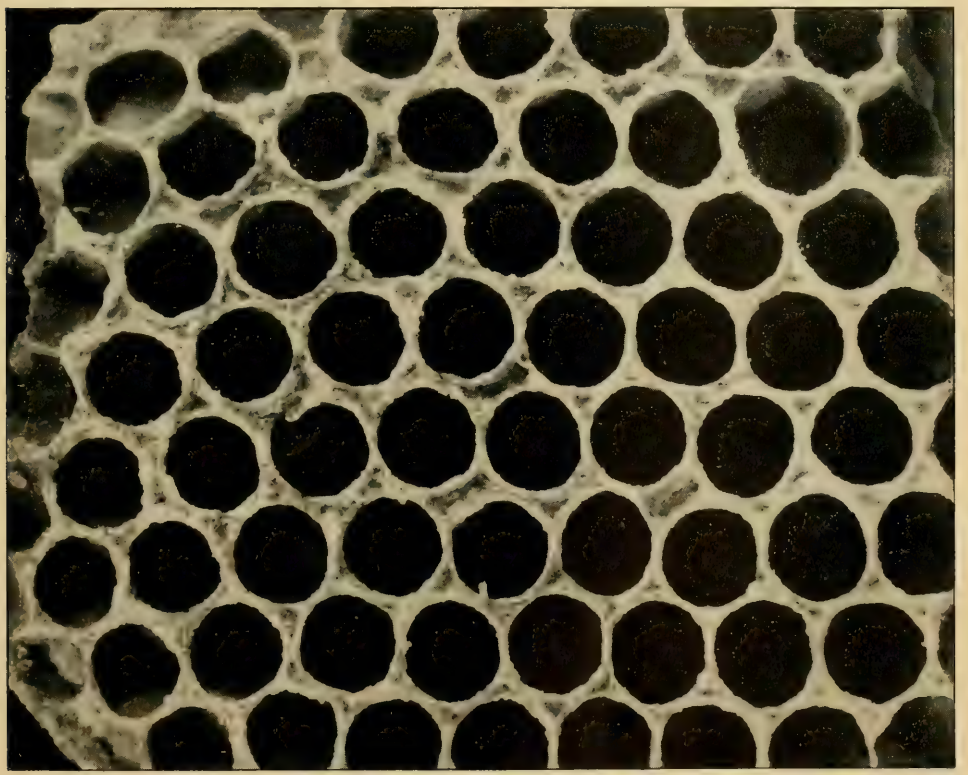
A soap-bubble floating in air is circular in every direction—that bubble is a sphere. Let it fall on a table and it becomes flattened on one side. Let there be pressure on every part, and the outlines are no longer circles but polygons. Let a mass

of soap-bubbles be confined, one layer between two sheets of glass, and they become short polygonal tubes. If sizes are equal and pressure from every direction is the same the outlines will be regular hexagons, the same as those of worker-comb cells. If these conditions vary, the outlines will be irregular polygons but mostly six-sided. See Fig. 3. Worker-cells seem to be more closely crowded together than drone-cells, and thus have their angles, in most cases, more sharply defined. In drone comb some cells are almost without angles, the spaces between the tubes being filled in by a thickening of the cell walls greater than is customary. See Figs. 4 and 5. In such parts a casual glance shows them to be almost as hexagonal as is the usual type. But close examination or magifying shows many cells that are cylindrical tubes, The more one studies comb, the more firmly is he impressed by the belief that the original "intention" of the bee is to produce a hollow cylinder, and that the hexagonal result is due solely to the force of circumstances, and is entirely "unintentional."

A correspondent recently told me that, after her house was burned down, workmen, in clearing away the ruins, found in the cellar, amid the debris, a box of glass "marbles" that had belonged to her young son. Under the heat and the pressure the marbles had become a solid mass; they had "run together." A workman, in knocking off the clinging cinders, broke the mass in two. The interior presented an almost perfect honey-comb effect, each marble being a spherical polygon. So cylinders or spheres, pressed together uniformly in every direction, and submitting to that pressure, become hexagonal in outline.

Much has been written about the mathematically exact angles of honey-comb. Some philosophers have stoutly maintained that the bees have solved difficult problems, and that their work is an example of the wonderful perfection of nature or of natural instinct. Many of these claims make interest, ing reading. Abstruse theories and complex formulæ have been contributed to sustain these claims. But they lack one essential feature, and in this they do not stand alone, even in the productions of writers on natural history—*they are not true.*

Actual measurements of the angles show that they greatly vary. But, notwithstanding the fact that the cells vary in size and form, comb is none the less a wonderful structure, with all its parts arranged for the greatest strength, the largest storing capac-



A STUDY IN CELL-MAKING.

Note that the cells are made independent of each other, and that it is the refuse wax, like droppings of mortar in brick-laying, that seems to tumble into the interstices to fill up.

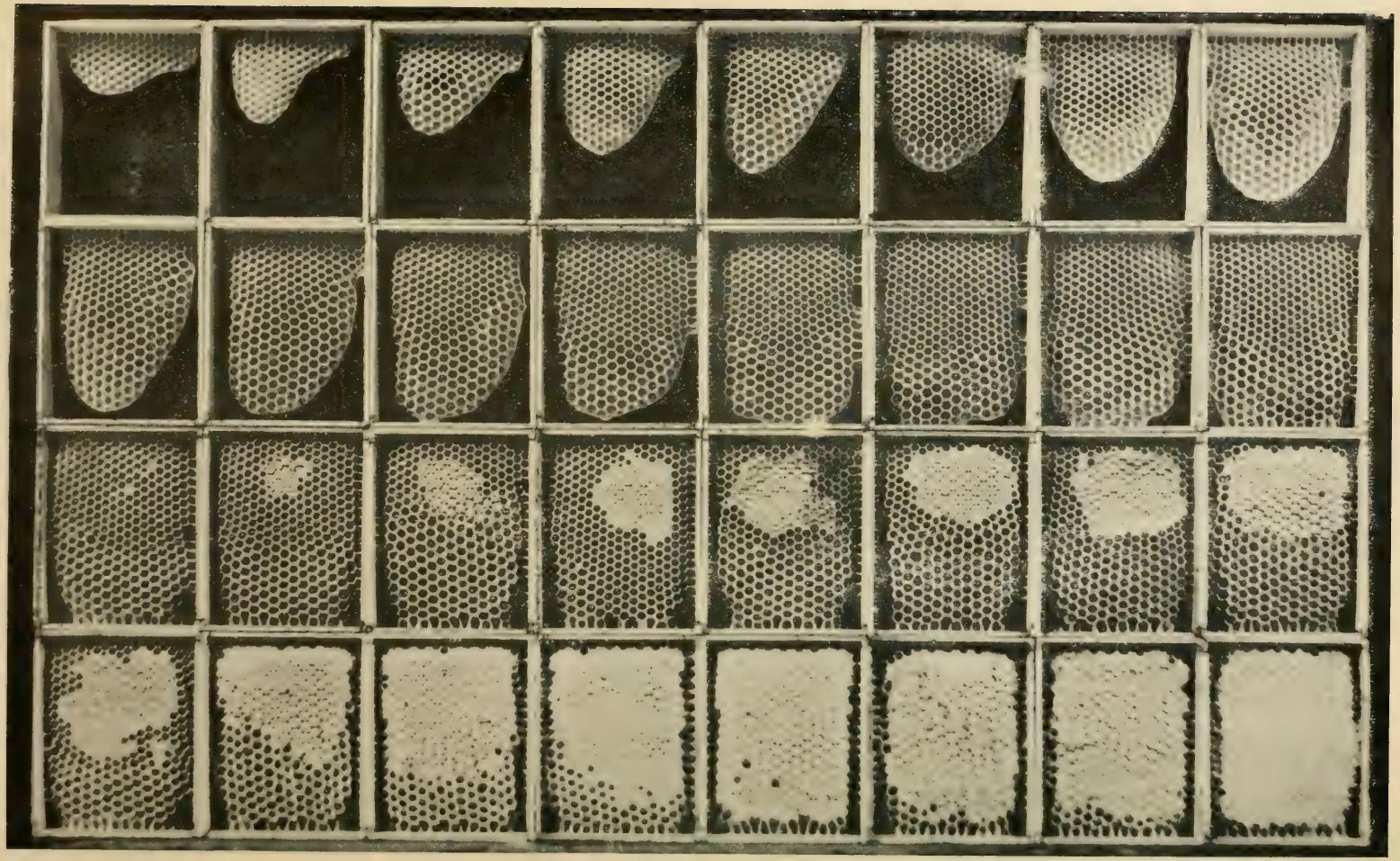


FIG. 6.—THE DEVELOPMENT OF COMB HONEY.
Note.—These sections were selected from two supers of 32 sections each.

ity, and most perfect adaptation to circumstances. Wax is produced by the bee at a great expenditure of labor, material, and strength. Well-informed investigators say that "The costliness of wax to the bee, since it can be produced only at the expense of many times its own weight of honey or sugar, has led to great economy, one pound of it being molded into 35,000 worker-cells," while others have observed 50,000 made from that amount. To help the bee in this economy, apiarists have found it advantageous to use machinery which shall work the same material over and over. As the combs become old they are melted, the pure wax taken out and remodeled into thin comb-building foundations. But this is in no sense the manufacturing of a new product, but an extracting, purifying, and remodeling of the bees' own choice material. It simply saves the bees much arduous labor that machinery can do easier and at less expense, when we consider the effect on the bee.

No one is fool enough to claim that a suit of clothes made on a machine is any more "artificial" than one sewed by hand. It is simply economy of labor. Yet hundreds of persons have the incorrect notion that there is a honey-comb made from wood pulp, punk, putty, paraffine, or from material other than wax. I say, "fool enongh" advisedly, because a wise man changes his mind (when it becomes necessary); but a fool never. It would not be surprising in these days of sensational journalism and of false nature-stories if one should get the notion that artificial comb honey really exists; but the fool part comes in when a person, totally inexperienced with bees, stoutly and smilingly maintains that there is such a thing as manufactured honey in the comb. I feel sure that the inimitable fool expression of such a person is the origin of the colloquialism, "The smile that won't come off." No use. Do not argue. It won't come. "Why, I've seen it at the stores. Grocer told me all about it—was several cents cheaper. I tried it; we didn't like it as well as the genuine." And then the bee-keeper goes away, not a wiser but a madder man, and wonders why the fool-killer doesn't do his duty, and why every one (except the bee-keeper) knows all about bees and their products.

It is, however, true that there are many interesting problems about comb-building that even the experienced bee-keeper doesn't know. To me one of the most interesting of these problems has been the fact that bees carry along at the same time the comb and the storage work in the sections in all stages of progress. If an empty super were put on a colony so strong that the bees "boiled" up into all parts of the super, so that there was no vacant "standing room" left in any section, one would suppose that the work of comb-building would begin in all sections at the same time, and progress with about equal rapidity. But it doesn't. A few sections in the center will be completed before work has been started in some of the outer sections, and nearly all gradations may be observed between the extremes. From two supers on a ten-frame hive I selected one-half, that is, 32, as shown in Fig. 6, that exhibited seriatim every part of the progress from the first extension of the suggestive nest-egg starter to the completed fancy section. Another series, almost as well graded, could have been made up from the other 32 sections. Now, why was it that there were not 32 or more one-eighth filled, then one-quarter filled, then one half filled, and so on gradually, *all* advancing "right dress," and about equally in a uniform line of progress, till all had been brought to completion?

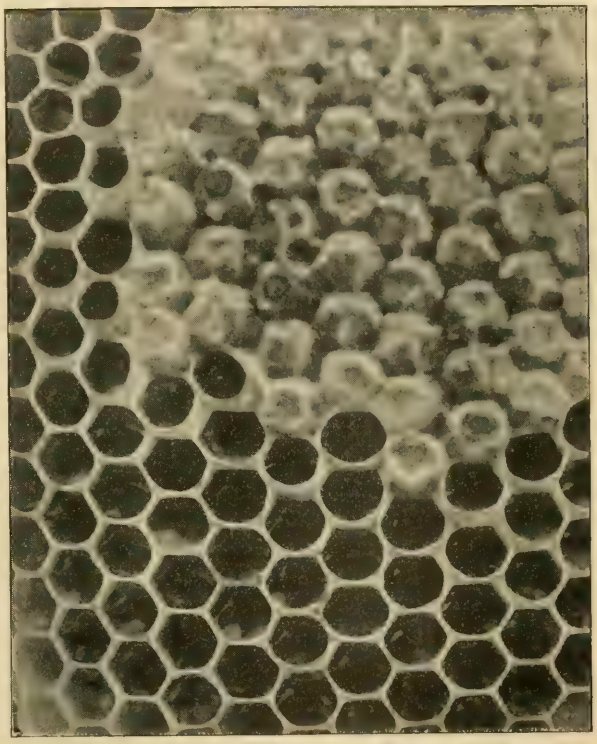


FIG. 7.—DRONE-CELLS USED FOR HONEY-STORAGE

It will be seen that the lower part of the opening is capped first. This, with the slant of the cell, keeps the new honey from running out.

Drone-cells and worker-cells are made from new wax, and are at first of pearly whiteness, which soon becomes yellowish. Queen-cells are made mostly from surround-

ing comb, so a queen-cell, if just completed, is aged in appearance if on old comb. Almost any material is used, yet not extravagantly. So economical are the bees that they "pit" the cell till it has the roughness of a peanut. This arrangement of material gives greater strength than the same amount would give in a layer of uniform thickness—on the principle that a certain amount of material is stronger in a large hollow cylinder than in a smaller one that is solid.

Bees change readily from the building of worker-cells to drone-cells. They seem to have no trouble in making correct adjustments and angles. It is not at all uncommon to see a group of drone-cells near adjoining worker-cells on the same comb. One wonders why the bees change the size of the cells. When capped over for honey, both are of the same height; but when with brood the drone-cell cappings stand above the surrounding worker-cells. The cappings of the drone-cells are made stronger by six bracing ribs or buttresses, Fig. 7. This gives the whole capping a most beautiful appearance when viewed as an opaque object under a microscope. The cappings of both cells, though extremely thin, are not air-tight. It is wonderful to observe how the bees adapt the comb to the form of the hive, often curving it, and sometimes making it cylindrical. In the arrangement of the several combs of a hive there is wonderful provision for the ventilation of every cell, and for the convenience of the workers in the various departments of labor. What a wonderful coincidence (or shall we say purpose?) is it that honey-bees do not make their cells of paper as do wasps, yellow-jackets, bumble-bees, and hornets! If they did so, the luxury of comb honey would be unknown. Honey-bees place their combs perpendicularly. All paper combs with which I am familiar are horizontal.

THE HOME OF THE BANATER BEES.

What Hungary is Doing for Apiculture.

BY RALPH BENTON, B. S.,
Assistant in Entomology, University of California.

In some respects it can be said with truth that the little kingdom of Hungary leads the world in apiculture. The Hungarians are a shrewd, thrifty people, agriculturally inclined—of Asiatic origin, and intensely patriotic. This last characteristic is particularly shown by the fact that the young students of the country even refuse to learn German for fear of Austrian encroachment and dominance. Budapest, the capital, is the Paris of Oriental Europe—rich commercially through the business-like qualities of the Jewish-Hungarian merchant. And it is in the vicinity of this city at Godolo that the Hungarian State School of Apiculture, whence that splendid system of governmental fostering of bee-keeping is directed, has its location. Here there is offered to the youth of the kingdom a two-years' course devoted entirely to apiculture in all its branches.

It was with intense interest that, in company with the Under-secretary of Agriculture from Budapest, we inspected the bee school and farm at Godolo. Vacation was nearing

AN APIARY AT TEMESVAR, HUNGARY; HIVES OF THE BERLEPSCH PATTERN.

its end, and already several of the instructors were on hand for the short summer session of two weeks in August devoted entirely to the instruction of women students. Among the buildings was the ladies' dormitory, but waiting for the arrival of the students. We were also shown through the men's dormitory where the regular-term students have their quarters. An interesting feature in one of the buildings was the apicultural museum where all the various hives and implements used throughout Europe and America at the present time, as well as the old models of hives, were on exhibition. We were then shown through a series of bee-houses filled with hives of the Berlepsch pattern, so commonly used in Eastern Europe.

One interesting experiment in progress was that of determining the fact whether queens lay drone or worker eggs at will. It has been heretofore advanced by some that the position of the queen's body when ovipositing determines whether the egg is fertilized or not, and that, when ovipositing in a larger cell than a worker-cell, the egg passes out without being fertilized. The interpretation was that the body of the queen is in such a position that the egg does not come in contact with the duct leading from the spermatheca. The experiment under way was as follows:

All worker combs had been removed from the colony, and nothing but drone comb supplied to the bees, and no room was left for the bees to build more comb. The result was the rearing of workers in drone-cells, showing that fertilized eggs can be deposited in drone-cells. The workers were somewhat larger than those reared in worker-cells. The bees of the colony so treated were more excitable, being, apparently, cross over the imposition.

The Banater (or Hungarian) bees are a very gentle race, resembling in many respects the more familiar Carniolans. They are somewhat smaller than the latter, and have a greater tendency to show yellow. This yellow becomes more pronounced toward the east, in the Siebenberg region. The writer also noticed, in going southward through Servia, Bulgaria, into Turkey, a gradual shading off into yellow, and a steady increase of the excitability shading off into the very excitable bees of the Orient. It is said by Hungarian bee-keepers that they have no excessive swarming with their bees, and that the Banater bees are yet prolific and excelent honey-gatherers. This is also the testimony of those who have had experience with this race of bees as imported into this country.

Among other things seen at Godolo were the apiaries in Langstroth-Dadant hives, and also the shops where the students learn to make hives of this and other patterns. The different experiments being conducted on the farm with various honey-producing plants were indicative of the value of the school to the bee-keepers at large.

Connected indirectly with the school are some eight or ten inspectors who each have a district of the kingdom to travel over and instruct and encourage the people in bee-keeping. Along the lines of the state railway, at the section and station houses, are small apiaries fostered by the government, for the dissemination of knowledge concerning bees. To those interested in bees it is a source of great pleasure to ride along on the train and see apiary after apiary and realize that the little kingdom of Hungary annually expends in the interest of apiculture $50,000, or a sum equal to five times that expended annually by the United States for apiculture.

In the cool of the evening, our tour of inspection over, we sat out on the balcony of the main building of the school at Godolo and partook of our meat and bread and grapes, even enjoying in varying degrees the Hungarian national dish—uncooked red peppers. The sun slowly sank in the west, lighting up the east with a reddened tint, and the rolling prairies of the Danube brought vividly to our minds the great plains of our own America as we drowsily talked on into the night. The next day or two found us hurrying on the train to the south of the kingdom, where we stopped at Temesvar to turn aside and spend a quiet day with Baron Bela Ambrozy, on his estate at Gyarmata. Here again we met the gentle Banater bees, as also later at Nagy-Becskerek and at the agricultural fair at Pancsova on the Servian frontier. The baron's bees were in Berlepsch hives, some of straw as will be seen in the accompanying cut, showing Baron B. among the bees. It was with interest that we learned of the recent successful introduction and propagation by the baron of our own honey-plant, phacelia, so productive in California. He finds that this plant blooms during the summer drouth, and is a most invaluable source of honey at that critical time. His parting words were: "Tell the bee-keepers of America to grow phacelia."

A SEASON'S WORK WITH SECTIONAL HIVES.

Swarm Control and Comb-honey Production; a Hive-lifting Device and Its Uses.

BY J. E. HAND.

[This article on the subject of swarm control in the production of comb honey is of exceptional interest. It is almost a startling innovation to suggest that no colony must be allowed to cap its sections while the honey-flow is on, and that the capping work must be accomplished after the season is over by feeding back. Did we not know that Mr. Hand is able to control swarming and produce all fancy honey by this strange procedure we would hesitate to place this before our readers without raising a question. In order to read this intelligently, all prejudice should be laid aside, and the statements as to the condition of the colonies as set forth in previous articles should be carefully kept in mind. Each of these articles presupposes a thorough knowledge of what has been written before, and without that knowledge the reader will fail to catch the whole plan. One of the points to remember in the reading of this article is that Mr. Hand has his apiary divided into three divisions of 50 each. One of the 50 is run for *extracted* honey that is to be fed back to finish out unfinished sections, and the other 50 colonies are to be devoted to the production of *comb honey*. On this point the reader would do well to read over again carefully page 846 of our June 15th issue.—ED.]

As we do not handle brood-frames, and as all our manipulations will be by hives, it is advisable to use some kind of hive-lifting device. Some are inclined to ridicule the idea of such an invention, and claim that it is more work to move a machine of this kind about the apiary than to handle the hives; however, in manipulating the sectional hives for swarm control some kind of hive-handling machine is a positive necessity, and we are using with much satisfaction a very simple affair that is both rapid and easy of operation, and at the same time is light and will adapt itself to uneven ground.

The illustration will help to make our description plain. The clamp is made like two pairs of ice-tongs, connected by a bar at each side. Blunt teeth on the inside prevent any slipping. The jaws open wide enough to drop down over the hive. A tightening of the rope will close the jaws across the ends of the hive, and a slight pull on the hoisting-rope will quickly raise the heaviest hive, and a self locking device on the rope will hold

J. E. HAND'S HIVE-LIFTER.

It will be seen that a rope tackle is used in connection with a very simple clamp, made on the principle of ice-tongs. This can be instantly adjusted, and will not slip. By pulling with one hand on the rope, the heaviest hive can be easily raised and held in any position. An inward pull on the rope releases the lock so that the hive can be lowered.

the hive in any position, when it can be instantly raised or lowered, or held in position by a quick jerk of the rope outward to lock it and inward to release it.

This device is also very handy in weighing hives when preparing them for winter, and also during the honey-flow to see how much gain our colonies are making. Simply hook on a pair of spring balance scales and we can weigh a hive very quickly and easily.

We would not think of doing without some kind of hive-lifter; and the one here shown is both light and easy of operation, and can instantly be adjusted to any part of the hive or supers. A man can, with this device, easily raise 600 lbs., and can with one hand easily raise the heaviest hive. We find that lifting hives and supers all day is hard work; and while some may be able to perform such labor, there are many others who are not, and it is to such as these (and this includes ourselves) that this invention will be of real value.

The tripod weighs only 13 lbs., and the clamp and pulleys 8 lbs., and the clamp can be unhooked when moving, so that it is necessary to lift only 13 lbs., which is but little more than the weight of the box that we have to carry about to set the supers on while manipulating the brood-chamber. As our hives are in groups of four we find that we can manipulate hives and supers more rapidly, and very much easier, than to lift them by main strength. Indeed, the heaviest work in the apiary is by this invention actually reduced to mere child's play.

PUTTING ON MORE SUPERS.

July 8.—The weather during basswood bloom thus far has been favorable for the secretion of nectar, and our scale hive showed a gain of 16 lbs. yesterday; and we notice that our extracting-colonies need another super of extracting-combs, so we will place on each colony a super of empty combs next to the brood-chamber, Fig. 1. If plenty of room is given these colonies in the form of empty combs directly above the brood, no other swarm preventive will be necessary during our short honey harvest.

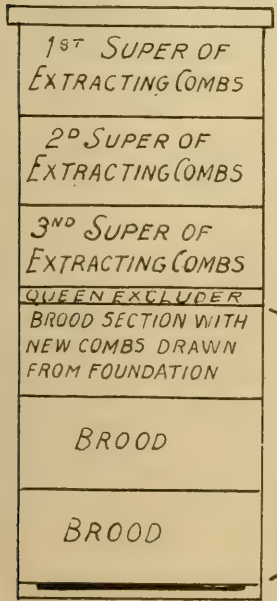


Fig. 1.—Representing the extracting colonies after the third supers are given.

We will next consider our 50 comb-honey colonies, on each of which are two section-supers with a brood-section on top. A good many bees have hatched out of this brood-section since we placed it here, and the empty cells have been filled with honey, so we will remove it, and, with our hive-lifter, we will quickly swing the whole hive clear from the bottom-board, placing thereon the brood-section, and let the hive back in position now on the brood-section, when we will raise the section-supers, placing another super of drawn foundation next to the brood-chambers, and let the supers back in position, Fig. 2.

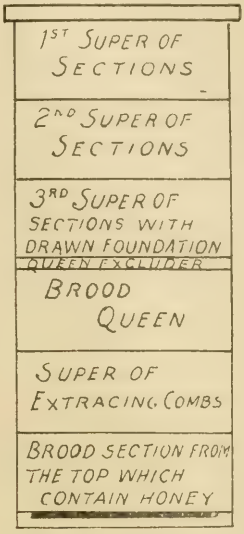


Fig. 2.—Condition of comb-honey colonies after giving the third supers.

All this hive manipulation is done without any lifting, as a straight pull on the rope will raise the heaviest hive. We are now up with our work, and will take a look at our chicks. It may be of interest to some of the readers of this article to know that, along with our hive manipulations, we have also been handling incubators and brooders, and gathering eggs from our 350 Brown-Leghorn-egg machines, and we have at this date 1200 motherless Brown Leghorn chicks that are more afraid of a hen than they are of a dog. But this is another subject, with apologies.

July 10.—The bees are still booming on the basswood bloom, and have lost only half a day by a shower. We will take a look at our fifty comb-honey colonies; and for fear that some of them may take a notion to swarm we will, with our hive-lifter, raise up the supers, removing the top brood-section after driving the bees down so as not to get the queen, and tier these queenless brood-sections up seven or eight high, to be drawn on for our future use. This will settle the swarming question for this season so far as these colonies

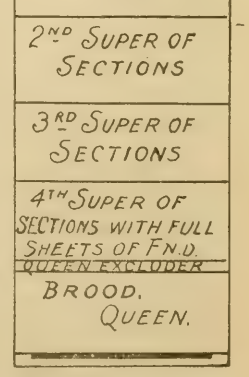


Fig. 3.—Condition of comb-honey colonies after one brood-section has been removed and the fourth super put on.

are concerned, as the basswood flow will last only about a week longer. Our booming colonies are filling the supers at a great rate, so we will place on each colony a section-super having the sections solid full of foundation, placing the empty supers next to the brood-chamber, Fig. 3.

FINISHING SECTIONS BY FEEDING BACK EXTRACTED HONEY.

Perhaps by this time some of the readers of this article are thinking what a lot of unfinished sections we are going to have. Well, we *are* going to have a lot of them, and none of them *finished*—at least not until the rush of the honey harvest is over. We do not want our honey finished on these colonies, for several reasons. One is that the time of our bees is too valuable just now to allow them to do work that can be done so much better in another way, after the rush of the honey harvest is over, and there is nothing else for the bees to do. Another reason is that these fifty colonies all have old brood-combs, which would spoil the cappings to our sections; and still another reason is that the crowding that is necessary for the perfect filling of the sections required for fancy honey would defeat our plans of swarm control, as this is one of the main features of our system.

You may paste this in your hat for future reference, that a hive full of capped honey is a swarm-breeder. With our system we do not allow very much capped honey in any part of our hives for any length of time. This, together with abundant ventilation and plenty of room in the supers in the shape of drawn foundation in sections, always placing the empty supers next to the brood-chamber, will, in our location, most effectually break up the combination of influences that produce swarming, and give us stronger colonies, and, consequently, a larger yield of surplus honey than can be obtained by any other method of swarm control that has yet come to our notice.

We will now consider our fifty feeding colonies that are going to finish off every one of our sections, capping them solid to the wood, and making every section a fancy one. We will first go to one of these feeding colonies that at this time contain two queens and two brood-sections, and which are pretty full of young bees, which is just what we want for comb-building. With our hive-lifter we will swing the hive up from the bottom-board, on which we will place one of our Quinby feeders, and directly on the feeder we will place a brood-section full of new combs freshly drawn from foundation that we placed on our extracting-colonies for this purpose, and let the hive back in place, now on the brood-section of new white combs, Fig. 4

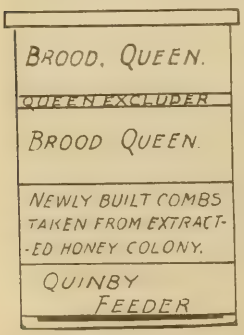


Fig. 4.—Feeding colony provided with a section of new combs.

We will next prepare fifty bottom-boards where we want the colonies to stand, and, going to one of the feeding colonies having two queens, we will remove the top brood-section and queen, placingt on one of the prepared bottom-boards; and, going back to the hive from which we took this brood-section, we will drive the bees down so as not to get the queen, and remove this brood-section also, placing it on the one that we removed first, and put on the cover.

Having the fifty feeding colonies all treated we will take a sort of inventory, and find that we have just made fifty colonies of bees, and that we have also fifty feeding colonies with one brood-section of new white combs from which no brood has yet hatched, and underneath the brood-section is a Quinby feeder which will be fully described under the head of "Feeders" and "Feeding back," in our next article. Each of these feeding colonies has a young vigorous queen that will hold this small brood-chamber for brood against any amount of heavy feeding, and will not allow it to become clogged with honey.

Having our feeding colonies ready we will next go to our comb-honey colonies and remove the top supers that are at this time about ready to cap, placing one on each of our feeding colonies, Fig. 5, without driving the bees out or disturbing them in the least, for we do not intend to allow the work in these supers to stop until the sections are finished, which will take only a few days, as they are nearly ready to cap. We shall have to be on our guard and see that no honey is capped on our comb-honey colonies; for if any is capped we shall have to shave the caps off when we put them on our feeding colonies, or else the surface of the comb will be uneven when finished.

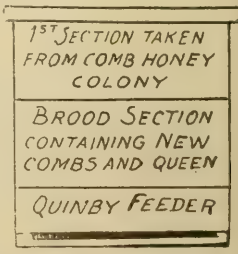


Fig. 5.—Feeding colony after putting on the first super of sections from the comb-honey colony.

July 15.—The basswood-honey flow is now about over, and with it ends our honey harvest for 1906, so we will remove the supers from our extracting-colonies, using the escape-boards the same as we do in removing our comb-honey supers. With our hive-lifter we will quickly swing the supers up, placing on the brood-chamber an escape-board and let the supers back in place on the escape-board, and without any lifting. Having the escape-boards under the extracting-supers we will leave them until to-morrow morning, when the bees will all be out of the supers.

July 16.—We will with our hive-cart haul the extracting-supers into the extracting-room, which, in our case, is the cellar where

the honey will be extracted, and run into the feeding-tank from which it will be drawn out and put through the feeders under those fifty feeding colonies for the purpose of finishing our sections. We will begin extracting at once so as to get our bees at work in the feeders; for we do not want them to stop comb-building until our sections are finished. Some will, doubtless, think that this feeding back is a fussy job. Well, so is the feeding and caring for our 1200 chicks and our 350 laying hens; and if any of you are afraid of work you had better choose some other occupation than the bee and poultry business; however, it takes only a little time just at night to fill the feeders, and does not interfere with our other work.

The honey harvest is now practically ended, although the bees will continue to work on a few late-blooming trees for several days. Our scale hive showed a gain of only 2 lbs. yesterday. We will now remove all the section-supers from our comb-honey colonies, placing them on the feeding colonies without driving or molesting the bees. We want them to work right along in the supers until they are finished. Our supers are now all off, and it was just thirteen days from the time the first super was put on to the time the last one was removed.

Our next article will treat on feeding back and feeders.

To be continued.

WHY THE BEES BALLED THE QUEEN.

Will you please explain why the bees balled one of my queens and killed her when I opened the hive? The conditions were as follows:

I blew a little smoke in at the entrance, then kicked gently on the side of the hive to cause the bees to fill themselves, and in about five minutes I opened the top and proceeded to search for the queen in the usual way. When I came to the last frame, and before moving it, I found the queen balled. I withdrew the frame quickly, and sprinkled water on the ball and procured the queen, which I should have put into a cage but did not. Instead I placed her back on the frames, and the bees immediately killed her. This queen was purchased last fall or late in the summer. She raised a nice colony of bees, but they killed her a few days ago.

J. K. LIPPEN, Ph. C.

Battle Creek, Mich., May 20.

[It is strange but nevertheless true that bees will at times ball their own queen—one that perhaps has been in the hive for months or years for that matter. The attack seems to be caused by the mere opening of the hive. In your case there was an unusual disturbance as you bumped the hive in addition to blowing smoke in at the entrance. But this smoking and bumping should not induce balling, and ordinarily does not do so. From the date of your letter we infer that there was a dearth of honey; and, what is more, the bees were running close on their supply of stores. Under such conditions bees are more apt to do unusual things than when a condition of prosperity exists. But we have seen just such balling as you describe, time and time again, and we have had various reports of it. If one could only *know* that some certain colony was "touchy" he would refrain from doing any thing to disturb them so that they would feel disposed to wreak vengeance on their poor queen rather than the big animal (man) that tore open their home.—ED.]

KEEPING A NUCLEUS CONTENTED.

In the answer to my question, page 714, you say, "and, in addition, give the bees a frame of unsealed brood." Now, Swarthmore says, in his "Increase," "Never give brood to a newly formed colony until after the queen is safely introduced, lest the confined bees ball the queen as soon as she is run into the box."

I always like to follow directions to the letter; but, according to the above, I am just as wise as before reading "Increase," but will practice on home-bred queens after this, as I need to increase my colonies this summer.

G. HERMAN PETERSON.

Deerwood, Minn.

[Swarthmore is correct in stating that the presence of brood makes the introduction of a queen more difficult, but there are other things to be considered in your case. For example, the weather this spring was very trying to bees. Genial weather is a necessity for operations of this kind. Your nucleus got discouraged, and a frame of brood would have put new life in it till conditions improved.—ED.]

THE USE OF THE FLIGHT-HOLE IN THE CHAMBERS NON-SWARMING DEVICE.

I should like to ask whether J. E. Chambers still uses the flight-hole at the back-end of a dividing-board when using his non-swarming device, as described in GLEANINGS.

Millville, Pa. J. R. BOGART.

[This question was sent direct to Mr. Chambers, who replies as follows:]

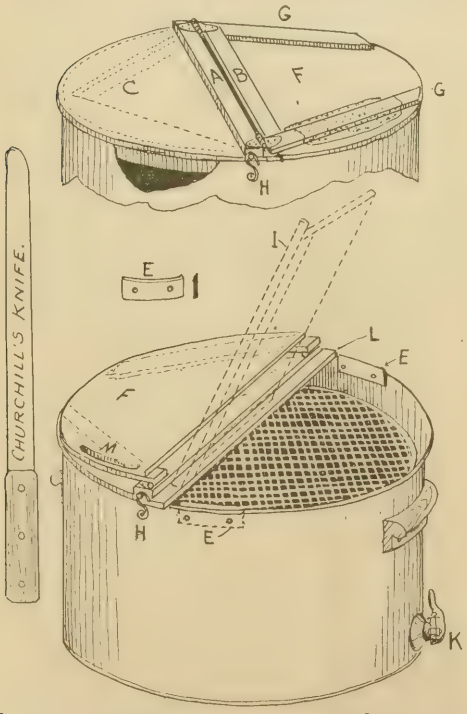
In answer to Mr. Bogart's inquiry, I will state that, as originally designed, it was intended to be used or not according to the manipulation practiced. I do not know whether the public so understood it, but it was intended to give the operator a choice of manipulations. For those who wished to use their old queens rather than to requeen with young ones reared in the parent colony, and to drain out quickly the entire force of

field bees from the hive or hives above, it is entirely unnecessary to use the flight-hole in the rear of the board. However, some of the youngest brood will perish for want of water unless, perchance, the combs are full of thin nectar, and this was one good reason for having the flight-hole, although the main reason will be shown later on. In my own practice I always requeen with young queens, putting the part of the colony containing the old queen above the board. This makes necessary a much longer division of the colony in order to give the young queen time to mate and begin laying; and, as will be readily seen, it was not desirable to draw away all of the field bees, for in that event the brood would perish for want of water; and for the lack of pollen and nurses the queen would stop laying entirely. Thus the flight-hole became a necessity. No doubt there were some who did not appreciate this difference. J. E. C.

Vigo, Texas.

A NEW UNCAPPING CAN AND KNIFE.

The chief feature of my can is the cover that always serves as a protection from dirt and dust, and keeps wandering bees from too close an investigation. I have used this for several years in my bee-yard, and find it very useful and convenient. The upper view shows the cover as closed. C is the



heavy or permanent cover; near the center are two cleats, A and B, one on each lid, and at each end of cleat A are pins which engage the hook H and serve to hold the cover firm. These two covers are hinged together as shown.

When in use, the light or F cover is thrown entirely back, as shown in the lower cut; and when that is done it exposes the frame-rest L, which is simply a continuation of the cover C. The frame rests on L, with the bottom-bar toward the operator. As the frame now stands, leaning a little forward, the back of the frame is against the cleat A, so that it can not slip. The cappings fall directly into the can. The can can be supplied with a screen or not, as the operator prefers.

E is a four-inch piece of steel, made from an old scythe, and riveted to the inside of the can, convenient to clean the knife, and directly under the hand of the operator. This blade stands above the rim of the can only sufficiently high to serve its purpose; and when the cover is down, the blade is enclosed in the slot M. K is the usual honey-gate.

The uncapping-can may be provided with legs, or arranged on some suitable stand.

I think my knife is far ahead of the ones that are ordinarily used. It is thin, and yet sufficiently rigid to stand any pressure needed, and is provided with an oval (almost flat) handle, firmly riveted. The tip end of this knife is slightly bent, and I find this feature very convenient in getting into small corners or depressions. E. P. CHURCHILL.

Hallowell, Me.

A BAD SHOWING FOR GOLDEN ITALIANS.

Your letter, inquiring how the golden Italian bees wintered in my yards as compared with the Caucasians and the Banats, came to hand this mail. I would not have made my experience public at this time if you had not spoken of the experience of others. But the experience of several persons in one year may have the same force as the experience of one person running through several years, so I will tell you my present sad experience. My father, from whom I learned about all I know of bee-keeping, tried cellar wintering a number of times, and always made a complete failure of it; so from the time I came into possession of the home apiary through my father's death until this last winter I never tried cellar wintering. I have a cellar now that seems to be what most advocates of cellar wintering think about right. It is dry, has good ventilation, and the thermometer stands quite constant at 45°. Into this cellar I placed twenty colonies of Banat bees last November, well provisioned and in all-round good shape. All of them were dead by the first of January. My only explanation is that we are in the natural-gas country, and there is always a slight odor of escaping gas in our cellar, and possibly the bees could not stand it.

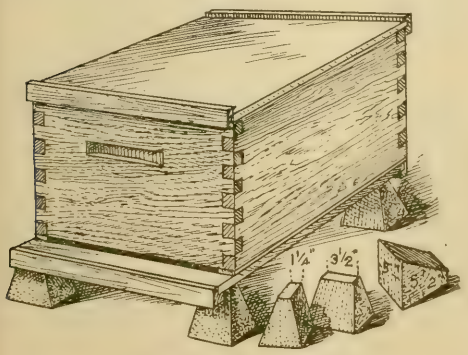
In my five out-yards I had about 200 golden Italians, 30 Caucasians, and 40 Banats. In two yards every golden Italian colony was dead by April 1; in the other yards more than half of the goldens were dead, and a few dwindled to nothing in May, so that, by May 1, about 85 per cent of my golden Italians had perished. I had placed a few Cau-

casians and a few Banats in each yard to compare wintering qualities. Of all the Banats, one colony died. It had been very weak in the fall, and there was not a double handful of dead bees. Of all the Caucasians, four died, and they had been weak in the fall; so I could not be sure that there was any difference in the wintering qualities of the Banats and the common Caucasians. But there was a remarkable difference between these races and the golden Italians, and it was in favor of the dark races. I love beautiful bees, but with last winter's experience I am tempted to give up the golden bees. The Banats (or as I have been calling them Banat Caucasians) are also a very pretty bee, and I have about transferred my affections to that race.

Emporium, Pa. N. E. CLEAVER.

CONCRETE CORNER-BLOCKS FOR HIVE-STANDS.

I have been making some cement hive-stands for my own use. The blocks are made 5 in. square on the bottom, 5½ in. high. The top, or where the hive rests, is 3 in. by 1¼. These cost me three cents apiece, are much cheaper than wooden stands, and are practically indestructible, besides presenting a very neat appearance. You will see that the hive rests upon such a small surface that there is small chance for dampness to collect to rot the bottom-board.



CONCRETE HIVE-STANDS.

Since I have used these hive-stands they have given me such satisfaction that I would not return to wooden stands, even for the few hives I have; and it seems to me they would be economical, even for the large apiary, as they can be made by any one who can get cement and gravel.

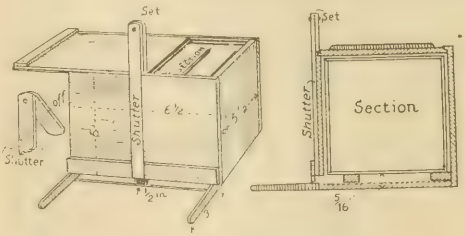
Brattleboro, Vt. CARL F. CAIN.

[The concrete-block scheme here shown is perfectly feasible and good. The form for making the little "pyramid" would not cost much; but four common half-bricks would be almost as good and much cheaper.—ED.]

AN ENTRANCE FEEDER FOR GETTING UNFINISHED SECTIONS CLEANED UP.

On page 1130, 1906, is an article from the Rev. W. L. Palfornon on disposing of unfinished sections; and with regard to the mentioned contrivance and *your* footnote I beg to say:

Last year I made a few such boxes, and have used them, and also now am using them



AN ENTRANCE BOX FOR FEEDING BACK UNFINISHED SECTIONS.

very successfully for fall feeding of weak colonies. There is with my feeder boxes no difficulty whatever in attaching them to the entrances, for I simply have made them exactly the same way as the Boardman feeder, i. e., with projections, which, in my feeder, extend 2½ inches into the entrance of the hive. The material used is of old shipping-cases. My feeders are made for only three sections. There is a bee-space underneath, but not on top or sides of sections. The communication from hive to feeder is just ⅜×¼ inch, and there is a sliding shutter which is operated from the top. To hold it open, there is a little swinging cleat, which, when in position with the shutter, is "set," as I call it. When swung sidewise it is off.

DR. PHIL. MAX BOELTE.

Valley Center, Cal.

CRY HEARD FROM DRONES THAT WERE BEING DESTROYED.

A curious incident occurred among my bees about Sept. 1st, last. I was out near my hives one day when I heard a curious mournful and pitiful cry coming from one of the hives, sounding like "wooah, wooah, woo-ooah," so loud that it could be heard thirty or forty feet away. Upon approaching the hive I discovered the workers dragging out the drones and tearing them limb from limb. This explains the distressing sounds, which kept up for perhaps ten or fifteen minutes. J. G. RATCLIFFE.

Waukon, Iowa.

THE ALEXANDER PLAN OF BUILDING UP WEAK COLONIES; TWO LAYING QUEENS IN A HIVE.

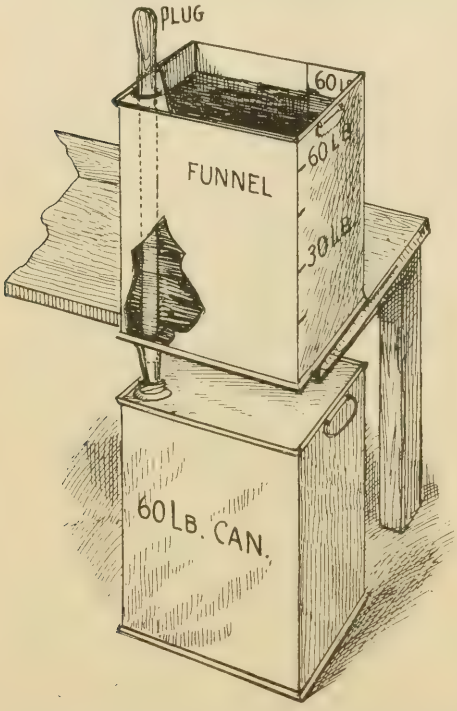
I put six of my weakest colonies on top of my strongest ones. There was no hostility. Every thing went all right for a few days, but the queens on top gradually stopped laying and disappeared. The bees seemed to leave the upper queen, and go below and stay there.

When I read Mr. Alexander's article on page 474, I didn't believe it at first; but I finally decided to experiment with some old queens that I had wanted to supersede. I put three in one hive and two in another a

month ago, and they are all right yet. I take a look every day or two to see how they like it, and often see two queens on the same side of a frame, sometimes within an inch of each other. T. J. LANDRUM.
Roswell, N. Mex., May 21.

HOWTO FILL 60-LB. CANS WITHOUT WATCHING OR RUNNING THEM OVER; A SIMPLE AND PRACTICABLE ARRANGEMENT.

I never had the patience to fill cans by depending upon the scales to tell when they were full, and soon adopted the following



plan: I made a sort of square funnel out of a 60 lb. can. This, when filled to a certain point holds just 60 lbs., or the capacity of the can to be filled. By removing the bottom from a 60-lb. can, and soldering a cone-shaped pipe over the opening on the other end, said pipe small enough so it will enter the screw-top opening of the can to be filled, we get a filling can, or funnel, just right for the purpose. Then I provide a plug to close the opening in the funnel, making it about 6 inches longer than the funnel is deep, which extends up through the honey, and gives room to take hold of.

When in use the opening is stopped with the plug, and the inverted can or funnel filled with honey to the 60-lb. mark. When the plug is removed the lower can fills itself just right.

Inasmuch as my honey-house is on a level I run the honey from the extractor in pails, which, when full, are emptied into a barrel or tank, properly strained, from which I draw the honey in pails, and from which to fill the 60-lb. funnel. F. H. CYRENIUS.
Oswego, N. Y.

[The arrangement here shown is very simple and unique. Any tinner, if he be given a square can, will be able to make up a funnel from the description and sketch.—ED.]

FANCY COMB HONEY WITHOUT SEPARATORS.

During the past season one of my colonies made 162 sections of honey that weighed 163 pounds. These were in six supers holding 27 sections, each of the $4\frac{1}{4}\times4\frac{1}{4}\times1\frac{7}{8}$ two-bee-way style. There was not a single unfinished section, and all the combs were straight, although I used no separators. Besides this, I had two colonies that gave seven supers each, and some others that made 150 pounds. A good many made only one super. All this honey was taken off in July, as there is no surplus from the fall flow.
WILLIAM G. SNODGRASS.
Montrose, Mo., Jan. 11.

[While separators with the ordinary sections may be dispensed with some seasons, and with some colonies, it would be bad policy to attempt to run a whole apiary on that plan year after year. At one time, many bee-keepers produced comb honey without separators; but in later years, most of them have abandoned the practice, and it is well that they did, as such honey will not crate and ship as well as separatored honey. —ED.]

HOW TO TRACE ROBBERS.

Referring to p. 1416, Vol. 24, I would say that the following plan may be recommended to Dr. Miller for tracking robbers. One September I was suddenly troubled with robbing, which is always suggestive of careless management; and as my stocks were well behaved I felt sure some neighboring apiary must be guilty. I placed an empty hive in the yard, with a honey-comb inside, and a trap entrance (the Porter bee-escape) In the evening, when flying was over, I removed the top of the trap-hive and some hundreds of bees issued from it. They all went into one of my own hives, but it was a stock composed of spare combs occupied by driven bees from Yorkshire, which I had received ten days before, and had fed up for the winter. No other stock joined in the picking and stealing, so I presume the burglars had taken to bad ways in their last location. A SCOTTISH READER.

[The foregoing is an excellent plan for tracing down the robbers.

It very often happens that only one colony is responsible for all the robbing, especially when it first begins. In the case above mentioned we would advise taking the guilty colony and putting it down cellar for a week until it forgets its misdeeds, or, mayhap, repents. If when returned, it refuses to be good, remove it to a distance of a couple of miles, and in the meantime requeen.—ED.]

OUR HOMES

by A. I. ROOT

Mr. Root: — July GLEANINGS has just arrived, and I note what you had to say to Wm. A. Scheiffer, and I will say he voices my sentiments in regard to bee culture and religion—separate them. I have kept bees for half a century, and have never found a place where I could use any of that orthodox nonsense called religion. One would think by reading your article that you stopped in the middle of the road some fifty years ago, while the procession had kept right on. You are certainly fifty years behind the times. Prohibition is not temperance, but the worst kind of intemperance. Where did you get the right to say whether I should take a drink or not? Where did you get *any* right that I have not? You ought to have lived in Salem, Mass., 200 years ago. They were just your caliber. Did you not know that the Christian religion was dying just as fast as it could? Your churches are partly filled Sundays with well-meaning children and ignorant men. Very few intelligent men go to church any more. Of course, you have a perfect right to print what you please, and under present laws I have the right to reject or accept as I see fit; and I hope for the benefit of generations yet unborn that no changes will be made in these rights. I suppose you have heard the story of the two men who were going down the street. One said to the other,

"Let's take a drink."

The other replied, "No, I don't drink."

"Well, take a smoke."

"No, I do not smoke."

"Well, then, eat some hay."

"No, I don't eat hay."

"Well, good by then. You are not a fit companion for man or beast."

I am not a very good hand to put my thoughts on paper; but if it should be my good luck to meet you at some future time we will have a friendly chat on the subject. I think I can convince you that some very good people differ with you. Give us the latest on bees and chickens, if you like, and let religion and prohibition go to the garret with the bats and owls and other antiquities. Wishing you health and happiness I remain respectfully yours,

Henderson Mich. WM. KOHLMEYER.

Well, my good friend K., even if we do see things so very differently I think I can thank you for the very kind and genial way in which you take me to task. Now, I do not know but I shall have to agree with you that *somebody* has stopped in the middle of the road while the "procession has gone on" for the last fifty years; and I think I shall leave it to our readers to judge whether *you* are the one who kept still while the procession went on or whether it was your old friend A. I. R. By the way, let me tell you that your letter came in a great heap of applications for the Stainless Flag; and in this heap of letters and postal cards were some of the kindest and most encouraging words I ever received for my Home papers. Your letter was the *only* one in the lot that objected; and it is the only one I have received since our last issue, with one exception. The applications for the Stainless Flag have gone away up into the thousands, and kind words accompany almost every one of them. Now, don't you think that the procession you alluded to, that is marching on continually, embodies the temperance sentiment that is now sweeping all over our land? The papers are so full of it that you certainly must know what is going on. A few years ago there was a sort of political prohibition (some of the friends will excuse me if I say third-party prohibition) that might have been somewhat open to your charge of intemperance. Yes, many of the good friends threw it into my teeth that I did not vote as I prayed; but may God be praised, the Prohibition party and the Anti-saloon League and the Christian churches are now getting into line and working with such harmony of purpose that nothing can stand before us.

Friend K., I have never assumed the right to say what you shall drink in your own home, providing said drink does not make you crazy and induce you to abuse your own wife and children. If you do that, I hope every neighbor you have will interfere. In fact, if I am right you would interfere yourself if a neighbor would abuse his children because he was crazy with drink. The papers tell you about these things, and so we need not discuss it. The Anti-saloon League does not interfere or quarrel with any man who keeps liquors in his own home and drinks them in moderation. Of course, we reason and remonstrate with him, but we do not undertake to forbid it by law.

"Where do you get any right that I have not?" you ask. Surely, friend K., I have never thought nor presumed that I had any right that you have not; but where people differ as you and I do, is it not the sentiment of our country that the majority shall rule? Well, all the Anti-saloon League asks is that the majority of voters be permitted to decide whether a town or community shall keep open saloons or not. That is right, is it not? Now, my good friend, towns, townships, cities, counties, and States all around us are voting on this question. Some go wet and some go dry. Let us draw a line in your neigborhood, or any other neighborhood, and let all the friends of the saloon stand on one side of that line and all opposed to it on the other. Which crowd do you wish to be with? You can look the crowd over just as well as I can. On one side we have all temperate people, our ministers, professors in our colleges, our teachers, and all who love righteousness and hate iniquity; and, of course, all the women and children will stand with them. I declare I almost dread to mention the class on the other side. Of course, you will have all the drinking men, all the gamblers, all the liquor-dealers, all the criminals, highway robbers, pickpockets, midnight thieves, etc. Can you consent, after carefully looking over both crowds, to go over and stand with the latter class? If you have a wife and children (and I hope you have) may God forbid that you should take any such steps.

But in discussing this matter of prohibition you overlook the object of it entirely. You may have as good a right to take morphine as I; but if any druggist in Henderson should presume to sell it promiscuously, as he might tartaric acid, that druggist would be immediately confronted with prohibition of a very stringent character. You may fire your pistol promiscuously on the wide fields of Illi-

nois or in the dense woods of Michigan, but not in the streets of Henderson; neither can you store up dynamite in your cellar in Henderson. Here you have prohibition again, and it prohibits. Now just apply this principle to the sale of intoxicants and you have prohibition for another purpose. It may not make men temperate, but it is a mighty factor in preventing men from helping others to become intemperate. If you will take a map of the United States of fifty years ago and mark on it all the area under prohibition then, and then mark a new map in a similar way, you will soon see that you yourself, like the old map, are just fifty years behind the head of the procession.

In regard to the witchcraft 200 years ago, if you have been reading GLEANINGS you are doubtless aware that I have all my life been as vehement against superstition, signs, and notions, as almost any other living writer. We both thank God that witchcraft and all like superstitions, under the searchlight of modern scientific investigation, are being rapidly relegated to the past.

I think I shall have to confess that there is at least some consistency in what you say about intelligent *men* not going to church; and it pains me, my good friend K., to think that you yourself are possibly one of that class. Now please pardon me if I tell you I fear it is owing to this very fact—that is, that many of our men and women stay away from church (or, if you choose, do not attend church and stand by it as much as they did some fifty years ago) I fear it is owing to this very fact that we are having so much bribery, graft, and stealing, of not only hundreds but thousands and sometimes *millions of dollars*. If the men who do these things had held fast to the religion of their fathers—the religion of olden times if you choose to put it so—they could not have been tempted by Satan to ruin their fellow-men as they are doing, as we see by the daily papers. Yes, I know there are a *few* men who continue to go to church—may be Sunday-school superintendents—just to keep up appearances. Jesus had one hypocrite in his little band of twelve; and from that time on there has been here and there a man who went to church and pretended to piety just in order to find a better chance to get hold of the bag that holds the money that belongs to the crowd. May God help us all to weed out hypocrites, and put them where they belong.

Yes, in one sense I have a right to print what I please; but unless I take great care in what I select for print and in what I dictate I shall not have the standing and backing that I have now. If you could read the postals and letters that came in the same mail with yours I think you would decide that *I* am marching with a pretty *good-sized* "procession" after all. I shall be exceedingly glad to meet you and have a friendly chat with you as you suggest; and if in my trips through Michigan I ever come near you I certainly will stop. I am glad you like my talks on bees and chickens; but I am surprised that so good a man as you seem to think that religion—that is, the genuine religion that teaches a man to love his neighbor as himself—should ever need relegating to the garret together with the bats and owls.

Our good pastor, who, I am glad to say, is a special friend of mine, happened to be in our office when your letter was lying on my table. We together had a good laugh over it; and by my request he gave me a copy of what he has written you, which I append below.

Mr. William Kohlmeyer:—I was in the office of Mr. A. I. Root the other day when he was looking over his mail and came to your letter on the "relation of bees to religion." Because I hold views similiar to those he entertains, he read me your letter and asked what I thought of it. I asked him for the privilege of replying to it. If you will kindly give me a litt e of your time I think I can show you that you are laboring under a misapprehension

I certainly agree with you when you say that "prohibition is not temperance, but sometimes the greatest intemperance." The advocates of any reform have some among them which go a little too far, and sometimes do the unwise and intemperate thing. You ask, "Where did you get the right to say I should or should not take a drink?" That is precisely, as I understand Mr. Root, what he does *not* say. This is a free country, and every man can do just what he pleases so long as it does not limit the rights of others. But it certainly ought to be the privilege of every man to try to persuade any one that his philosophy of life will give the greatest happiness to the greatest number, if that man believes it. That, I take, is the position taken in GLEANINGS. This whole agitation on the drink question might be quickly solved if it affected only the men who drink; but the facts are that the people who suffer most from it are those who do not drink, such as wives mothers, and even the public who ofttimes unwillingly suffer. If you will tell us how to confine the effects of liquor to those who want to use it we will promise you that the agitation will be kept out of journals devoted to other subjects.

Your statement that Mr. Root was fifty years behind the times because he paid attention to the Christian religion, and that "*very few intelligent men go to church any more*," attracted my attention. I got to thinking of that coming home, and remembered that a man whom I had heard of, who was a graduate of Harvard College, and an author of some repute, and quite popular with some people, and bears the name of Teddy Roosevelt, is quite a regular attendant of the church. I remember that the world now looks upon Lord Kelvin as the leading scientist in all the universe, and he is a regular attendant and ardent devotee of his church. Need I mention that there is not a president of any college, of any size, that is not a church-member, and in most cases even a minister, in this country? Almost any man of prominence in the public life of your State is and has been for years connected with some form of religion. Florence Nightingale, Gladstone, Balfour, Kepler, Newton, Faraday, and a list of such worthies, have their splendid illustration in the present who are not deists nor agnostics but open and ardent Christians.

You say a man is fifty years behind the times if he pays attention to religion. May I ask you a question? Is there a God? Is there a Providence that is large enough to take care of the stars and tender enough to care for the fallen sparrow? What is right? Who is my neighbor? What is the worth of a child? Can a man who has made a great mistake be made to feel right and in harmony with the universe, and start anew? Is character a permanent thing? Is there any thing after the grave? Now, my question is this: Is a subject that discusses themes of this kind behind the times? Do you think these subjects are antiquities, and fit only for the garret?

I am not going to say any thing of the numerical strength of Christianity, because some Christians are not very good ones; but after making all due allowance for these, I think you will find, even on a superficial examination, that the essential things for which Christianity stands were never so widely emphasized and effective as they are to-day. There were never so many prominent and intelligent men in this country who were practicing their religion as at present

I appreciate the good nature of your letter; but really, my friend, I think you are wholly mistaken, and

that your views are much more in keeping with their surroundings when they are filed away where the bats and owls abide than those that you want to put there. However, it is a free country, and you are privileged to think as you like. Yours truly,

Medina, Ohio, July 6, 1907. JESSE HILL.

In order that our readers may get a glimpse of some of the *encouraging words* I get all along life's pathway I give one of them below:

Dear Mr. Root:—I have wanted to write to you for a long time; and after reading the last two GLEANINGS I can keep still no longer. I refer to those two letters about your writings in your journal. I have this to say: If your writings stop, my subscription expires right then. I always turn to your writings first, and devour every word; and the good you have done me alone you will never know. It will certainly add one star to your crown. All you write just suits me about religion, health, babies, chickens, and all. I should be afraid to say how much benefit you have been to me; and your prayer, "Lord, help," has become mine also. I have often wished I could see you, but I know I never shall in this world. I hope you will keep on in your good work. If there were more such papers as GLEANINGS and *Farm Journal* this would be a better world. I could not get along without either. I haven't had a doctor in the house since I read what you wrote about lemons being used as medicine. I get lemons instead, and they have answered every purpose so far. Please forgive me for taking up your time, and for writing to you; but I wanted you to know how much good you had done in one little home away down here in North Carolina. Your name is a household word with us. MRS. L. L. UMSTEAD.

Staggville, N. C., July 10.

CUCUMBERS AND OTHER TENDER STUFF UNDER CLOTH, IN FLORIDA.

In this Florida land we have a climate that leads us to fear not so much freeze or frost as cold winds which often do quite as much damage, and cause a great deal of vegetation to go to the wall. There is one shed here entirely of cloth, which I think would answer the purpose if the parties only knew how to manage it. This structure was built for raising cucumbers, but has so far been a failure. This first effort, or winter before last, the cloths were left off and the young plants were hurt by frost so much they were none in advance of the ones outside. The effort last winter was also a failure because they failed to get a stand, and they just gave the case up and never raised any thing on the ground, but took the cloths in out of the weather, and it now stands as above described.

There are a few things I wish to know that I think you could give. 1. Is there any way of pollinizing the bloom under the cloth? If so, how is it accomplished? I planted half an acre, in open ground, of cucumbers Jan. 22, this year, and got a fine stand. They grew nicely. I kept the frost off by setting up 12-inch boards on the north side of the rows, and leaned them to the south. This gave the plants a sun bath every day, and soon they led the whole neighborhood on "cukes;" but I had to lift the boards when they began to vine; but later the cold winds and blowing rains whipped the vines until they were nearly as bad off as if frosted. They gave off an odor just as if they had been frosted. The vines withered and died until about half were gone; then they soon revived (that is, what were left), and began to bear nicely, when still another wind did them quite as much harm as the first. Upon the whole the yield was good under the circumstances, and brought nearly $300. Now, I think if there were a way to shelter those vines they could be made to pay large dividends. Any thing you would give or recommend, or any book on the above that would treat on this subject, would be gladly received.

Sanford, Fla. J. W. HUNTER.

Friend H., you have struck on a matter that interests me greatly just now. Down on our island we had exactly the trouble you describe. In fact, we had a fine lot of cucumber-vines that had just begun to bear; but the hard winds and the low temperature used them up almost the same as a frost, although I have never seen any real frost on our island. My experiments were mostly with stuff such as flowers near the house. Every time I would get a coleus to growing nicely, and looking really handsome, then a cold wind would whip it about and chill it so it would behave almost as if it had been hurt by a light frost. After a while it would recover and then have the same treatment over again.

For an experiment I made a little bed that I called my Florida greenhouse, of cheap cotton cloth stretched over frames to protect them from the wind. This answered beautifully. They could be taken off and placed up against the house in less than a minute; and the same frames were used to protect my young chickens from the cold winds while they had the full benefit of the sun. Of course, it requires some manipulation in order to make a success of the cloth covering, whether it is to protect tender stuff from frost and wind, or the sun when it is too hot. The cloth covering must be made so it can be very quickly put over the plants and taken off. It should be arranged so that one person can with a little care and labor put on the cloth or take it off. Unless you have it arranged in this way the plants will be exposed when they should be covered; and, again, they will be covered when they should be exposed to the genial sunshine or to a summer shower.

Now, our tomato-book, it seems to me, solves this whole problem. I do not believe there is any other way in the world by which a cloth covering can be arranged so as to be secure from being blown off by the wind, and at the same time be easily manipulated by one person. I allude to the plan of having the cloth rolled up on poles 100 to 200 feet long, the rafters across the bed just near enough to keep the cloth off the plants. Friend Day lately informed me that they are now growing cucumbers for the northern markets under the same cloth frames that were constructed primarily for growing tomato-plants. I know there are large areas covered with cloth in different parts of Florida, and I visited several such places. But the difficulty of having the cloth in the way when it should be off, and off when it should be on, is, so far as I can learn, the great problem. I am glad to know that you succeeded fairly well after all the unfavorable weather of last winter; and I feel sure that you can make a complete success with the cloth-covered frames as described in our tomato-book. I think that, in your locality, there will be plenty of days that would permit the bees and other insects to fertilize your

cucumbers perfectly. Most of the cucumber-houses here in the North have one or more hives of bees inside of the building to do the fertilizing. It is true it can be done by hand with a camel's-hair pencil; but the bees do it so much better and cheaper that I think bees are now almost universally employed by all growers of cucumbers. See page 509 of our issue for April 15, 1906, where this matter is fully described and illustrated.

SWEET CLOVER FOR PIGS AND LAMBS.

The evidences of the value of sweet clover for many purposes continue to accumulate. The latest pronouncement in its favor is by the editor of *The Farm Press* who has recently paid a visit to the celebrated San Luis Valley in Colorado where are raised the finest hogs and lambs in the United States. What he saw is calculated to cause the people who class sweet clover as a "weed" to sit up and take notice. Please note carefully what he says.

Alfalfa has an altitude limit which interferes with its cultivation in some places, as it does not succeed well above 6000 feet; but alfalfa has a first cousin, known all over the United States by the name of sweet clover, and these high-altitude farmers have found out that sweet clover doesn't discriminate between different altitudes. One man declared that sweet clover will grow way up to the timber-line and it will make good feed too, if properly managed.

Sweet clover gets very woody when it gets old, but these men pasture it down, and when it gets the start on the hogs they put the mowing-machine on with the finger-board tilted up and cut it back to three or four inches high. This gives it a fresh start, and the pigs fatten on the young and tender growth. The San Luis Valley seems to have taken the lead in lamb feeding. Seven years ago an experiment was tried in feeding 600; the experiment was successful, and the next year about 1200 were fed. These were increased the third year to 12,000, and every year thereafter until 1905, when the number was estimated at 540,000; but this proved too many, at least the market at that time was not sufficient to absorb such a great quantity at paying prices and some of the feeders who didn't understand the business made a failure of it. The past season about 320,000 were fed and marketed with success.

The combination of alfalfa or sweet clover with peas works well with breeding hogs, because the little pigs, as soon as they are able to eat, get the kind of feed that is best for them.

It may be explained these hogs and lambs are raised entirely on peas, alfalfa, and sweet clover, though in some cases beet pulp is added. Evidently the sunny San Luis Valley farmers know the true value of sweet clover and how to use it. There is a great deal in knowing how.

SWEET CLOVER; WHAT IT HAS DONE FOR KING ISLAND.

We take the following from a newspaper clipping furnished us by Mr. Herbert J. Rumsey, of Boronia, New South Wales, Australia. If there are any farmers or other people left who insist that sweet clover is a noxious weed they had better read and ponder.

Many years ago, it appears, a Dutch ship was wrecked off the island coast, and some of the sailors' mattresses were washed ashore. These mattresses were stuffed with what is locally known now as melilot grass, and this grass contained a fair amount of seed, which, falling on the sandy beaches, threw up a few tufts, and in the course of years gradually spread until it now covers nearly the whole of the coastal sandy areas.

Strictly speaking, it is not a grass at all. It is a yellow-flowered clover, known botanically as *Melilotus officinalis*, and a half-brother of *Melilotus alba*, commonly called Bokhara clover. Furthermore, being a leguminous plant it absorbs a certain amount of nitrogen from the atmosphere and transfers it to the soil. This remark may appear slightly superfluous to many readers, but it strikes the keynote of Mr. Macdougall's remarks on the subject. He said in effect:

The fertilizing power of this grass is simply wonderful. It has transformed King Island from an island of useless sand-dunes into one of the best grazing districts of the commonwealth. This wonderful grass, sown on raw white beach sand, has in the course of five years changed the character of it until at the end of that time it has become a dark-brown color, in some places almost black; and its value as soil has increased 100 per cent. Every year it is improving the value of the land and gives increasing quantities of feed. Now the export trade of King Island consists of fat cattle, dairy produce, horses, etc., and by far the most extensively used grass is melilot. The King Island fat cattle always realize the best prices in the Tasmanian markets, to which the first shipments are made in August, and continue till February and March in each year, over 1300 head of fat cattle being sent away this last season. The King Island Co-operative Butter Factory turns out butter of the highest standard, a good quantity of which is exported to England, and is always among those brands that realize the highest prices. And this butter is made from cows whose principal food is melilot. Sheep and horses also do remarkably well on it. Sheep have been killed weighing up to 120 lbs.; and the two-year-old horses of King Island are as big as the three-year-olds of Tasmania.

Melilot is very similar to lucerne in appearance, and grows to an average height of 3 ft. It has often grown to 8 ft. high on heavy ash, in the better class of soil in the interior of the island. The average crop of hay is two tons to the acre, often running as high as three tons when Algerian oats are sown with it. Cattle, horses, and, in fact, all kinds of stock, are very fond of the hay, which has a beautiful aroma. When cut green for ensilage it yields about five tons per acre.

I do not wish to boom this as the best grass there is, because I know well enough it is not so. For instance, I certainly would not advise one to discard clover, etc., for melilot; but what I do claim is that for any one who has poor sandy country lying idle, this is the grass; for it not only gives you a large quantity of good feed, but is each year improving the quality of the soil until it is sufficiently rich to allow it to grow something better. For instance, there are paddocks of lucerne growing on King Island which would not be there now if the melilot had not improved the ground sufficiently to allow it to do well.

Another good point is the ease with which this grass is grown. The best way is to burn off the paddock. If scrub, it should be fallen about six weeks or two months before, and immediately after the fire sow the seed at the rate of about 10 to 15 lbs. per acre. The sooner after the fire the better. It likes to be sown in hot ashes. The fire germinates the seed more quickly than when unburnt. Melilot starts to spring from March to May, and keeps green right through to February, when it dies off, and is burned off again. It should be burned off every year until well established. It is an abundant seeder, and cattle and horses rapidly spread the seed in manure. It requires seeding only once, of course. The grazing capacity of melilot from September to January (five months) is a beast to the acre. It is somewhat of an acquired taste; but when cattle get used to it they become very fond of it—especially so when made into hay. This melilot grass is indeed a wonderful plant; and if given a decent show it would make a lot of what is at present useless sand become useful grazing country; and the seed, not being expensive, might easily be given a trial. Dr. Cherry, of the Victorian Agricultural Department, speaks very highly of this grass, and it is also strongly recommended by the Tasmanian agricultural experts for green manuring.

King Island is this year earlier with grass than any of the districts I saw when traveling through Gippsland and the western districts of Victoria; also South Australia as far as Adelaide, and also New South Wales. At the end of March we had 4 in. of young grass, and at present it is about 10 inches. Drouths are unknown, and seasons fairly regular. I feel quite sure that, if given a show, a lot of raw sandy patches on the coast of New South Wales could be made far more profitable than at present.

DANDELIONS FOR GREENS, ETC.

Mr. Root:—In regard to dandelions, here in New England they are sold in all our towns and villages during the spring season at good prices, probably averaging 25 cents a peck (of 3 to 4 lbs.) for the season. Large quantities are sold—mostly the cultivated varieties in their natural state. The growing is exceeding profitable—$500 to $600 per acre, so I am told. In our family, to have them the whole year we salt them down in a keg. First prepare them for cooking, then put them in the keg with plenty of rock salt. They will keep all right that way. When wanted for use they are freshened in water and then boiled. We find them exceedingly healthful, and, when served with other vegetables in winter, very "tasty." We have no trouble in "exterminating" a ten-gallon keg of them during our seven months of winter.

Canaan, N. H., June 22. JOHN S. HYDE.

THE MAPLE-SYRUP BUSINESS IN OHIO.

A clipping sent us contains the following:

According to the last United States Government Census, Ohio produced 950,000 gallons of maple syrup out of a total of two million gallons produced.

We were well aware that Ohio does a big business in producing maple syrup, and that it is equal to any produced in the world; but I did not know before that our State came so near producing half of the product of the entire United States; and, thanks to our recent pure-food laws, those who produce pure, honest, first-class syrup are going to have a better chance than they ever had before. If the above clipping is a mistake, will somebody who is competent give us the truth in regard to the matter? My impression is there is no more *wholesome* sugar made in the world than that which comes from the maple-tree.

THE $10 SECRET FOR PICKING OUT A LAYING HEN.

One of our subscribers who is in possession of this secret, even though he has signed a contract not to divulge it has seen fit to tell me this much. He says he can not understand it, because he is not an expert in poultry matters. The information is, therefore, of no use to him. From the advertising circulars submitted it looks very much as if the owners of the $10 secret had hold of something valuable in regard to sorting out profitable hens. But even if this were true it is a poor sort of way to benefit your fellow-men—selling them a secret and exacting a written promise not to divulge, etc. Every new discovery of any value along this or similar lines will soon be public property, notwithstanding the precaution; and in the majority of cases, dear friends, you will find the information is *already* more or less public property. It is against the spirit of the age and the spirit of our American institutions to sell secrets. Let the discoverer make known his discoveries through a fair-sized book sold at a reasonable price, and both he and his customers will get their reward.

PARCELS POST; EXPRESS COMPANIES, ETC.

A few days ago we received by express two Rhode Island pullets from Walter Sherman, Newport, R. I. The express charges on the two "chickens" were $1.93 — not two chickens, however, after all, for one of them was killed by poking its head through the wooden slats nailed across the heavy grocery-box. The $1.93 might have been considerably less had the shipper used a light shipping-crate weighing perhaps only a fourth as much as the big heavy box he put them in; and had this light shipping-coop been made of the right kind of wire cloth or netting so the pullet could not have poked her head through we might have *two* chickens now instead of one. I wrote to Mr. Sherman about his way of shipping fowls, and then investigated in regard to the express charges. The report came back that it was all right, for there was an extra rate on *breeding*-fowls. They said if I would make a statement that the chickens were *not* to be used as breeders I might get some rebate; but I could not do that and continue to write the Home papers. I did not ask the express company to pay for the dead chicken, because I thought it was the fault of the shipper and not theirs. But I *did* feel that $1.93 was a pretty big price for one chicken, and not by *any means* a good-looking one. Friend Sherman says, however, he will make it all right, and use better shipping-crates in the future.

Now, friends, we have all been sorely tried and vexed for years past in having to pay more express charges on a thing than it was worth — sometimes two or three times over; but the express companies have all along claimed they could not afford to carry our traps any cheaper. Just a few months ago there was a big row among the florists, especially in the East, because the express companies had increased the rates on their stuff. They said they could not "make a living" at their previous prices, and I think some of the florists and gardeners have felt also as if *they* could not make a living. Well, just now the papers are full of a recent revelation in regard to the express companies' methods; in fact, we are having a great big search-light turned in on an enormous graft which has been reaching directly into the pockets of our working people. Read the following, which we clip from the *Rural New-Yorker* for July 6:

Blight and other diseases of the vine have driven thousands of melon-growers out of business. Many sections where in former years melon-growing was a leading industry now barely produce enough for home consumption. The Adams Express Company has just cut up a "melon" which shows that blight and downy mildew have no terrors for them! They are able to spray the crops with dimes and dollars taken out of the public. The Adams Express Company is supposed to have a stock capital of $12,000,000. Up to 1898 it paid eight per cent interest. It then had sufficient earnings to issue gratis to stockholders $12,000,000 worth of four-per-cent bonds. Now, besides paying 10-per-cent dividends the company issues out of its earnings $24,000,000 more of these bonds, or 200 per cent on its capital stock. Surely there is nothing sickly about that "melon" for those who hold stock in the Adams Express Company! We should remember, however, that every cent of this $36,000,000 came out of the people in small sums paid for carrying express packages. People have wondered why this great surplus was distributed in this way. The New York *Evening Post* gives this, among other reasons:

"One reason why the 200-per-cent dividend was declared at this time was that, under the Hepburn Rate law, the Adams Express Company, for the first time in its history, would be forced to make a statement of its affairs. Up to the present time none of the express companies has ever published a statement of earnings, liabilities, or assets. In fact, there is only one copy of the Adams Express Company's charter, and that is kept locked up in a safe. When the shares were listed on the Stock Exchange it was not customary to demand a copy of the charter, together with statements of earnings, assets, liabilities, mortgages, etc."

Under the new law the express company will be treated as a "common carrier"—though it seems to have uncommon capacity for carrying money away from the people. By changing this vast sum of cash into stock the express company can make a great bluff that it is paying only a fair rate on its stock. This will not deceive any one who knows the facts. There is no use cursing the express company. That concern has our money and will continue to absorb it until we obtain a fair parcels post. Give us the privilege of sending packages by mail at fair rates, and

that "melon" will grow down to normal size. No wonder these express companies are opposed to a parcels post.

I see by the papers that this thing is making a big stir all over our land. May God help us in our demand for a parcels post.

John Wanamaker said some time ago that there were a hundred reasons for a parcels post, and only six reasons against it; and these six reasons were—*the six great express companies.*

Temperance.

LIST OF STATE SUPERINTENDENTS OF THE ANTI-SALOON LEAGUE.

In accordance with my promise on page 988, last issue, I herewith give a list of anti-saloon superintendents of the United States and their headquarters. In a few cases affiliated societies are mentioned; otherwise, the Anti-saloon League is referred to

Alabama—Rev. Brooks Lawrence, Supt., Birmingham.
Arkansas—Rev. E. A. Tabor, Sec. Inter-church Federation of Arkansas, Little Rock.
California—Rev. E. S. Chapman, Supt., Los Angeles.
Colorado—Rev. E. E. McLaughlin, Supt., Denver.
Delaware—W. H. Anderson, Baltimore. (This State and Maryland are under one superintendency.)
District of Columbia—Rev. Carl G. Dony, Washington.
Connecticut—H. H. Spooner, Sec'y Conn. State Temp. Union, Kensington.
Georgia—Rev. J. C. Solomon, Atlanta.
Idaho—Rev. C. E. Helman, Caldwell.
Illinois—Rev. J. K. Shields, 1534 1st Nat. Bank Bldg., Chicago.
Indiana—Rev. U. G. Humphrey, 40 Claypole B., Indianapolis.
Indian Territory—Rev. E. M. Sweet, Jr., Sec. Ind. Ter. Church Federation, 401 Iowa Bldg., Muskogee.
Iowa—Rev. I. N. McCash, Supt., Des Moines.
Kansas—Rev. R. Norris, Sec. Kan. State Temp. Un., Topeka.
Kentucky—Rev. C. L. Collins, Supt., 81 Todd B., Louisville.
Louisiana—Rev. S. A. Smith, Supt., New Orleans.
Maine—Rev. R. O. Everhart, Supt., Portland.
Maryland—W. H. Anderson, Supt., 409 Am. Bldg., Baltimore.
Massachusetts—Rev. S. H. Davis, Supt., 24 Milk St., Boston.
Michigan—Rev. G. W. Morrow, Supt., Detroit.
Minnesota—Rev. N. A. Palmer, Supt., Minneapolis.
Mississippi—At present this State has no superintendent. Dr. Young, Dr. Baker's assistant, is there arranging to organize the State.
Missouri—Rev. S. I. Lindsay, Supt., 710 Burl. Bldg., St. Louis.
Montana—Rev. W. T. Groom, Supt., Butte.
Nebraska—Rev. J. B. Carns, Supt., University Place.
New Hampshire—Rev. J. H. Robbins, Supt., Concord.
New Jersey—J. F. Burke, Supt., 135 Roseville Av., Newark.
New York—Rev. H. H. Russell, Supt., 103 E. 125, New York.
New Mexico and Arizona—Rev. W. W. Havens, Supt., Albuquerque, New Mexico.
North Carolina—J. W. Bailey, Manager, Raleigh.
Ohio—W. B. Wheeler, Supt., 610 New Hayden B., Columbus.
Oklahoma—Rev. J. J. Thomson, Supt., Oklahoma City
Pennsylvania—Rev. S. E. Nicholson, Supt., Harrisburg.
Rhode Island—Rev. A. B. Cristy, Supt., Providence.
South Dakota—Rev. W. M. Grafton, Supt., Mitchell.
Tennessee—W. R. Hamilton, Supt., Nashville.
Vermont—C. J. Ferguson, Supt., Burlington.
Virginia—Rev. R. H. Bennett, Supt., Richmond.
Washington—E. H. Cherrington, Supt., Seattle.
West Virginia—Theodore Alvord, Supt., Parkersburg.
Wiconsin—Rev. T. M. Hare, Supt., Milwaukee.

THE $1000 TAX ON SALOONS, ETC.

Quite often it is thrown up against the Anti-saloon League that it did not turn in and help, or at least not with any vim or energy, when the tax was raised to $1000 for each saloon; and we of the Anti-saloon League have, I believe, as a rule, owned up that the Anti-saloon League of Ohio and of the United States has never helped to further the principle of taxation for revenue. The *Wine and Spirit News*, of Columbus, Ohio, explains the matter to a dot, and, in fact, they are giving us some excellent "ammunition" in the way of suggestions in our crusade against the saloon. Read the following:

While we do not now, and never did, approve of such a thing as the $1000 saloon tax, believing it to be outrageous, if not highway robbery, nevertheless it is a law, and probably will remain one. At the same time there never was a law enacted that did not have good features attached to it, so it is possible that it may have some. For instance, it can not be denied that an immense revenue will accrue to the State, MAKING THE LIQUOR BUSINESS OF OHIO INDISPENSABLE TO THE STATE.

The matter in capitals in the above hit the point exactly. In other words, this revenue comes by robbing poor helpless women and children where there is a drunken father in the home. Dear friends, can we *ever*, while we have our senses, consent that the State of Ohio should receive its revenue by depriving its helpless children of necessary food and clothing, and by humiliating the mothers of these same children by obliging them to go half fed and half clad, taking in washing etc.? *God forbid;* and may God help us, each and all, to arise in our might and declare that this shameful thing shall go on no longer.

OVER FOUR MILLION LEAFLETS.

The Wholesale Liquor-sellers' Protective Bureau declare they have sent out during the past year 4,582,200 pieces of literature to counteract the work the temperence people are doing. Now, I do not feel very much worried about the "leaflets," but I *am* troubled when I see respectable home papers giving place to statements defending the general use of beer and other spirituous liquors. If they would append some signature telling who made the statement, or whose *opinion* it was, the public might accept it or not; but in many cases we are led to believe it is an editorial, and the opinion of the editor or publisher of the periodical. Look out for those who come to you in sheep's clothing, but who inwardly are devouring wolves.

THE WRIGHT BROTHERS' AIR-SHIP.

The latest thing we have heard from the Wright Brothers is the following, which I clip from the *Woman's National Daily:*

DAYTON, O., July 19.—The aeroplane built by Orville and Wilbur Wright is said to have been sold to the French government. The machine was intrusted to the Adams Express Company to-day for shipment to Paris via New York.

The above seems to indicate that they have sold their invention to France, and will at once make some flights as soon as the machine reaches its destination. With modern facilities the express company ought to deliver it in Paris so that we may soon have reports in regard to their success in teaching our friends across the water how to fly.

Later:—We clip the following from the Cincinnati *Enquirer:*

DAYTON, O., July 20.—According to information obtained to-day, Wilbur and Orville Wright, inventors and builders of the Wright flyer, the only aeroplane ever successfully tested in this neighborhood, have practically sold their machine to the French Government, and have received the first payment of the reported purchase price, 1,000,000 francs, equivalent to about $200,000. Negotiations had been conducted on a basis of $300 000; and that the sale has been effected at a handsome figure is a matter of great satisfaction to their friends.

IN THE HEART OF MICHIGAN

Did you know that within one hundred miles of me are over three-fourths of the bee-keepers of Michigan? Are you one of them? If so you will find it to your advantage to write for my new catalog. A full line of Root's Goods at Root's Factory Prices. Hilton's double-walled hives are used more than any other in my State. It has stood the test of thirty years. . . . . I ship goods promptly. Wholesale or retail. . Cash or exchange for beeswax at all times.

George E. Hilton - - Fremont, Michigan

NOW is the Time to Order Your

BEE-SUPPLIES

AND SAVE MONEY

IT will cost you only one cent for a postal card to get our **delivered prices on Dovetailed Hives, Sections, Section-holders, Separators, Brood-frames, Foundation, Smokers, Extractors, Shipping-cases, etc.** It may mean a saving to you of many dollars. It is the natural advantage we have over others that enables us to make you the Best Price. There are no better goods than ours, and we GUARANTEE SATISFACTION or REFUND your MONEY.

We MANUFACTURE and keep in stock all standard Bee-goods, and can ship promptly.

MINNESOTA BEE-KEEPERS' SUPPLY COMPANY

NICOLLET ISLAND, No. 20. (JOHN DOLL & SON, Props.) MINNEAPOLIS, MINN.

BINGHAM BEE-SMOKER AND KNIFE.

What catalogs say :

The A. I. Root Co., Medina, Ohio: "The cone fits inside the cap so the liquid creosote runs down inside of the smoker."

Chas. Dadant & Son, Hamilton, Ill.: "This is the smoker we recommend above all others, and it has given universal satisfaction."

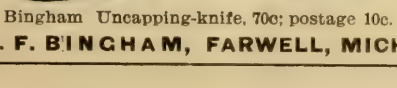
G.B.Lewis Co., Watertown, Wis.: "We have sold these for a good many years, and never a complaint. They include all improvements."

Marshfield Mfg. Co., Marshfield, Wis.: "The original direct-draft Bingham Smoker is the best smoker made."

The Bingham Smokers and Honey-knives have been the standard in America and every European country 29 yrs. There is no *smoker* so *old*, so *new*, so *perfect*. Accept thanks for 30 yrs. liberal patronage.

BINGHAM SMOKERS. Name.	Size of barrel.	Price of 1	Price of 3	Postage.
Smoke Engine.....	4-inch	$1 25	$3 45	25
Doctor.....	3½ "	85	2 40	25
Conqueror.....	3 "	75	1 95	25
Large.....	2½ "	65	1 65	25
Little Wonder.....	2 "	50	1 35	15

Three larger sizes in heavy copper at 50c ea. extra.



Bingham Uncapping-knife, 70c; postage 10c.

T. F. BINGHAM, FARWELL, MICH.

TO THE

BEE-KEEPERS OF CANADA.

WE are pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we do not offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

E. GRAINGER & COMPANY,

Deer Park,

Toronto, Ontario, Canada.

CANADIAN AGENTS FOR
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

H. M. Arnd, Prop'r York Honey and Bee-supply Co. (NOT INC.)

Long-distance telephone, North 1559. CHICAGO, ILL. 191-193 East Superior Street.

Carries a full line of new Lewis Bee-supplies, Hershiser Wax-presses, etc. Slightly damaged Poultry and Bee Supplies at greatly reduced prices while they last. Send for 1907 catalog and fire sale list. Beeswax wanted. Italian Queens, Nuclei, and full colonies in up-to-date hives for sale.

JOBBERS FOR
Central Pennsylvania
. . . for . . .
ROOT'S GOODS.

TRY THE DANZ.
COMB-HONEY HIVE

The Danzenbaker hives I got last season have given splendid satisfaction; in fact, I have kept my bees outside this winter, which is seldom attempted in Manitoba, and up to date they have come through in splendid shape. I think the hive did it.
Yours truly, LAURENCE C. CLARKE.
Morden, Man., March 5, 1907.

Send for catalog. Best shipping facilities in the State.

Frank W. Prothero
Dubois, : : : Pennsylvania

North Texas . .
. . Bee-keepers

will find Dallas the best point from which to purchase supplies. We have a carload of ROOT'S GOODS IN STOCK, and sell them at the Factory Prices. Don't forget that we can furnish any thing in the way of Field or Garden Seeds, Plants, and Poultry Supplies. Our large illustrated catalog for 1907 free on application. Mention GLEANINGS when you write. . . . . .

Texas Seed
and : Floral : Company
Dallas, : : : : : Texas

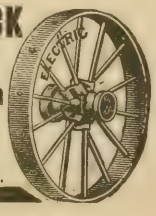
NORTHERN NEW YORK BEE-KEEPERS.

BUY your supplies where you can buy to the best advantage. Save freight charges and time. Large stock of new goods. "Root's goods." Cash paid for beeswax. Send for catalog and price list.

A. H. REEVES & CO., Watertown, N. Y.
17 Morrison St. Phone 1296.

ROOT'S BEE-SUPPLIES New Goods. Free Catalog.
AT SPRINGFIELD, MASS.
F. R. DANIELS,
'PHONE. 117 FLORENCE ST.

SAVE YOUR BACK
Save time, horses, work and money by using an
Electric Handy Wagon
Low wheels, broad tires. No living man can build a better. Book on "Wheel Sense" free.
Electric Wheel Co. Box 95, Quincy, Ill.



PATENTS.
Twenty-five Years' Practice.
PRINDLE & WILLIAMSON,
Second Nat'l Bank Bldg., Washington, D. C.

Patent practice in Patent Office and Courts.
Patent Counsel of The A. I. Root Co.

SWARTHMORE QUEEN-REARING OUTFIT

Prices of Complete Outfits:

Outfit No. 1--Experimental

POSTPAID, $1.50

1 Cell-bar, 1 Holding-frame,
16 Waxed Flange Cups, 12 Transfer-cages.

Outfit No. 2--Amateur

POSTPAID, $3.50

2 Cell-bars, 1 Holding-frame,
35 Waxed Flange Cups, 18 Transfer-cages,
1 Needle, 1 Cell-stick.

Outfit No. 3--Professional

BY FREIGHT OR EXPRESS, $7.50

2 Blank bars, 2 Cell-bars,
3 Holding-frames, 1 Incubating-cage,
1 Cage-pocket, 1 Grace Cell-compressor,
1 Grafting-plug, 100 Flange Cups,
2 Double mating-boxes, 2 Swarth. nursery-cages,
1 Bar-holder, 24 Transfer-cages,
1 Swarm-box with lid, 1 Needle, 1 Stick.

Prices of Separate parts:

		post. extra
Bar-holder	$ .10	.04
Blank Bar	.05	.04
Bottle Feeder	.10	.05
Bulb Filler and Feeder	.75	.08
16-hole Cell-bar	.10	.02
Cage-pocket	.25	.09
Flange-cups, unwaxed, 1c each; per 100.	.75	.09
Flange-cups, waxed, 2c each; per 100...	1.75	.14
Grace Cell-compressor, each	1.75	.14
Grafting-needle, each	.15	.01
Grafting-plug, each	.10	.01
Grafting-stick, each	.10	.01
Holding-frame, each	.10	05
Incubating-cage, each	.35	.07
Double Mating-boxes, complete, $1.00; 10	7.50	
Nursery-cages, complete, waxed cell-cup	.35	.05
Nursery-cages, no cups	.25	.04
Swarm-box, with lid	1.00	
Swarm-box, lid only	.25	
T Stands, each	.10	.06
Transfer-cages	.10	.02

FOR SALE BY ALL DEALERS IN BEE-KEEPERS' SUPPLIES

Northwestern Bee-keepers!

We are headquarters for the ROOT supplies for the States of Montana, Minnesota, the Dakotas, and Western Wisconsin.

You can save freight by ordering from this branch. A complete line of bee-keepers' supplies always in stock.

Secure a catalog at once.

BEES and QUEENS.—Your orders will be attended to.

The A. I. Root Company

H. G. ACKLIN, MANAGER

1024 Mississippi Street, St. Paul, Minn.

At St. Louis

On a Line

to all points in the South and Middle West.

Send for our free illustrated catalog of

Root's Bee-supplies

We sell at factory prices.
Send us a trial order.

Beeswax Wanted.

Blanke & Hauk Supply Co.

DEPT. B,

202-204 Market St., **St. Louis, Mo.**

Manufacturers and Jobbers of Dairy, Creamery, Ice-cream, and Poultry Supplies.

ITALIAN

QUEENS

AND NOTHING BUT ITALIANS

A superior improved strain, Northern-bred, are hardy and vigorous; always come out strong in the spring. Our stock is well known, and not necessary to say more here. :: :: :: :: :: :: ::

Send for circular and list of testimonials.

Prices of Queens after July 1.	1	6	12
Select queens	$ 75	$4 00	$7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	5 00	

Young queens from our improved stock is the best security against poor seasons. Requeen now and have bursting strong colonies in the spring. We employ 500 swarms. Queens sent outside of United States or Canada, 25 cts. extra.

QUEENS NOW READY!

SAFE ARRIVAL AND PURE MATING GUARANTEED.

Address all orders to

QUIRIN-THE-QUEEN-BREEDER

Bellevue, Ohio.

BEES and SUPPLIES

— FROM —

NEW YORK CITY.

For fourteen years we have been furnishing every thing the Eastern bee-keeper needs. Our office and warerooms are at the same old stand—105 Park Place, New York. Full colonies Italian bees in new hives, $9.00. Catalog free.

Apiaries, Glen Cove, L.I. I.J.STRINGHAM.

ROSE LAWN QUEENS

ABHASIANS: In order to distinguish our superior Caucasians of the genuine imported Abhasian stock from the common dark Caucasian, we have termed them "ABHASIANS." These are the YELLOW CAUCASIANS and possess all the valuable characteristics of the race in addition to their color, which commends them to the lover of bright color.

Untested queens, $1.50; tested, $2.00.

BANATS: The backward season renders it impossible to ship these before July. Choice untested queens from imported stock, at $2.00.

ABHASIANS OR BANATS imported direct to customer, $6.00.

Golden and red-clover Italians ready for shipment.

ROSE LAWN APIARIES, College View, Neb.

ITALIAN QUEENS and BEES

I can supply select untested Queens until November 1st at 50 cts. each; $5.00 per dozen. Orders for early delivery will receivecareful attention.

David S. Hurst, Box 102, **Letohatchee, Ala.**

QUEENS!

Caucasians, Italians, Cyprians, and Carniolans. Prices in April, May, and June: Caucasian, one extra-select best breeding-queen, $3.00; one imported direct from Caucasus, $4.00. Italian and Carniolan: one best extra-select breeding-queen, $2.00; one imported Italian or Carniolan queen, $2.50. Cyprian: one extra best select breeding-queen, $2.50; one imported direct from Cyprus, $3. Prices in July, August, and September, 50 cts less than in May and June. Special prices for 50 and 100 queens. Caucasian, Italians, Cyprian, and Carniolan queens bred—the best imported breeding-queens. The addresses must be plain, payments by postal money-orders. Queens guaranteed to arrive in good condition, U. S. or Canada. 1000 Nuclei.

ERM. HAUNSCHILD,

Weissbach b. Pulsnitz i. Sa., Germany.

MINNESOTA QUEENS

Nothing Better. Try Them.

Three-band and Golden Italians.

We warrant our bees free from disease of any kind, and guarantee safe arrival of all queens. We want your orders and will fill them promptly on and after June 1st, at 75 cts. untested, and $1 25 for tested of either strain. A postal will bring you a circular. Send your orders to

MENNIE & FENTON,

Pine Island, . . Minnesota.

Taylor's Strain of Italians is the Best

Long tongues and goldens are the best of honey-gatherers; 18 years a specialty, breeding for the best honey-gatherers. Untested, 75 cts. each, or $8.00 a dozen; tested, $1.00 each, or $10.00 a dozen; select tested, $1.50 each. Breeders, the very best, from $3.00 to $5.00 each. Carniolans same price as Italians. Try them. We sell nuclei and full colonies. Bees in separate yards. Safe arrival guaranteed. Send all orders to

J. W. TAYLOR & SON, Beeville, Bee Co., Texas.

"Better than an Island" Queens

There are no other bees within five miles, and so pure mating is guaranteed. The fastest trains stop here, and hence when you order queens they are not away from the colony long enough to impair their usefulness. The *Banat* bees are my specialty. They are the best and gentlest bees in the world. They work when others are idle and make snow-white comb. Queen-breeders should secure their breeding-queens from this pure stock, imported from Austria. Order now. Laying Banat queen, $2.00; laying golden Italian queen, 75 cts.; tested queens, one year old, double these prices; breeders from $5.00 to $15.00.

DELE COLLINS, PH. D., :: EMPORIUM, PA.

3-BANDED ITALIAN BEES.

The best all-round bees on earth. My stock is composed of selections from my own strain of 3-banded Italians that were awarded diploma at the Pan-American Exposition, and The A. I. Root Co. clover stock.

Tested queens, $1.50; select tested queens, $2.00; fair breeding queens, $3.00; extra select breeders, $5.00—ready to go promptly. Untested 1907 queens, $1.00; select untested queens, $1.25—ready early in March. Yours for a prosperous 1907.

W. O. VICTOR,

Queen Specialist, HONDO, TEXAS.

CARNIOLANS and BANATS

OUR SPECIALTIES.

CARNIOLANS.

THIS is our 22nd year in breeding this race of bees, and, by careful selection, we claim to have the finest *Line-Bred* Carniolans to be had. They are very gentle, hardy, prolific, great honey-gatherers, and builders of white combs. One untested queen, 75 cts.; six for $3.90; twelve for $7.00. Tested, $1.25; best breeder, $2.50. Write for prices of nuclei and full colonies. No foul brood here.

BANAT BEES, from Hungary.

THIS wonderful new race of bees takes the lead over all others, all points considered. Are great honey-gatherers and builders of very white combs; gather very little propolis; do not breed out of season and use up their honey when none is to be had; are very gentle and quiet on combs; are not inclined to swarm, even with their hives boiling over with bees, but keep right at work while other races are swarming. One untested queen, $1.50; six for $6.00; twelve for $10.00. Tested, $3.00; best breeder, $5.00.

F. A. LOCKHART & COMPANY, LAKE GEORGE, NEW YORK.

W. H. Laws says, If there is a queen-breeder who can boast of better stock let him trot out the proof. Testimonials enough to fill this book. Will give you only one. Mr. J. C. King, Washington, D. C., writes, "For two years I have had one of your queens in my apiary. Each season she has given me over 200 lbs. comb honey; last season she actually stored while other colonies starved. I have over twenty strains in my three apiaries, but yours is the best."

Now is the time to get a fine breeding queen; stock up this fall and double your crop of honey the coming season. Single queen, $1.00; 6 for $5.00. Extra select breeders, $5.00. Safe arrival and satisfaction guaranteed.

W. H. LAWS, Beeville, Bee Co. Texas.

NONE BUT THE BEST

QUEENS

are sent out by our firm; should any prove unsatisfactory, we promptly replace them. Try our strain of three-band Italians; they will not disappoint you. Tested queens, $1 each; untested, 75 cts., $8 per doz.

J. W. K. SHAW & CO., LOREAUVILLE, IBERIA PA., LA.

Try the Robey strain of three-banded Italians that have become so famous all over the country as honey-gatherers. W. L. Coggshall and E. W. Alexander have both said in their writings to GLEANINGS that in extracting they always found better filled combs when they came to colonies containing the Robey queens. Many of the largest honey-producers of this and other countries use the Robey queens and pronounce their bees high-rollers for honey. Warranted queens, 75 cts. each, $4.25 for six. Safe arrival and satisfaction guaranteed, or money refunded.

QUEENS

L. H. Robey, Worthington, W. Va.

Moore's Long Tongue and Golden

Fine select untested queens, 81; 6, $5; 12, $9. Tested, $1.50; 6, $8. Breeders, $3.50. Safe arrival gar'd.

Queens

W. H. RAILS, - ORANGE, CAL.

Yellow from Tip to Tip!

My Adel bees and queens are very handsome. Every queen a breeder, and guaranteed to produce golden queens and beautiful bees; non-swarmers, very gentle, and hustlers for honey. Each queen, $1.00. Catalog ready. **H. ALLEY, Wenham Mass.**

Westwood Red-clover Queens.

No better hustlers flying; will get honey where other bees fail. Try them and be convinced. Nuclei a specialty. Also full colonies of ten frames each. Safe arrival guaranteed. Price list sent on application.

HENRY SHAFFER, 2860 Harrison Ave., Station L, Cincinnati, Ohio.

ITALIAN QUEENS

Red-clover and Golden

Untested: 1, $1; 6, $5. Select untested: 1, $1.25; 6, $6. Hardy, Prolific, Gentle. Great Honey Gatherers.

Satisfaction guaranteed.

W. A. SHUFF, 4426 Osage Ave., Philadelphia, Pa.

QUEENS of MOORE'S STRAIN OF ITALIANS

Produce workers that fill the supers, and are not inclined to swarm. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Mr. W. Z. Hutchinson, editor of the *Bee-keepers' Review*, Flint, Mich., says: "As workers, I have never seen them equaled. They seem possessed of a steady, quiet determination that enables them to lay up surplus ahead of others. Easier bees to handle I have never seen."

My queens are all bred from my best long-tongued three-banded red-clover stock (no other race bred in my apiaries), and the cells are built in strong colonies well supplied with young bees.

PRICES: Untested queens, 75c each; six, $4; doz., $7 50. Select, untested, $1.00 each; six, $5; doz., $9 00. Safe arrival and satisfaction guaranteed.

Descriptive circular free. Address

J. P. Moore, Queen-breeder, Rt. 1, Morgan, Ky.

Caucasian and Long-Tongue Italian Queens.

1905, '06 Queen-breeder in Apiary of Dept of Agriculture, Washington, D. C.

Both Races.	1	6	12	
UNTESTED.	$ .60	$3 35	$6.50	TESTED $1.25
SELECT "	.75	4 00	7.50	SELECT TESTED, 1.50

Satisfaction Guaranteed. Descriptive Cir. free.

LESLIE MARTIN,
Birdcroft Apiaries, Lebanon, Tenn.

Queens from 65 Cents Up!

Bred from Root's Imported Italians. Write for prices, stating wants. . .

C. M. Church, Arnold, Pa.

ADVANCE BEE-VEIL (postpaid) 50c

Made of imported French tulle veiling, cotton with silk face, and cord arrangement, which permits the wearer to handle bees in shirt sleeves, with no chance of bees crawling up and under veil. With a hat of fair-size brim you are as cool and comfortable, movements as free and unrestricted, and as secure from stings, as if you were at the sea-shore. No wire screen dancing around and wearing the hide off the end of your nose, and the cord arrangement does away with the hot, stuffy, uncomfortable feeling of other veils. Bee-stingers are extra long in August; get our veil by return mail and be comfortable.

Here is what the general manager of the National Bee-keepers' Association has to say about the Advance Bee-Veil.

A. G. WOODMAN Co. Platteville, Wis., April 7, 1906.
Enclosed find 50 cents for one of your veils. N. E. FRANCE.

A. G. WOODMAN CO. Platteville, Wis., April 14, 1906.
Bee-veil just received and is as advertised, the best on the market. Find enclosure for ten more veils. N. E. FRANCE.

A. G. WOODMAN CO. Platteville, Wis., June 10, 1907.
Please send me two more of your bee-veils. I have tried all kinds and yours are best of all. N. E. FRANCE.

A. G. WOODMAN COMPANY, GRAND RAPIDS, MICH.

Virgin Queens

are not injured in the mails. Give them a trial and you will be pleased. Instructions for introducing, free. Select Italian virgins, 40 cts. each; dozen, $4.50.

GEO. H. REA, Maplewood Apiary, R. 2, Reynoldsville, Pa.

QUEENS GOLDEN ALL OVER and THREE-BANDERS.

Untested, 60 cts. each; 6 for $3.50; tested, 85 cts. each, 6 for $4.90. We can send queens by return mail. Our queens are extra fine this year. Make money-orders payable on West Fork, Arkansas.

DANIEL WURTH & GRANT, Pitkin, Ark.

Special Offer.

For the next ninety days I will sell my choice Italian red-clover honey-queens at the following prices: untested, each 75 cts.; half doz., $4; tested, $1 each; six, $5. Every queen guaranteed to give entire satisfaction.

Fred Leininger, Ft. Jennings, O.

QUEENS THAT IT PAYS TO BUY.

Try one of my famous $100 red-clover breeder's daughters. Also golden queens same price. After May 1st—Untested, 50c, 13 for $6; select, untested, 75c, 13 for $9; tested, $1.00. Nuclei, $1.00 per frame, without queen.

H. A. ROSS, 1709 Upper 2d St., EVANSVILLE, IND.

Italian Queens

Fine young prolific three and five banded Italian queens by return mail. Untested, only 60 cts.; tested, 75 cts.; extra fine queen, $1.00. Full colonies in eight-frame new hive with queen, $4.75. Three-frame nuclei, with queen, $2.75.

J. L. FAJEN, ALMA, MO.

RED-CLOVER and CAUCASIAN QUEENS.

4-frame nucleus, nice painted hive and fine queen, $3.75; tested queen, $1; untested, 75c; average queen, 65c; Caucasian queen, $1 each. They beat all records for honey.

C. ROUTZAHN, BIGLERVILLE, PA.

R. DEGEN & CO.

NEW DURHAM, N. J.

IMPORTERS OF QUEEN BEES.

Banats from Hungary. "Echte Lüneburger Heide Bienen" for late flow. Very prolific. From Hamburg queens are in charge of responsible parties who will care for them across the ocean, thus eliminating the danger of the mail-bag.

TRY

Miller's Italian Queens

Untested—in May, 90 cts.; after June 1st, 60 cts. Tested—in April, $1.40; May, $1.25; after June 1st, $1.00. One, two, and three frame nucleus, and full colonies with tested or untested queens at proportionately low prices. Send for free price list. Remittance by P. O. money-order on Bluffton P. O. preferred.

THE STAR APIARY, S E. Miller, Propr., BLUFFTON, MO.

Golden Italian Queens

Guaranteed—"Nuff Ced." Untested, 75 cts.; six for $4.00; dozen, $8.00. Select, 25 cts. extra. Tested, $1.25 up. Your order right back, if you say so, if order can not be filled in two or three days.

J. B. CASE, PORT ORANGE, FLA.

ITALIAN QUEENS.

Golden or dark; untested, $1.00; tested, $1.50

C. D. BENTON, - - - Aikin, N. Y.

MOTT'S LONG-TONGUED IMPORTED QUEENS!

Also Goldens. Nuclei a specialty. Untested, 75 cts.; tested, $1.25. Write for prices. Postal-orders drawn on Decatur, Mich. **E. E. MOTT, Glenwood, Mich.**

BEE-KEEPERS!

Write us for catalog of "LEWIS' Goods." Hives, sections, foundation, smokers—in fact, every thing for the BEE-KEEPER at factory prices. Use nothing in your apiary but hives with reversible bottoms and the Colorado cover—they are the best. We furnish them regularly with our DOVETAILED hive. Another of LEWIS' regular line that can't be beaten, for those who prefer a hive with a portico, is the WISCONSIN—the catalog will tell you all about it, and other good things also.

The C. M. SCOTT CO., 1006 E. Washington St., Indianapolis, Ind.

Classified Advertisements.

Notices will be inserted in these classified columns at 20 cents per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Help Wanted.

WANTED.—Six salesmen wanted to introduce our new State surveys. An absolute new idea and a splendid opportunity for energetic men.
RAND, MCNALLY & COMPANY, Chicago, Ill.

Wanted, Situations.

WANTED.—Situation by young man; experienced in all branches of apiculture. California preferred.
C. A. WORTH, Pitkin, Ark.

I would consider operating 500 to 1000 colonies bees next season; small salary and per cent of profits; will go to any part of the United States, or can secure one of the finest locations in Texas.
H. H. HYDE, 416 Temple Bldg., Houston, Texas.

For Sale.

FOR SALE.—Black-and-tan hound pups at $2.00.
J. DRENTH, De Motte, Ind.

FOR SALE.—Opaline honey-jars, all kinds; send for price list. HAROLD E. SHORE, Germantown, Pa.

FOR SALE.—Japanese buckwheat, $1 per bushel; sack not included. IRVING LONG, Marceline, Mo.

FOR SALE.—Fine job-printing outfit.
C. A. STEBBINS, Broad Creek, Va.

FOR SALE.—Alexander wire bee-veil, guaranteed to protect the face from any stings, 75c each, or 3 for $2.00 postpaid. FRANK ALEXANDER, Delanson, N. Y.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1907 send your name and address to FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE.—Best Wisconsin sections, per 1000, $4.00; No. 2, $3.40; plain, 25 cts. less. Discounts on Danz. hives and other Root's goods; also berry-boxes. Italian bees for sale. H. S. DUBY, St. Anne, Ill.

KODAK and Camera users, send us your developing and finishing. Send for price list. A full line of Kodaks, films, and all Photo Supplies.
FURNAS & MADDOX. 552 A. Louisville, Ky.

FOR SALE —60-lb. cans. Just received three cars honey in new cans and cases; look good as new. Empty cases in quantity lots. 30 cts.
J. A. BUCHANAN & SONS. Holliday's Cove, W. Va.

FOR SALE.—One 3 H. P. gasoline-engine, and 1 Parks wood-working machine, run 3 months; $125.00 if sold at once.
M. A JONES, Atwater, Ill. R. F. D. No. 45.

FOR SALE —Homestead farm crops in their season, consisting of honey, grapes, pears, apples, etc.
C. J. BALDRIDGE, Kendaia, Seneca County, N. Y.

FOR SALE.—Beautiful long-haired Angora and Persian kittens, some white and other colors. Prices low. Stamp for description
MRS. J. F. SKEES, Marion, Ohio.

FOR SALE.—Nine two-dozen reshipping-cases; No. 25 honey-jars. Only 18 jars used once. Cheap.
ISAAC D. KREISS, Benjamin, Pa.

FOR SALE.—Fifty cases of one-gallon (will hold 12 lbs. honey) friction-top tin pails. Put up six pails in a very strong case. Price per single case, 80 cts.; in lots of five or more, 75 cts. each. S. C. SWANSON,
Cannon Falls, Minn. Rt. 2. Box 78.

FOR SALE.—The following foundation-mills. Wish to dispose of them at once. Write for sample if interested, and fuller information will be given about any mill.

Mill No. 1—14-in., old-style high frame, in perfect order, price $15.00.

Mill No. 2—6-in., old-style high frame; has had a pin run through the rolls, otherwise is in good order; price $8.00.

Mill No. 3—12-in. new style, large rolls, used but very little, in perfect order; price $25.00.

Mill No. 4—12-in. blank rolls, used but little, in perfect order; price $20.00.

Mill No. 5—6-in. mill, new style, in perfect order, used but little; price $12.00.
W. W. BLISS, Duarte, Cal.

Real Estate for Bee-keepers.

FOR RENT.—Fine farm; write for particulars.
MARY F. MARTIN, Manchester, O.

FOR SALE.—320 acres, stock, tools, and bees, at $16.00 per acre. Plenty of wood and running water; eight miles back from the Pacific coast.
J. KAETS, Vista, San Diego Co., Cal.

FOR SALE.—Orange grove with good house and out-buildings and 50 colonies of bees, in Sorrento, Lake County, Fla. Also 15 colonies in Ohio. Good reason for selling. Address C. W. MCCOLLEY,
Tontogany, O.

FOR SALE.—Cider, sorghum, and jelly mills on one acre of land. Also 11 village lots, house, barn, honey-house, bee-cellar, and bees. It will give one yearly work; good pay. I am going to New Mexico to rear queens. Write at once. E. E. MOTT, Glenwood, Mich.

FOR SALE.—Apiary, bees, fixtures, fencing, houses, land, power boat; water transportation Best location in the State. All together cheap. Stamped envelope for information.
G. G. HENSLER, Apalachicola, Fla.

FOR SALE.—The oldest and best bee-supply business in the South. Two-story brick factory, fully equipped, two large apiaries, and a good trade in queens and bees. Reason for selling, approaching old age, and other interests. Full particulars by mail. Address
BEE-SUPPLIES, Box 474, Montgomery, Ala.

FOR SALE.—Small homestead, first-class buildings, fully equipped apiary, in one of the most desirable locations to be found. Will sell for less than the improvements can be replaced for. This was the home and the apiary of the late B. Taylor. Write for particulars. JEWELL TAYLOR, Rt. 5, box 23,
Preston, Minn.

FOR SALE.—652 acres of choice land in the prairie-belt of east Mississippi, situated 12 miles east of Macon, Miss. Telephone and R. F. D.; 100 acres in young hard-wood timber; 400 acres in pasture; Bermuda, melilotus, lespedesa, white clover, and blue grass predominating; about half this land will grow alfalfa, which can be cut six or seven times each year. Also 700 stands of Italian bees in three yards; my average for 15 years has been about $8.00 per stand—no disease, no failure in 15 years; 75 head of high-grade Jersey cows; butter sells for 20 cts. in summer and 25 cts. in winter, and the demand has never been filled. Improvements—7-room house, barn accommodating 52 cows; barn for horses; 10 cabins, 400 acres fenced in four pastures, best of water in abundance. Fine and healthful climate. Write for further particulars.
GEO. A. HUMMER, Prairie Point, Miss.

FOR SALE.—Seven-room house with cellar—two-story; stone-basement barn, 36x48; three acres of good land with plenty of fruit-trees and grapevines, located on Canada St., Munnsville, Madison Co., N. Y., in the Stockbridge Valley—a very desirable location for a bee-keeper, with plenty of basswood timber, clover, buckwheat, etc. Several years ago my brother kept a large stock of bees here and was very successful; located on the O. & W. R. R., nine miles south of the city of Oneida. Price $1800, with $800 cash, and balance on long time at 6 per cent if desired. Any further information will be given by
R. H. WOOLVER, Munnsville, N. Y.

Bees and Queens.

FOR SALE —Italian bees in Danzenbaker hives with super, $7.00 each. H. W. COLEY, Westport, Ct.

FOR SALE.—Three-frame nucleus of bees and queen, $2.00. Doolittle strain. G. M. BREWER, Medina, N. Y.

FOR SALE.—Mismated and hybrid queens. Good ones 25 cts. each. A. H. KANAGY, Milroy, Pa.

QUEENS—Red-clover strain; imported mothers, leather color, $1. A. W. YATES, 3 Chapman St., Hartford, Ct.

FOR SALE.—Fine golden Italian queens by return mail, 50 cents. J. F. MICHAEL, Winchester, Ind.

FOR SALE.—17 colonies of Italian bees (Root stock) in chaff hives. Must be sold.
A. J. PRESSEY, M. D., 900 Fairmount St., Cleveland, O

FOR SALE.—Queens from bees that gather honey: also full colonies of bees. HAROLD HORNER,
Jenkintown, Pa.

FOR SALE.—Bees, 35 colonies in 10-frame L. hives. All in splendid condition. C. E. PHILLIPS,
R. Route 5, Springfield, Mo.

FOR SALE.—35 years with the bees. Five-banded golden Italian bees; queens, 75 cts. each.
J. LINGENFELTER, Akin, N. Y.

FOR SALE.—Untested Italian and Carniolan queens at 75 cts. each; virgins at 30 cts.
EDW. REDDOUT, Box 62, Baldwinsville, N. Y.

FOR SALE.—Bees, queens, and bee-keepers' supplies (Root's goods), at factory prices.
F. W. VAN DEMARK, Mehan, Okla.

FOR SALE.—Some mismated and black queens at 25 cts.; untested queens until Sept 15th at 40 cts.
B. F. AVERILL, Howardsville, Virginia.

FOR SALE.—By return mail or money refunded: Italian queens, each, 75c; 6 for $4. Caucasian queens, each $1; 6 for $5. Warranted purely mated.
D. J. BLOCHER, Pearl City, Ill.

FOR SALE.—The Best queens. Every reader should get one or more of Best's golden mortgage-lifters and Italians Warranted queens, $1.00; tested, $1 50 to $3 00. BEST, The Bee-Man Slatington, Pa.

FOR SALE.—Bees. Bargain. J. P. Moore's superior stock. Full colonies, 10 frame (Hoffman), strong, $4.00 each. Speak quick. FRED HOLTKE,
Southold, Long Island, New York.

FOR SALE.—300 colonies pure Italian bees with tested queen in one-story eight-frame Dovetailed hive with Hoffman frames, at $3.50 each.
F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Red-clover strain of Italian queens exclusively; no better honey-gatherers in existence. Warranted purely mated queens, 75 cts.; three for $2. M. O. office, Schwenksville.
F. M. MAYBERRY, Lederachville, Pa.

FOR SALE.—20 hives strong Italians at $3.25 each, in 10-fr. Danz. or L. hives, nearly new; also empty hives. One Root-German wax-press, new last year, for $7.00. One Root queen-rearing outfit, and 10 Root queen-mating nuclei hives, all for $6 00. Winter cases, etc.
JOSEPH LEIB, 563 S. Ohio Ave., Columbus, O.

FOR SALE.—My experience with red-clover bees and circular of queen-bees for the asking. Queens reared by the most improved methods to get good long-lived queens. Root red-clover stock, the best that money can buy; 300 a month.
A. H. KANAGY, Milroy, Pa.

Poultry Offers.

FOR SALE.—Homers for squab-breeding; mated birds. MISSOURI SQUAB CO., St. Louis, Mo

Wants and Exchange.

WANTED —Second-hand two-frame extractor.
C. G. DICKSON, Kensington, Md.

WANTED.—An expert bee-keeper wants to rent about 200 stands of bees on the gulf coast or Florida.
Box 32, Wetumpka, Ala.

WANTED.—To exchange Remington typewriter for type or any thing of value in a small job-printing office. FRANK LACEY, Danbury, Conn.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED —To rent a good farm for term of years in good honey locality favorable for out-yards. Western States preferred. If you want good tenant and mean business, write J. C. CLEMANS, Crawfordsville, Iowa.

WANTED.—To know you (if you are a bee-keeper) personally. To that end we will make a demonstration with live bees at the Minnesota State fair and also at the Wisconsin State fair this fall (September). Make yourselves known to us and we will show you our specialties. We also want to learn your method of handling bees. PUTNAM & PEAKE, River Falls, Wis.

WANTED.—ROOTS AND HERBS, all kinds. We want several tons RED-CLOVER TOPS, for which we will pay $5 per 100 lbs. They have to be collected with as few leaves as possible and dried to prevent moulding in shipping. DANDELION ROOTS, dry, in heavy demand at $8 per 100 lbs., if shipped promptly. Other prices will be given on application if postage is sent for reply. In writing refer to this ad.
J. L. HOPKINS & CO., 100 William St., New York.

Honey and Wax Wanted.

WANTED.—To buy comb and extracted honey for cash; car lots or less. E. R. PAHL & Co.,
Broadway and Detroit Sts., Milwaukee, Wis.

WANTED.—Fancy clover honey, both comb and extracted. Send average sample of extracted honey, and give lowest price.
J. E. CRANE & SON, Middlebury, Vt.

WANTED.—Fancy white Ohio honey, comb and extracted. Will pay tip-top price either in cash or bee-supplies. E. W. PEIRCE 136 W. Main St., Zanesville, O.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.
R. A. BURNETT, 199 S. Water St., Chicago, Ill.

WANTED.—Comb and extracted honey in any quantity; state quality, quantity, and price f. o. b.
THE WAXELBAUM-HEARD PRODUCE CO., Macon, Ga.

WANTED.—No. 1 and fancy comb honey; 4x5x1⅜ section preferred. Also light extracted. Must be guaranteed pure. Write, stating grade and how put up, and lowest cash price.
C. M. CHURCH, Arnold, Pa.

WANTED.—By Oct. 1, one car extracted honey, California sage, water-white. Must be of heavy body, and first-class in every respect.
M. H. TWEED, 1125 Penn Ave., Pittsburg, Pa.

WANTED.—To buy for cash, comb and extracted honey, also beeswax. ROBT. A. HOLEKAMP & SON, 4263 Virginia Av., St. Louis, Mo.

Honey and Wax For Sale.

FOR SALE.—20,000 lbs. light extracted honey, well ripened and of fine quality, in new 60-lb. cans. Sample, 10 cts. JAMES MCNEILL, Hudson, N. Y.

FOR SALE.—800 pounds of pure beeswax for sale. Refuse from wax-extractors wanted. Will pay cash.
W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—75 cases of No. 1 white comb honey in 4x5 plain sections; 20-section no-drip cases, at $3.60 per case on cars here—a very superior lot.
E. D. TOWNSEND, Remus, Mich.

FOR SALE.—Extracted honey from clover and alfalfa, produced by the Emery Co. Bee-keepers' Asso'n. Car lots a specialty. Sample and prices free
PETER NIELSON, Sec., Huntington, Utah.

FOR SALE.—21 tons California sage honey; 12 tons water-white at 7 cts.; 9 tons light amber at 6½ cts. F. O. B. Piru, California; 10c for sample.
E. F. MCDONALD, Piru, Cal.

FOR SALE.—We have a small quantity of honey on the hive, *curing*, that will be extracted about August 1st. This left-on-the-hive-all-summer honey will be put in new 60-lb. cans, and will be the finest article that skill and pains can produce; of course, it costs more to produce this superior honey than the ordinary, and it is worth more. It is from white-clover and wild red raspberry. Ask for free sample. The price in any quantity is 10 cts. a pound f. o. b. shipping-point. E. D. TOWNSEND, Remus, Mich.

Bee-Keepers' Directory.

QUEENS.—Clover stock. Experience and methods count. Write me. H. G. LARUE, LaRue, Ohio.

ITALIAN queens bred for honey, untested, 75c each.
GEO. H. PLACE, 816 No. 49th St., Omaha, Neb.

Extra honey queens and choice mountain honey.
Francis J. Colahan, Bernardo, San Diego Co., Cal.

QUEENS.—Pure Gold, Red-clover, Caucasian, Banat.
ROSE LAWN APIARIES, College View, Lincoln, Neb.

ITALIAN QUEENS.—Golden and leather, 60c each; worth $1.00. G. W. BARNES, Box 340, Norwalk, O.

Bee-keepers' supplies, Italian queens. Send for a free catalog. ARTHUR RATTRAY, Almont, Mich.

ITALIAN BEES and queens—Red-clover strain imp'd mothers. A. W. YATES, 3 Chapman St., Hartford, Ct.

ITALIAN BEES, queens, and Root's bee supplies.
E. SCOGGIN, Carlsbad, N. M.

I club a high-grade Italian queen with GLEANINGS, new or renewal. W. T. CRAWFORD, Hineston, La.

WANTED.—500 colonies of bees in Texas, Arizona, or California. N. E. MILLER, Box 373, Logan, Utah.

ITALIAN BEES and queens—red-clover and golden strains. E. A. SIMMONS. Greenville, Ala.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York City.

ITALIAN bees and queens bred for honey; price list free. B. F. YANCEY & SON, Angleton, Tex.

FINEST Golden and red-clover queens, Caucasian and Carniolan. DANIEL WURTH & GRANT, Pitkin, Ark.

ITALIAN AND CAUCASIAN bees and queens of best quality; price list free. A. E. TITOFF, Ioamosa, Cal.

MAPLEWOOD APIARY.—Choice comb honey, Italian bees and queens. GEO. H. REA, Reynoldsville, Pa. R. 2.

ROOT'S SUPPLIES at factory prices; wholesale and retail. ANTON G. ANDERSON, Holden, Mo.

ITALIAN BEES, queens, and bee supplies.
H. H. JEPSON, 182 Friend St., Boston, Mass.

ITALIAN BEES, queens, comb and extracted honey.
A. T. DOCKHAM, Rt. 1, Box 95, Eagle Bend, Minn.

ITALIAN BEES, queens, beeswax, honey, and bee-keepers' supplies. M. E. TRIBBLE, Marshall, Mo.

FOR SALE.—Bee-keepers' supplies. Write for catalog. Lengst & Koenig, 127 S. 13th St., Saginaw, Mich.

FOR SALE.—Golden and red-clover Italian queens.
WM. A. SHUFF, 4426 Osage Ave., Philadelphia, Pa.

ITALIAN BEES and queens—red-clover and golden strains. E. E. MOTT, Glenwood, Cass Co., Mich.

SWARTHMORE Golden-all-over, Caucasian, Banat, Carniolan, Cyprian queens. E. L. Pratt, Swarthmore, Pa.

GOLDEN yellow Italian queens—my specialty. Price list free. E. E. LAWRENCE, Doniphan, Mo.

ITALIAN BEES, queens, honey, and ROOT'S bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

FOR SALE.—Root's bee-supplies, wholesale and retail; factory prices; catalog free. Beeswax wanted.
W. E. TRIBBETT, Staunton, Va.

I must say to my friends, please do not send me any more orders for queens this season, as my health is so poor I find it impossible to continue queen-rearing. Thanks to all my friends for their very liberal patronage. W. W. CRIM, Pekin, Ind.

GOLDEN-ALL-OVER Caucasian Banat bees and queens. We book orders for early queens from our best imported breeding stock for honey, with 600 twin mating-boxes. THE SNYDER APIARIES, Lebanon, Pa.

QUEENS.—Improved Red-clover Italians bred for business; June 1 to Nov. 15, untested queens, 60c; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

IMPROVED ITALIAN QUEENS now ready; nuclei and colonies about May 10, Danzenbaker or L. frames; 20 years a queen-breeder; 500 colonies to draw from. Circular and testimonials free.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

ANGEL'S GOLDEN BEAUTIES and his bright three-banded Italian Queens have but few equals and no superiors. A fine large queen of either strain for $1.00; an extra select breeder for $2.50. I have had 12 years' experience at queen-breeding. Address
SAMUEL M. ANGEL, Route 1, Evansville, Ind.

If any of our subscribers can furnish copies of GLEANINGS IN BEE CULTURE for April 1, 1906; May 1, 1906; May 15, 1906; Jan. 1, 1907, or Mar. 15, 1907, please report to us by postal card, specifying which numbers you can supply.

In response to the request made in "Special Notices" a number of our subscribers have kindly offered to furnish us the A B C of Bee Culture now in their hands in exchange for GLEANINGS, or the new edition of the A B C. We are very grateful for these responses, but in many cases are unable to use them for the reason that we can not send them out on the orders we have unfilled unless the books are in absolutely new condition. Our notice was to bring the matter to the attention of local dealers who have new A B C books on hand, anywhere from one to a dozen copies, and it is from such that we desire to obtain what surplus copies they have in new condition.

HONEY PACKAGES AND LABELS.

We call attention to the honey-packages, both of glass and tin, on other pages of this number; also to the inside front cover page of the July 1st issue for labels. We are offering some new designs in labels. If interested in ordering, send for complete label catalog, of which a new edition has just been completed. If you have choice honey to sell, put it on the market in neat and attractive form, and it will find readier sale.

HONEY WANTED.

Those having honey to sell, of first quality, either comb or extracted, are requested to write us. If comb honey, give size of section, number in a case, grade, and quantity, and state the price at which you will sell. If extracted honey, tell how put up for shipment, quantity, and price, and mail a sample. We have little demand for off grades of either comb or extracted. We want to buy No. 1 and fancy white comb honey, plain sections preferred. We also want clover extracted honey. If you have any ready for market, or can get it ready soon, let us hear from you.

CARTONS FOR COMB HONEY.

In casing your fancy comb honey for market you will find it quite an advantage to enclose each section in a carton before placing them in the case. Sections packed in the Danzenbaker style of carton may be packed in the regular-sized shipping-cases; but the folding cartons which entirely enclose the section require more room, and, consequently, larger cases to take them in. We are now prepared to supply cartons made from a better grade of stock and more artistic printing than the ordinary style listed in our catalog. Samples and prices furnished to those interested, on application.

WATER-MOTORS FOR OPERATING HONEY-EXTRACTORS.

Our attention has recently been called to a washing-machine run by a water-motor. It is connected up to the city water pressure, and will operate on a pressure of 20 lbs. or more. A good many farmers with windmill and elevated tank can easily get a pressure in water-pipes of 20 pounds. It simply means having a head of at least 40 feet. Those located in hilly country with mountain streams can easily pipe the water so as to obtain the necessary pressure. We are planning to adapt this means of power to running honey-extractors so that those having the water power available may be able to use it. The amount of power which the motor will develop depends on the water pressure. The motor fitted to an extractor will not add more than $15 or $20 to the price, one-fourth to one-third the cost of a gasoline-engine, to those who have the water power piped and available. The water used amounts to about 100 gallons an hour; and after going through the motor it may be utilized for lawn or other purposes where pressure is not required. Perfect control in starting and stopping is had by the turning of a common valve.

We have not got our fittings worked out yet, and it may be some weeks before we are ready, but we should like to hear from all of our readers who are interested and have water available to operate a rig of this kind. It is simplicity itself, and can not easily get out of order.

During the past two weeks we have received several letters of inquiry regarding a certain advertiser of bees and queens, whose name is well known to the readers of our advertising columns. These letters of inquiry came from our subscribers who have sent him orders and who were unable to hear from him as promptly as expected. We had no personal acquaintance with the advertiser, but from the first we felt sure the delay was due to the backward season and his consequent inability to raise the large number of queens as early in the season as he expected. We felt, too, that the unusual number of orders which he appeared to be getting put him at disadvantage on account of the large amount of correspondence so that he was unable to answer as promptly, as he would under usual circumstances, the letters of inquiry about his orders. Since these letters were referred to him we have full advices from him about the situation, to the effect that in the month of June alone he received more orders for bees and queens than he expected in the entire year. Furthermore, some of the people who complained about the delay to which they were subjected last year have sent him orders this year. By this time we think he will have either returned the money to those whose orders he can not fill or filled the orders entire. We do not want to defend any advertiser whose methods are not square with our subscribers, and on the other hand we want our subscribers to be as considerate of our advertisers as possible. Just imagine getting as many orders in a single month as the breeder expected in a whole year and you will understand some of the difficulties he has had in filling them and attending to the resultant correspondence.

Special Notices by A. I. Root.

WELLS AND CLEAR WATER; STERILIZATION OF SOILS IN THE GREENHOUSE; SEEDLESS TOMATOES, AND FIRELESS COOK-STOVES.

The above are some of the subjects treated in Farmers' Bulletin No. 296, issued June 19. It is an exceedingly valuable bulletin. It seems that seedless tomatoes, or at least those that are comparatively seedless, are soon to be within our reach; and if you haven't got a fireless cook-stove, especially for hot weather you are not keeping posted.

EMANCIPATION FROM THE THRALLDOM OF THE LIQUOR-TRAFFIC.

Mr. B. B. Jones, of Lake Roland, Md., sends us a clipping from the Baltimore *News* of July 20, containing a column of matter headed, "A prohibition law that will prohibit." Above this heading, in large capitals, we read, "Liquor men ready to leave Georgia. The new law will put them all out of business." In the same mail comes a newspaper clipping from Indiana, stating that the State Sunday-school convention just held decided, before its adjournment, that the slogan for that organization in the future would be, "Indiana a dry State." And these two illustrations are only examples of clippings that are coming in from north, south, east, and west. Surely that great address, the Stainless Flag, is bearing fruit. In fact, the indications have been all along that our nation was "getting ripe," all over for just such a "declaration of independence" from the rum power.

PAULOWNIA IMPERIALIS

This plant is now 4 ft. high, with leaves 2 ft. broad, and growing like a weed; and the most interesting thing about it is that the 15 or 20 suckers that have started at different times around the root of the tree, when put in the wet sand of my cutting-bed, have taken root, and promise to make nice little trees. The seed is exceedingly small, and slow in germinat-

ing. On this account, getting new plants by using the sprouts that start up around the root for cuttings will probably be the easiest and much the quickest way to propagate the tree—that is, if no failure occurs in getting them to start growing in the open ground.

Convention Notice.

In connection with the South Dakota State Fair, to be held at Huron, September 9—13, a liberal prize-list has been provided for apiarian exhibits by the management. Mr. R. A. Morgan, of Vermillion, who has the superintendency of the bee section, will doubtless do his best to give exhibitors a chance to show their productions to the best advantage. The bee industry needs all the publicity it can get, and bee-keepers ought certainly to take every opportunity like this to make their industry known and appreciated.

WEST MICHIGAN STATE FAIR.

There is one State fair that wishes to do the right thing by the bee-keeping industry, and that is West Michigan. The premium list reaches the very handsome total of $226; and the prizes are so arranged as to be well worth striving for, as will be seen by the list annexed.

The bee-keepers of Michigan are expected to make this a grand show, and while they do this it forms an excellent advertisement for the bee industry as a whole. Of course, those who obtain prizes gain an advertisement which is more to them than the value of the premium.

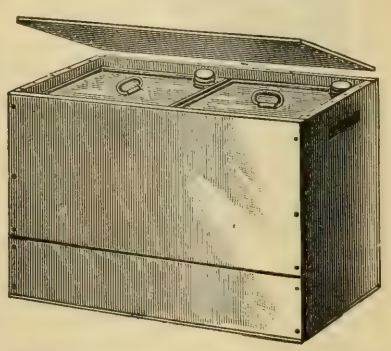
The fair will be held in Grand Rapids, Sept. 9—13 inclusive. Competition open to Michigan only.

PREMIUM LIST; ENTRIES CLOSE AUG. 31 AT 6 P. M.

		1	2	3
1203	Display of comb honey; quality, quantity, and appearance and condition for market to be considered	$25.00	$15.00	$10.00
1204	Specimen of comb honey, not less than 10 lbs., quality and condition for market to be considered	5.00	3.00	2.00
1205	Display of extracted honey; quality, quantity, appearance, and condition for market to be considered	25.00	15.00	10.00
1206	Specimen of extracted honey; quality, and condition for market to be considered	3.00	2.00	1.00
1207	Best display of extracted honey in granulated form	5.00	3.00	2.00
1208	Most attractive display of beeswax, the quality to be considered	5.00	3.00	2.00
1209	Most attractive display of best honey-producing plants, pressed, mounted, and named, not to exceed 25 varieties	5.00	3.00	2.00
1210	Italian bees and queen, single-frame nucleus in observatory hive	3.00	2.00	1.00
1211	Black bees and queens, single-frame nucleus in observatory hive	3.00	2.00	1.00
1212	Carniolan bees and queen, single-comb nucleus in observatory hive	3.00	2.00	1.00
1213	Caucasian bees and queen, single-comb nucleus in observatory hive	3.00	2.00	1.00
1214	Queen-rearing nucleus, showing frame of queen-cells in observatory hive	5.00	3.00	2.00
1215	Full colony in full-sized observatory hive, showing different parts and appliances of hive, most instructive	3.00	2.00	1.00
1216	Largest, best, and most instructive display of nuclei of different races of bees in single-comb observatory hive	5.00	3.00	2.00
1217	Largest, best, most interesting, attractive, and instructive exhibition in this department, all things to be considered	15.00	10.00	5.00

A. G. Woodman, of Grand Rapids, is superintendent of this department of the fair.

HONEY-PACKAGES IN TIN



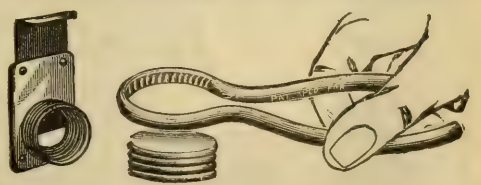
This cut shows a box of two 60-lb. tin cans, which is the standard package for storing and shipping extracted honey. It is far superior to barrels, because there is not the same chance for leakage, or taint from the wood; and, being square they economize space. Owing to light honey crops, the last two years, the demand has been light, and we have a good stock bought below the prices ruling at present. To reduce this stock we will ship from Medina any orders mentioning this notice, at the following special prices: One box, two cans, 80 cts.; 10 boxes, $7.50; 25 boxes or over, at 70 cts. a box. One box of one can, 50 cts.; 10 boxes, $4.50; 25 boxes or more, at 42 cts. a box.

One-gallon square cans with 1¾-inch cap, 100 in a crate, at $10.00 per 100; 500 or over at $9.00 per 100; packed 10 in a case at $1.35 per case; 10 cases, $12 50.

Sturwold's Show-case.

This case is 28 in. high, 20 in. square, outside measure, top and bottom. The glass of which it is made is 16×24. The case is to be set up in any grocery, drug-store, or any other place of business where you want your honey exhibited or sold. The frame is of chestnut, filled and varnished, and finished in natural grain. Price, plain, $5; with name and address, $5.50. As the glass is very apt to be broken in transit, we will ship them, if you prefer, with glass boxed separately, at same price. In flat, no glass or finish, $2.50; glass included, $4.00.

Screw-cap Honey-gate and Can-screw Wrench.



Price 15 cts.; by mail, 18 cts. Price 10 cts; 75 cts. per dozen. By mail, 4 cts. each extra.

We furnish the gate for 1⅜, 1⅝, or 1¾ screw. Other sizes made to order from caps you may furnish.

The wrench fits a 1¾ screw, and can be used on 1⅝ or smaller by bushing between cap and wrench.

When you order these gates separate from cans we can not guarantee a fit unless you send us a cap from the screw with the order.

Sample Mailing-blocks.

Price, each, 6 cts; by mail, 8 cts.

These are small wide-mouthed glass bottles, which hold ½ oz., with cork, put up in a mailing-block with top which screws on and is easily removed.

THE A. I. ROOT COMPANY, :: :: :: MEDINA, OHIO

Honey-Packages in Glass

We have quite a variety of glass packages for putting up honey for retail. We mention first our

Half-pound Tumbler.

This is shown at the left with a diamond label, No. 95. These include tin cover with wax or parchment paper disk for sealing tight. No labels. Will hold 7 oz. of honey when filled; and the price, $5.50 per barrel of 32 dozen; 5-bbl. lots at $5.25. In reshipping-cases of 4 dozen packed ready to reship, when filled, $1.00 per case; 6 cases, $5.70; 20 cases or over, at 90 cents per case.

No. 25 Jar.

This holds one pound of honey; has an opal cap with rubber ring and lacquered tin screw rim which seals tight. Packed in reshipping cases of 2 dozen each; price $1.10 per case; 6 cases, $6.30; 20 cases or more at $1.00 per case.

Tiptop Jar.

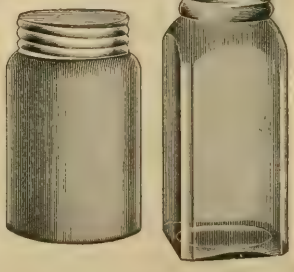
We keep these in two sizes, for half and one pound of honey. The shape of the jar is shown in the cut. It has a glass top, a rubber ring, and a spring-top fastener. Packed a gross in a crate at $5.00 per gross for 1-lb., or $4.50 for the half-pound size. We have them also packed in reshipping-cases of 2 dozen each at $1.10 per case for 1-lb. size; 6 cases, $5.30; 20 cases or over at $1.00 per case. Half-pound size, $1.00 per case; $5.70 for 6 cases, or 90 cts. per case in 20-case lots.

Simplex Jar.

This is one of the handsomest jars we ever handled. The factory making them was wrecked last August, and we have been unable since to secure any more of the size, which holds one pound. We can supply the next larger size, which holds 18 oz. of honey. Packed in reshipping-cases of 2 dozen. Price $1.15 per case; 6 cases for $6.60; in 20-case lots or over at $1.05 per case. We still have at Philadelphia a few cases of the 1-pound size which may be had from there while they last, at the same price as above.

Sq. Jar.

Hershiser Jars.



These jars were designed for use in the honey exhibit at the Pan-American Exposition in Buffalo, and are very neat and attractive. They have cork-lined aluminum caps which seal them tight. They are made in four sizes square and three sizes round. The 1-lb. size in each style is shown in the first two cuts at the left.

¼-lb.	square	Hershiser	jars,	doz.,	50c;	$5.40	per gross
½-lb.	"	"	"	"	55c;	6.00	" "
1-lb.	"	"	"	"	80c;	9.00	" "
2-lb.	"	"	"	"	1.00;	10.80	" "
½-lb.	round	"	"	"	60c;	6.60	" "
1-lb.	"	"	"	"	75c;	8.40	" "
2-lb.	"	"	"	"	1.10;	12.00	" "

The ordinary square jar to seal with cork, similar to that shown in cut at extreme left, is very largely used for honey. They are made in four sizes. The 1 and 2 lb. sizes are packed ½ gross in a package; the smaller sizes one gross. Price including corks:

5-oz.	square	jar	.....35c	per	dozen;	$3.25	per gross
8-oz.	"		.....45c	"	"	4.25	" "
1-lb.	"		..... 60c	"	"	5.75	" "
2-lb.	"		... . 75c	"	"	7.50	" "

THE A. I. ROOT COMPANY, MEDINA, OHIO

Either Goldenor Leather colord.

The Stock with a Reputation.

ITALIAN QUEENS

"One of yor queens made a record of 350 pounds of nicecomb honey in 1904."
OS. A. RENECKE, Seneca, Kan.

Prices of queen after June 15:	1	6	12
Select untested	$ .75	$4.00	$7.00
Tested	1.00	5.00	9.00
Breeders	3.00		

Two Carloads of Root's Bee-keepers' Supplies

Mfrs. of Weed New-Process Comb Foundation.

BUCK & WILSON
BUTLER CO. AUGUSTA, KANSAS

PROMPT SHIPMENTS

If you are in a rush for supplies at present, send us your orders. We have a large stock of

Root Co.'s Supplies

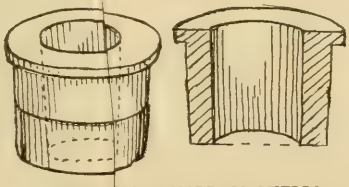
on hand to fill orders promptly. Also a fine lot of Italian

Queens and Bees

in one, two, and three frame nuclei and full colonies. Send for our forty-page catalog, etc.

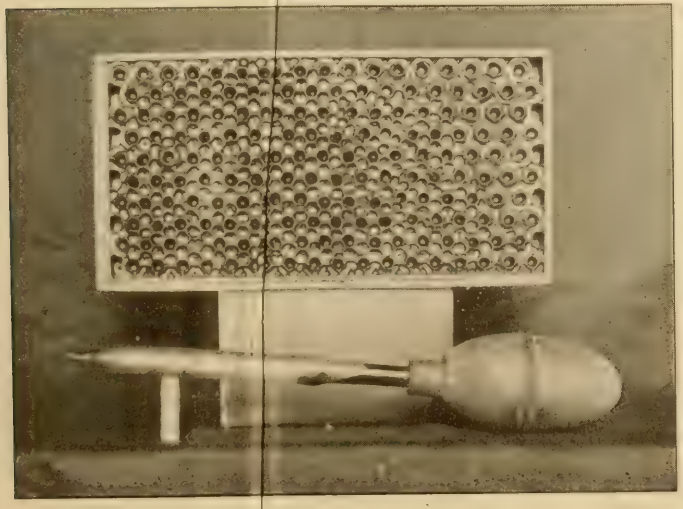
John Nebel & Son Sup. Co.
Montg. Co. :: High Hill, Mo.

SWARTHMORE INNER SHELLS



SWARTMORE HOLDING SHELLS

SWARTHMORE DIE FOR INNER SHELL



SMALL FRAME FILLED WITH CUPS

We are now prepared to furnish these items at following prices:

	Unwaxed per 100	Postage
Inner Shells,	65c	5c
Holding Shells,	65c	5c

If waxed, add $1.00 per 100

Die for Inner Shell, . 35c

The A. I. Root Company
Medina, :: Ohio

WE ARE NOT IN A TRUST

Bee-hives, Sections, Brood-frames, Extractors

Every thing that bee-keepers use at **Lowest Prices.** Quality the highest. We've been making them twenty-five years.

American Bee-keeper. A profusely illustrated practical bee-journal which we have published for 17 years. **50c Yr.**

Sample copy and our 1907 illustrated catalog and price list free. Address

THE W. T. FALCONER MFG. COMPANY
DEPARTMENT G . . . . . JAMESTOWN, N. Y.

NEW GOODS! BIG STOCK!

NEW WAREHOUSE ROOT'S GOODS PROMPT SHIPMENT LOW FREIGHT

Every Thing for the Bee-keeper at Savanrah, Georgia.

We are now prepared to furnish promptly a full line of supplies; choice new stock just from the factory. **Bees** and **Queens.** We have large apiaries of fine stock. Book your orders at once, as there will be a heavy demand this season. Catalog sent free. Corespondence solicited.

HOWKINS & RUSH, 241 Bull St., SAVANNAH, GA.

Dadant's

Foundation

It Excels

EVERY INCH EQUAL TO SAMPLE

Beauty! Purity! Firmness!
No sagging; no loss.
Twenty-eighth Year.
We Guarantee Satisfaction.
Wax Worked into Foundation.

Bee-supplies of All Kinds

Beeswax wanted at all times.
Send for Our 1907 Catalog.

DADANT & SONS, HAMILTON, ILL.

ROOT

GOODS for the West

Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS.

My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

Write for estimate with liberal discount for orders sent in now.

JOSEPH NYSEWANDER
565-7 W. 7th St Des Moines, Iowa

GLEANINGS IN BEE CULTURE

Vol. XXXV *August 15, 1907* *No. 16*

Apiary at St. Mary's Abbey, Buckfast, Devon, England. Monastery in background, with window of bee-keepers' room looking toward the apiary.
Photographic competition, Class F.

The A. I. Root Company, *Medina, Ohio, U. S. A.*

Entered at the Postoffice, Medina, Ohio, as Second - class Matter

STATE FAIR AT DETROIT
AUG. 29 = SEPT. 6

We will be more than pleased to have you call on us, and make yourself known. Our exhibit will be under the grand stand. We have set September 3d as a day especially for bee-keepers; and if you want to meet other bee-keepers at the fair, come on that day.

We will have on display "Everything for the bees, and all Root Quality."

M. H. HUNT & SON, REDFORD, MICH.

GREAT FIRE SALE

On account of a recent fire which slightly damaged our stock of goods, we are closing out all

POULTRY AND BEE SUPPLIES

AT A 10 PER CENT DISCOUNT.

It will pay you to order any supplies which you will need for next season's use. Make up your order and deduct 10 per cent. Goods guaranteed to be as good as new, except hives are discolored on outside. Don't delay, as they are going fast. Will exchange supplies for honey and wax

The Griggs Bros. & Nichols Co.
523 Monroe St., Toledo, O.

APICULTORES
De Espana, Portugal y Colonies.

Pidan catalogos de las colmenas, extractores, prenzas para cera, ahumadores, zinc perforado, escape de abejas, velos, cuchillos, maquinas para hacer base de panales, y todos otros articulos utiles en apicultura manufacturado por la celeberrima casa de

A. I. Root Company,

la fabrica la mas importante del mundo. Precios muy modicos a los subagentes por mercancias puestas en nuestros talleres.

EMILE BONDONNEAU,
Agente Générale
POR TODA EUROPA Y COLONIAS,
142 Faubourg SAINT DENIS, PARIS. 10me.

C. H. W. WEBER

Headquarters for . . .

BEE-SUPPLIES

Distributor of Root's Goods Exclusively at Root's Factory Prices

GIVE ME your orders for the **Best Goods Made.** You will be pleased on receipt of them. You will **save money** by ordering from me. My stock is complete; in fact, I keep **every thing** the **bee-keeper** needs. **Cincinnati** is one of the best **shipping-points** in the Union, **particularly in the South,** as all freight now **goes through Cincinnati.** Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly **free.**

WANTED.

Fancy White Comb and White Clover Extracted HONEY.

Queens and Nuclei

Let me book your orders for queens. I breed the finest **Golden Italians, Red-clovers, and Caucasians.** Can furnish **Nuclei** beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White Sweet-scented Clover, Alfalfa, and Alsike.

C. H. W. WEBER

Office and Salesroom, 2146-48 Central Ave.
Warehouse, Freeman and Central Avenues.

CINCINNATI, OHIO, U. S. A.

Honey Markets.

GRADING RULES.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

The prices here quoted are wholesale, or what the honey brings on arrival.

CINCINNATI.—We are now receiving quite a number of shipments of comb honey which finds ready sale to the grocer at from 15 to 16 for fancy and No. 1. We advise bee-keepers who have comb honey to sell to ship it now, for it is an easy matter for us to dispose of unlimited quantities. If you have any, tell us how much you want for it delivered here.

Extracted honey is not in so great demand as comb honey. The prices, however, seem to be growing stiff. Although we have a big stock on hand, so far we have found it impossible to persuade big buyers to consider higher prices, for the reason that others are filling orders at the same old figures, and even accepting contracts. Whether or not this state of affairs will continue, the future only can tell. We are still selling amber extracted honey in barrels at 5½ to 6½; in cans, from 1 to 1½ cts. per lb. more. Extracted white clover or fancy white, in 60-lb. cans, two in a crate, 8 to 9. For beeswax we are paying from 30 to 32, delivered here, according to the quality.

THE FRED W. MUTH CO.,
Aug. 8. 51 Walnut St., Cincinnati, O.

LOS ANGELES.—The honey crop of California is very short. I doubt if there will be over 75 carloads. The greater portion of this is the finest water-white honey I have ever seen. The bee-keepers have received a better price than ever before for this time of the year. Most of them sold for 6 cents at the apiary, and some of them for a little more. H. J. MERCER,
July 19. Los Angeles, Cal.

While the Riverside crop is turning out better than it did last year, it is still far below normal. Prospects for the rest of the season are good. Stocks in San Francisco are light, with an active movement for what there is, and a slightly stronger market than last week, though there is no change in quotations, viz.: Amber, extracted, 5 1-2 to 6; light amber-6 1-2 to 6 3-4; new fancy white comb, 16 to 17; water-white, ex, tracted, 7 1-2; white, extracted, 7 to 7 1-2.—*Pacific Rural Press*, Aug. 3.

ZANESVILLE.—With the exception of a few small dribs brought in by the farmers, the local market is entirely bare of comb honey. Though there seems to have been a fair yield in some localities, the supply is picked up quickly by local dealers and consumers, little finding its way to city markets. Producers of extracted are holding back for high prices. There is a good demand for honey in a retail way, and higher prices prevail. I quote extracted in pound jars $2.20 per dozen; 6-oz. jars, 90, wholesale. I am offering for good quality, beeswax 29 cash or 31 in exchange for bee-supplies. Wax wholesales at 40 to 45.

EDMUND W. PEIRCE.
Aug. 3. 136 W. Main St., Zanesville, O.

SCHENECTADY.—We have received one consignment of new white-clover comb honey of fair quality, and sold a part of it at 15½. No new buckwheat is on our market yet. Beeswax, 30 to 32, according to quality.

We never knew the demand for honey to continue through the summer as it has up to the present time this year, and now the trade is already asking for the new crop. Our market is all cleaned up on old stock.

CHAS. MACCULLOCH.
Aug. 5. Schenectady, N. Y.

INDIANAPOLIS.—New fancy white comb honey sells to the retail grocery trade in lots of one to five case lots at 19 to 20. Best grades of extracted in five-gallon cans sell for 11 to 12. Some foreign extracted offered at slightly lower prices. Beeswax plentiful, and sells at $35 per 100 pounds.

WALTER S. POUDER,
Aug. 5. Indianapolis, Ind.

CHICAGO.—There is a good demand for the new comb honey; and that which grades choice or No. 1 sells at 15 to 16, and is taken upon arrival. Off grades are difficult to place at 2 to 3 less. Not any sales of extracted to quote from, but it is held at 7 for white; amber grades about 6. Beeswax steady at 32.

R. A. BURNETT & CO.,
Aug. 8. 199 So. Water St., Chicago, Ill.

COLUMBUS.—We want comb honey. Selling rapidly at $4.00 per case of 24 sections.

EVANS & TURNER,
Aug. 8. Columbus, Ohio.

ST. LOUIS.—Honey is coming in more freely; and the weather here being very hot it has cut off the demand a great deal; but we think that, as soon as the weather turns a little cooler, a demand will spring up. We quote fancy white, 15 to 16; No. 1, 14 to 15; amber is a very slow seller. We would say that it would not bring above 13 at the highest. Extracted, white, in five-gallon cans, brings from 6½ to 7; in barrels, from 4½ to 5½. Southern, in barrels, will bring from 4 to 5; in five-gallon cans, 1 ct. higher. Beeswax, firm at 28 for choice pure; all impure and inferior, lower.

R. HARTMANN PRODUCE CO.,
Aug. 9. St. Louis, Mo.

LIVERPOOL.—Prices remain unchanged.

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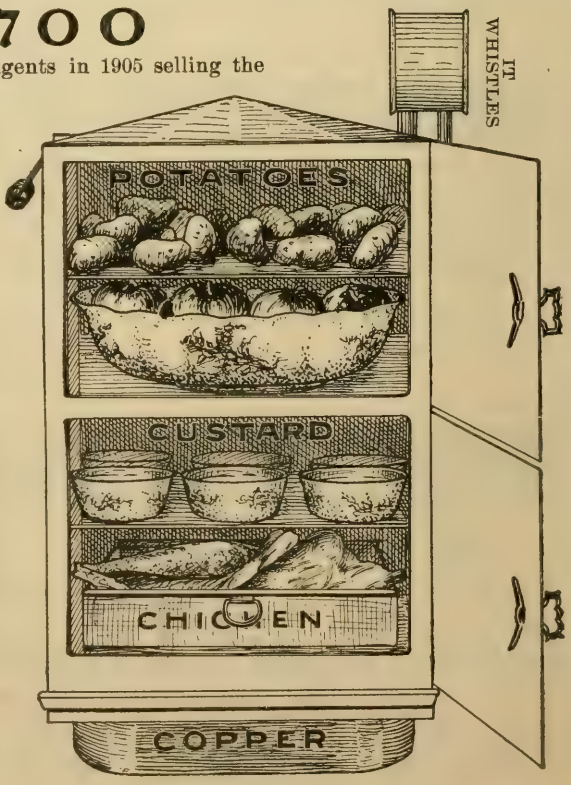

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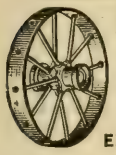

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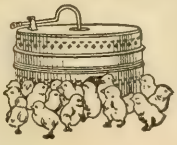

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A PILLAR OF FIRE BY NIGHT.

One of the sights of the United States at present is the mammoth sign of the Oliver Plow Works at South Bend, Indiana. This sign is composed of 3200 electric lamps arranged to read "OLIVER PLOW WORKS." The word "plow," however, is represented by a plow 59 feet in length. The whole length of the sign is 250 feet, and it requires an engine power of 165 horses to produce the necessary electric current, or as much as is usually required to light a town. Each letter is 18 feet high and 14 in width; and, being situated on the ridge of a high building, can at night be seen a vast distance by travelers on the great railways that converge toward the city of Chicago.

Perhaps nothing shows the spirit of the age so much as this sign. There is nothing fantastic about it, and it only states a fact which all buyers of plows should know, that the famous Oliver plows are made there. Nothing is said in praise of these plows—they are supposed not to need any praise, and in any event they speak for themselves. The proprietors are satisfied that an intending purchaser of a plow will investigate the merits of the Oliver; and, having satisfied his own mind, will order one, having regard only to the excellence of the material and workmanship put into these plows. Evidently we are coming to the golden age when every thing will be sold only on superior merits.

A NEW A B C.

The new edition of the A B C of Bee Culture is progressing rapidly, and there is every probability of its making its appearance by the first of November, possibly sooner. Lack of help prevents us from getting along faster, much as we should like to. However, it has progressed so far we can book orders for it. To facilitate the work on the new edition we had to suspend progress on our booklets which a number have called for.

The revised edition is in many respects a new work, having a large amount of entirely new matter and new illustrations. It will be considerably larger than the last edition, containing as it does so much new matter. For example, it has new articles on honey, sugar, nectar, glucose, bee-law, foul-brood laws, and diseases of bees, which one party (and he knows) says are alone worth the price of the book. A good many of the illustrations are new. Some of the old ones are from new engravings.

It will have the latest "kinks" in queen-rearing, increase, manipulation of power-driven extractors, wax-rendering, and the weight of it will be considerably increased. The price of the book is $1.50 postpaid. At this price it is one of the cheapest books ever published, considering its size and the amount of labor expended on it.

We have aimed to produce a work that the practical bee-keeper will want constantly on his desk to refer to in time of need. We should be glad if our old friends would kindly mention the fact that we will have a new book out very soon, to all those who may be intending to make a purchase of a bee-book.

CARTONS FOR COMB HONEY.

In casing your fancy comb honey for market you will find it quite an advantage to inclose each section in a carton before placing them in the case. Sections packed in the Danzenbaker style of carton may be packed in the regular-sized shipping-cases; but the folding cartons which entirely inclose the section require more room, and, consequently, larger cases to take them in. We are now ready to supply cartons made from a better grade of stock and more artistic printing than the ordinary style listed in our catalog. Samples and prices furnished to those interested, on application.

HONEY PACKAGES AND LABELS.

We call attention to the honey-packages, both of glass and tin, on other pages of this number; also to the inside front cover page of the July 1st issue for labels. We are offering some new designs in labels. If interested in ordering, send for complete label catalog, of which a new edition has just been completed. If you have choice honey to sell, put it on the market in neat and attractive form, and it will find readier sale.

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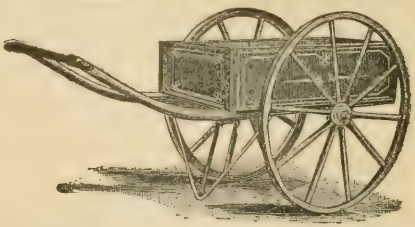

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Chap. 1, "Why Keep Bees," urges honey, perhaps money, recreation, love of nature study, and the need of bees in "a perfect garden," as good reasons for keeping bees. The second chapter tells "how to begin" in a small way, and we may get all the necessary detailed information for management from later chapters, arranged in order of demand for information.

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Cash discount, if paid in 10 days, 2 per cent.
Bills payable monthly.
No medical or objectionable advertising accepted.

"A Square Deal."

We believe that every advertisement in this paper is backed by a responsible person. But to make doubly sure we will make good any loss to paid subscribers sustained by trusting any deliberate swindler advertising in our display columns, and any such swindler will be publicly exposed. We protect subscribers against rogues, but we do not guarantee to adjust trifling differences between subscribers and honest responsible advertisers. With regard to the classified columns, we can not protect our readers from what they consider bad trades, where there is room for a good deal of difference of opinion. This would be impossible; but we do protect them from all deadbeats and swindlers. Of course we are not responsible for the debts of an honest bankrupt sanctioned by the courts. Notice of the complaint must be sent to us within one month of the time of the transaction, and you must have mentioned GLEANINGS IN BEE CULTURE when writing the advertiser.

THE TRIALS OF A QUEEN-BREEDER.

The weather has been provokingly bad this season for all queen-breeders north and south; but, in addition, troubles of another kind have come from other quarters to add to the misery of the average bee-breeder. The orders for bees and queens were unprecedentedly large, owing to the long cold spring which killed many colonies and depleted others. When orders were delayed, customers got desperate and tried writing threatening letters to see what effect it would have on the breeders, not knowing the latter were up to the ears with orders they could not fill. The poor season also had its effect on the quality of the queens, or at least they were not so bright and plump as usual, because the breeder could not keep them long enough. For example, one reliable breeder in Louisiana sent us a letter from a customer, complaining of the poor queen sent him, and threatening him with exposure to The A. I. Root Co. This man did not wait to see what sort of breeder his queen would turn out to be, but simply condemned by the looks without waiting to examine the progeny. We can not pay attention to such complaints, as the breeder has been honest and straightforward in the matter.

Another man complains bitterly about a queen we sent him—a premium queen valued at 75 cts. As a matter of fact, we recommended a $1.25 queen, but he chose to disregard our advice and ordered a cheap queen instead. Now he is disappointed. It is quite possible his queen will develop into quite a nice breeder. She hasn't had time to show her qualities as a mother.

The same party is inclined to impugn the motives of our senior editor in writing the Home papers. He says he is somewhat skeptical about a man who professes so much, hinting, of course, that the practice is not equal to the profession. We are sorry our friend has such a poor opinion of us, and hope he will come to see us at an early date, as we value his good opinion. We do not think we are hopelessly bad.

Finally, along comes a letter from Doolittle & Clark, stating they have to refuse orders, showing we are not the only breeders who are in trouble.

RASPBERRY HONEY

I have produced a crop of extracted honey from the wild red raspberry of Northern Michigan. It would be an easy matter to send this entire crop, in a lump, to some dealer, but I prefer to give each of my friends an opportunity of supplying his table with this truly delicious honey—a honey with a flavor all its own—a flavor that smacks of the wild raspberry of the forests.

The honey is put up in bright, *new*, shiny 60-lb. cans, two in a case, and is offered at 10 cts. a pound, or $12.00 for a case of two cans. Perhaps some will think this a high price, but we must take into consideration the great loss of bees last winter and spring, the almost total failure of the white-clover honey crop, as well as that of California, together with the upward tendency in the price of nearly all commodities. Remember, too, that this is not the ordinary honey—it is *raspberry* honey; and, besides this, it has been left on the hive until it was all sealed over and thoroughly ripened, and is as far superior to ordinary honey as ripe fruit is more delicious than green.

If you prefer to taste the honey before ordering, drop me a postal, and I'll mail you a generous sample—enough so that the neighbors, too, can have a taste, and perhaps will wish to join you in ordering a case, if you do not care for that much yourself.

W. Z. HUTCHINSON — **FLINT, MICHIGAN**

BY EXPRESS

Sections and Foundation

THE SAME DAY
ORDER IS RECEIVED

The A. I. Root Co.
Syracuse . . New York

Our discounts on **BEE-SUPPLIES** are still in effect.

WE furnish EVERY THING needed in practical bee culture, at lowest prices. We make the DOVETAILED, LANGSTROTH, and ALTERNATING HIVES. The most practical, *up-to-date* hives are the MASSIE HIVES. We make them. Have you seen them? Have you received our new 1907 catalog? It is surely the easiest catalog to order from you ever saw. It is so easy that you can not make a mistake in your orders; a child can order from it as well as an adult. It is something new and entirely different from any you have ever seen. Write us a postal card for it to-day. It is free.

Address Kretchmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa. :: Trester Supply Co., 103 S. 11th St., Lincoln, Neb.

Catalogs issued in German and English.

A Four-per-cent Investment.

WITH the money absolutely safe and always available is an ideal disposition of individual savings. This bank accepts deposits in any amount, and pays four per cent interest —compounded every six months.

Our booklet describes our methods and management, and explains the advantage of our simple banking-by-mail system.

Write for the Booklet To-day

Assets over One-half Million

THE SAVINGS DEPOSIT BANK COMPANY

MEDINA, OHIO

A. T. SPITZER, Pres. A. I. ROOT, Vice-pres.
E. B. SPITZER, Cashier.

NOTICE

Free Lecture and Demonstration on Bees, Season 1907, Tuesdays and Fridays, 10 to 12 o'clock, A. M., 10 Vine Street, Philadelphia, Pa.

So great has been the interest, and so numerous the calls, to see our bees, from parties who have not the time to visit our Jenkintown apiary, that we have arranged our plans to set aside Tuesday and Friday during the season of May and June, from 10 to 12 o'clock, to give a public demonstration for any one, whether a customer or not, to call and have explained to him the marvelous work of the honey-bee.

While our apiary, of some forty or fifty colonies, has always been open to inspection, yet the calls to see the bees coming at all hours of the day, many times when we were rushed with other work, were necessarily hurried and unsatisfactory, and were confined mostly to our customers. We now invite the general public, and a much more complete and general demonstration will be given. By giving us your name and address on entering the office, veils will be furnished you and your friends, so there will be no danger of being stung.

P. S. Our Jenkintown apiary is always open by appointment to visitors. Ask for

WM. A. SELSER, Mgr.

The A. I. Root Company, Philadelphia, Pa.

Telephone 181 W. Ogontz.

NOW READY

to fill your orders for hives, supers, sections, and foundation of all grades. We now have a large stock of these goods on hand and can supply your wants for regular goods without delay.

We are booking orders for BEES and Queens, and to assure early shipment you should send in your orders now.

Price list free upon application.

W. W. CARY & SON, Lyonsville, Mass.

1884 1907

New 64-page catalog for the New Year now ready

FOR YOU

Twenty-two successful years manufacturing bee-supplies and raising Italian bees and queens. . . . . Root's Goods in Stock.

J. M. Jenkins

Wetumpka, : : Alabama

Northeastern and New England

BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine

MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

SAVE EXPRESS!
SAVE FREIGHT!
SAVE TIME!

by ordering your supplies in **...Boston**

H. H. JEPSON,

182 Friend St. Phone Haymarket 1489-1

Getting Honey Easiest Way

Avoiding mistakes, learning from other bee-keepers' experiences, help to solve problems that confront you. Are you a beginner or more advanced? It matters not. **The American Bee Journal** will answer your questions, will guide you to profitable ways of getting honey. It will protect you from many errors, save you money and minutes. Active men and women who are now making money at bee-keeping answer your questions, write timely articles, explain new "wrinkles" about handling hives, getting the surplus honey easiest, fighting disease, marketing honey and beeswax, etc. These include Dr. Miller, Miss Emma M. Wilson, C. P. Dadant, Prof. Cook, F Greiner, G. M. Doolittle and others—well-known here and abroad. Dr. Miller's "Question-Box" is worth more each issue than the price for a year—25 cents.

FREE SAMPLE COPY

Yet it isn't what we **claim** about the **American Bee Journal** that convinces. You need to see, to read a copy. Are any of your friends hungry for honey or interested in bee-keeping? Tell them how simple getting enough for the table is. Send us their names and addresses with yours. We'll send each of you a current copy of the paper.

Your Subscription Free

After your friends have received their copies, with a little talk you can get **one** at least to subscribe for 25 cents a year—12 copies—about 2 cents each. Send us the 25 cents. We will send to both of you, the paper for one year. You get yours free.

The American Bee Journal is now a monthly, size 8x11, 32 pages, handsomely illustrated outside and inside. It is wide-awake, bright, up-to-date. Edited by George W. York who has been connected with it for nearly a quarter of a century. Mr. York is well-known wherever bees are kept or honey produced. He is President of the Chicago-Northwestern Bee-Keepers' Association.

American Bee Journal

25c. A YEAR

For Honey and Beeswax Buyers. The market reports give late advices from the Eastern States as well as the Central and Middle West. It's safe to follow them when buying, selling, or quoting. Send the names and addresses for the sample copies to-day. Address

AMERICAN BEE JOURNAL,
118 W. Jackson, Chicago, Illinois

Hunter-Trader-Trapper

Here is a magazine that will surely interest many of our readers. It does for the trapper what GLEANINGS does for the bee-keeper, and does it well. It is just the thing for the man or boy who desires to make a little money winter time by trapping fur-bearing animals. It gives all trappers' "secrets," and indicates where to sell furs to advantage.

Hunter - Trader - Trapper

is not intended for city sportsmen with fancy guns and expensive fishing-rods. It is written by real wilderness hunters who know all about the capture of wild animals. It is a monthly, containing as much real reading-matter as the great monthlies, and far more practical. For a limited period we are making the following liberal offer:

HUNTER-TRADER-TRAPPER, 12 issues a year, . . .	**$1.00**
GLEANINGS, ...	**1.00**
Both to the same party and address, $1.50.	**$2.00**

If you desire to inspect a copy of HUNTER-TRADER-TRAPPER, write to the A. R. HARDING PUBLISHING COMPANY, Columbus, Ohio.

"If goods are wanted quick, send to Pouder."
Established 1889

How's This for Quick?

By the Bee Crank.

WALTER S. POUDER, Bagley, Wis., July 30, 1907.
Indianapolis, Ind.
Dear Sir : — The foundation came in a hurry. Just three days from the time I sent the order the foundation was in Bagley. That is quick business, and it came in fine condition.
Your friend, WALTER HEMPLE.

Most men appreciate promptness.

Some of them appreciate it enough to pass a cheerful word along to the other fellow.

When they do that it signifies more than appreciation.

The average man doesn't take time to write a letter that can not possibly bring him any returns

A letter like the above is never written by a careless man.

Men who appreciate good service are always the most agreeable to deal with.

They don't often kick, and raise "Cain" about things.

In most cases they just cast about for a place where they won't have to kick—where their orders are properly taken care of as a matter of course.

It's just as well to do that.

If you have to make the air blue in order to get the prompt attention you're entitled to, you'll have to keep that same air a dark blue in order to keep on having good service.

Some of you who read this are not getting satisfactory service. If YOU are not, just send a trial order to Pouder.

After that I'll take my chances with any one at holding your good will and retaining your custom.

Whatever you can get anywhere in the way of bee-supplies I can furnish you.

My new catalog will be mailed you on request.

If in need of finest quality white-clover honey write for my monthly quotations of the Indianapolis Honey Market.

Walter S. Pouder.

513-515 Massachusetts Avenue, Indianapolis, Ind.

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Company, Medina, Ohio

E. R. Root, Editor A. L. Boyden, Advertising Mgr.
H. H. Root, Asst. Ed. J. T. Calvert, Business Mgr
A. I. Root, Editor of Home Department

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STRAY STRAWS

by Dr. C. C. MILLER

ROOSEVELT'S improved spelling is endorsed by the National Educational Association. Good!

H. ROTH reports (*Schweiz. Bztg.*, 32) that for years he has planted tomatoes before his bee-house, and it keeps the ants away. [We do not believe this; that is to say, we know of no scientific reason why tomato-plants would keep ants away.—ED.]

BRO. DOOLITTLE, please give p. in *American Bee Journal* where I say that bees do not gather both pollen and honey on the same trip from clover. I don't know what I may have said, but I know I always believed just the reverse of what you state on page 1015.

IT IS SAID, sometimes, if not generally, that the difference between the piping and quahking of queens is merely a question as to whether they are in or out of the cells, the same sounds being made in either case, the deadening of the sound by the cell causing the quahking. A little observation will show this to be an error. The piping always begins with a long-drawn-out note; the quahking, never.

THE BEE, says R. France, in his book, "Das Liebesleben der Pflanzen," is no reflex machine, but a being with memory, which gathers experience and knows how to turn it to good account. In one day it attains to as much experience as a child in its first year. On its first day afield it needs the bright color of the flowers to attract its attention; but a day or two later it will visit them just as readily if all the petals be removed.—*Ill. Monatsblaetter*.

WM. KOHLMEYER has been keeping bees half a century, and never found any use for religion—wants bee culture and religion kept separate, p. 1033. Queer, now, how different people are! I've been keeping bees nearly half a century, and found use for my religion right in the apiary. I have had ever so good a time by not separating the two. I wonder, now, friend K., if you ever gave religion a fair trial along with bee culture, and if so, what brand you tried.

"REMARKABLE PROGRESS of prohibition in the South" heads an editorial in a Chicago daily, which says:

> All Tennessee is dry, except the cities of Nashville, Memphis, and Chattanooga. In Kentucky, ninety counties out of the 119 into which the State is divided are dry, and even in the "wet" counties there are many prohibition precincts. In Texas, Mississippi, and North Carolina the majority of the counties are said to be dry. Perhaps the most efficient single cause of the progress of prohibition is the feeling that the saloon is responsible for much of the crime committed by the lower elements of the colored population.

Just so; and perhaps it may by discovered that the saloon is also responsible for nearly all of the crime committed by the lower elements of the white population in the North.

HERR U. KRAMER (*Schweiz. Bztg.*, p. 115) says it is a mistake to suppose that all workers in their youth engage in brood-rearing. In April and May plenty of young bees can be seen quietly remaining unoccupied about the brood-nest until the harvest calls them to other work. Herr Kramer is good authority too. [Has any one ever claimed that young bees devote their whole time to brood-rearing? We know that old bees, under some conditions, will rear brood. If there were a paucity of fielders it is reasonable to suppose that young bees that could fly would go to the field at an age younger than ordinarily. —ED.]

J. A. GREEN, you say, p. 1015, "I caged a queen with the usual escort to take to an out-apiary." I never thought of using an escort in such a case. Is it the usual custom? What is the escort for? [If the queen were to be introduced within an hour or two it

would be far better to give her to a colony without an escort. The presence of worker-bees in an introducing-cage is likely to affect adversely successful introduction. Some of our breeders go so far as to stipulate that the workers be taken out of the introducing-cage before the queen is given to the bees. —Ed.]

What makes bees swarm? E. W. Diefendorf, *Bee-keepers' Review*, 211, ventures as a *possible* answer to the question that the queen is tired, and he supports his guess with such good arguments that he is likely to make not a few converts to his belief. But I've known a queen to be caged in a hive a week or more when one would have thought she would be thoroughly rested, and then to swarm out within a few hours after being liberated. Once I gave to a swarming colony a queen not two weeks old. She swarmed next day. [The theory that fatigue on the part of the queen induces swarming is hardly tenable in view of the evidence that can be produced to the contrary on this point.—Ed.]

The queen and half the brood was taken from a colony, and foundation alternated with remaining brood-combs. A few days later a queen-cell containing a larva was found on the foundation.—*L'Apiculteur*, 297. I've been skeptical as to bees carrying eggs or larvæ; but I don't see how to account for this case otherwise; but I should like to know whether said larva turned out to be a queen or a drone. [Don't you remember, doctor, that we have reported having seen bees carrying eggs? In a queen-rearing apiary there are so many proofs that they must necessarily do so that one who has been in the business for a year or more could scarcely doubt the feasibility of their doing it.—Ed.]

Replying to your question, Mr. Editor, p. 1009, I think the general opinion is that the fertilization of the egg depends upon the will of the queen; but I said the preponderance of argument was not on that side. Ralph Benton says worker eggs are laid in drone-cells, but he does *not* add, "without the mouth of the cell being narrowed." Is there a definite instance on record of queens laying worker eggs in drone-cells without such narrowing? [We, perhaps, should have published that other testimony, then you would have no doubt. Apparently you attach no importance to the fact that a queen will lay worker eggs in Swarthmore queen-cell cups (larger than drone-cells) which we mentioned in the last issue, page 1008, and those eggs wil produce females. This in itself should leave no doubt in your mind or else we don't understand your point.—Ed.]

Herr Spuehler, *Schweiz. Bztg.*, 242, relates a case in which an Italian queen was introduced into a black colony. In due time Italian workers appeared, living peaceably with their black sisters. But as soon as the Italians became old enough to stand guard at the entrance they stung all their black sisters returning from the field. [This seems hardly possible; yet, assuming that Herr Spuehler reported the facts correctly, we should have to assume that the case is a very abnormal one, or one in which the exception proves the rule. There is no color distinction among bees. The case given might be explained by saying that the black robbers from other hives came to the entrance of the colony and were promptly repelled. The old black bees of the hive would naturally die off in the mean time, and one might very easily mistake the blacks from another hive for those belonging to the colony itself. Our friend might have been deceived in what he supposed were the rightful black bees of the hive.—Ed.]

E. E. Hasty gives a very interesting table showing the number of swarms that issued during each hour of the day for a period of seven years (*American Bee Journal*, p. 504. Here's the table:

Between	5 and 6	A.M.	1
"	6 and 7	"	2
"	7 and 8	"	45
"	8 and 9	"	75
"	9 and 10	"	129
"	10 and 11	"	99
"	11 and 12	M.	76
"	12 and 1	P.M.	81
"	1 and 2	"	63
"	2 and 3	"	45
"	3 and 4	"	36
"	4 and 5	"	12
"	5 and 6	"	2
Total			666

Not worth his while to watch for swarms before 7 A.M. nor after 4 P.M. [Hasty's very carefully prepared table fully supports the statements in our text-books, that swarms come out mostly between the hours of 9 and 2 o'clock. But his figures are a good deal better than mere guesses.—Ed.]

Mr. Editor, speaking of two queens, p. 1008, you say, "When they got together there would be a fight between them." I arise to remark that there will not always be a fight between them unless they are virgins. I have had two queens in the same cage without fighting. I never saw two laying queens fight. Is it the rule that they do? [You are correct, and we accept your amended statement, except that we do not agree with your implied statement that two laying queens together generally would not fight. Mr. C. F. Bender, an old correspondent of Gleanings, and who is now with us, reports that he several times, for the sake of amusement, took two laying queens which he was about to supersede, and put them together on the ground. When so placed they would invariably fight to a finish, as he found by repeating the experiment. The queen that happened to get the best hold was the victor. We think it is probably true that two queens that get together in a colony of bees often will not fight, but even then it by no means follows that they generally will not. You are correct in believing that virgins would fight; but here again there are exceptions. Not six weeks ago we found in one hive nearly a dozen virgins on one frame, living peaceably together. It was a case where a lot of cells had been given to the colony to complete,

and they had hatched before the apiarist got around to them. Some of the queens were from two to three days old, and yet there they were all together like a happy family. Not wishing to take any chances on them we caged them. Very sorry now that we didn't let them stay and then watch for developments.—ED.]

WE regret to learn that Mr. N. D. West, one of the foul-brood inspectors of New York, lost his son David in a runaway accident. This young man looked after his 500 colonies, and was the one who made the queen-cell protectors and cages. The loss will be a severe one to Mr. West, and he has our sincere sympathy.

AT a meeting of the Central Society of Apiculture for France, held June 23, at the society's rooms in Paris, it was decided there would be a smaller crop of honey this year than last, hence it was decided to ask for all extracted honey 1.30 francs a kilo (about 12 cents per lb.), if the honey was in fairly small lots. For larger quantities, 1.20 francs would be considered very fair. All bee-keepers connected with the society are expected to abide by this decision in the general interest of bee-keeping. These are wholesale prices.

ENCOURAGING COUNTY FAIRS.

IT is with considerable pleasure we note the fact that for some reason or other the fairs are offering better premiums on bee, honey, and wax exhibits than ever before. In point of fact, some of the prizes are very liberal (not too liberal). For example, Tennessee offers $25.00 for first, $15.00 for second, and $10.00 for third prize on the best exhibit. Other prizes are in proportion. Illinois and West Michigan are also quite liberal. We hope bee-keepers will encourage all fairs whose managers are doing their best for apiculture. We believe a fair is a good place to advertise honey and wax. If your local fair is not doing much for bee-keeping, see the managers and point out what others are doing.

AMERICAN BEE JOURNAL.

THE Old Reliable is now issued as a monthly of 32 pages at 25 cts. per year, instead of a weekly of 16 pages at $1.00. The new monthly has a new half-tone cover that is very neat, and the general make-up, appearance, and contents are practically the same as heretofore. The low price of the publication, 25 cts. per year, and the general excellence of the matter, should and probably will make it very popular. We wish it abundant success.

A BEE-STING THAT IS ALLEGED TO HAVE CAUSED LOCKJAW.

A STATEMENT has appeared in the papers to the effect that a boy four years old was stung in the back of the neck. Nothing serious developed until the next day when a hardening and a swelling of the neck and a stiffening of the muscles resulting in what is known as tetanus, or lockjaw, and finally death. The best physicians were consulted and were at a loss to account how a bee sting could cause such disease. The suggestion was made that the child playing in the dirt may have rubbed his hands containing more or less of earth over the wound. As lockjaw is a germinal disease that resides in many soils it might have been transmitted by the hands, for a a sting will sometimes make a wound that will bleed slightly, and hence a wound open enough to receive infection from the hands contaminated with earth. Since the sting itself is supposed to contain a violent antiseptic it does not seem possible that lockjaw could proceed as a direct result of the sting itself. The case, if so, is a very rare one and probably will not occur again.

Of course, some newspapers may try to make a handle of this to the effect that no one should keep bees for fear of lockjaw; and indeed one paper referring to the subject said "It would mean a new and graver problem in connection with bee farming." Grave problem indeed! The practical bee-man has had too many stings to be worried over the possible prospect of dying by lockjaw.

Later.—Our representative in Philadelphia, where this case occurred, reports that he managed to arrange an interview with Dr. Brady, one of the staff of Frankford Hospital where the boy was treated. The doctor gives it as his opinion that the sting had nothing to do with the lockjaw. His opinion is based on the fact that there was no local infection whatever under the skin nor in the flesh, that the *post mortem* could discover. A full report on the *post mortem* will be out in about a week.

DR. WHITE AND HIS DISCOVERY OF THE ORIGIN OF AMERICAN FOUL BROOD.

THE United States Department of Agriculture has just issued circular No. 94 on "The Cause of American Foul Brood," which constitutes a sort of addendum to "The Brood Diseases of Bees," which was issued in pamphlet form some time ago. The author is Dr. G. F. White. He now reports that he has been successful in cultivating in a suitable medium *Bacillus larvæ*, and producing therefrom American foul brood by direct inoculation, thereby proving that he has, beyond all question or doubt, discovered the true origin of old-fashioned or American foul brood.

He gives it as his opinion that what Dr. Maassen, of Berlin, terms *Bacillus Brandenburgensis*, and what Buttel-Reepen calls *Bacillus burri* are neither more nor less than *Bacillus larvæ*. If this is so, the chain of evidence in favor of Dr. White is complete.

Any reader desiring a copy of this circular can obtain it by addressing Chief of the Bureau of Entomology, Washington, D. C.

HOW FAR MAY SWARMS FLY?

A SUBSCRIBER wishes to know what is the longest distance a swarm of bees has been known to travel to take up its new abode. If any one has any actual data upon the subject we should be pleased to have him write us. We are of the opinion, however, that the distance it would go would not exceed three or four hours of flight, or at a maximum of ten miles. The bees of a swarm are usually heavy with honey, and such bees can not fly very far without exhaustion. We know that bees filled with nectar from basswood seem to be about tired out, and it is probable that the most of these bees have not flown to exceed two miles.

THE 1907 CROP LIGHT.

IN many localities, as reported in our last issue, there was a change for the better; but it came too late to insure very much of a yield. Honey is still coming in, in many places. Even white clover, where it rains every now then, continues to yield a little. Many localities are having a light flow from red clover, which the farmers have been unable to cut, owing to the lateness of the season. Sweet clover is yielding well, but the laws in the various States are requiring it to be cut, while the oxeye daisy, the wild parsnip, and other noxious weeds are allowed to grow. In a word, the crop will be light and somewhat mixed. It will probably be late in getting on the market; and right here bee-keepers are making a mistake in holding if they have any to sell.

There will be some honey from California; but while the crop is light the quality is extraordinarily good.

R. C. Aikin, under date of July 22, reports for Colorado that they are just entering on the best part of the season. The weather is fine and promising; but he says that unfavorable weather might yet spoil the chances for a fair crop.

Reports from Michigan, New York, and Wisconsin show that some honey has been coming in; but it is clear now that the crop in all three of the States named will be light, unless from buckwheat.

We shall be pleased to get reports from bee-keepers everywhere; for the season is so changeable that what is true at one time may be modified at another.

THE PRICE OF HONEY FOR THE YEAR 1907.

WE can now say definitely that the honey crop for 1907 is very light. There is almost no fruit on the market, and that is a strong competitor of honey because it comes on at just the time our product is offered for sale. Our older subscribers will remember how commission men and honey-buyers have repeatedly remarked that, during the time when fresh fruit is coming on, honey prices are apt to ease up; that, after the fruit season is past, the honey market becomes firmer. With no fruit in sight, and with a light crop, and with State and national pure-food laws in operation as they never were before, honey ought to sell at the prices that ruled in the early days of bee-keeping. The trouble is, a lot of fellows who "can't afford a bee-journal" will sell at any old price. But the bad spring has probably put most of these out of business.

LATER—PRICES ON HONEY GOING UP.

THE honey market in this issue will be of great interest to those who have any honey for sale. Notice how the quotations are jumping upward. Indianapolis, for example, quotes the best extracted in five-gallon cans at 11 to 12 cts., and best comb at 19 to 20. The *Pacific Rural Press* says that California honey is selling on the coast at 7½. Bear in mind that these prices are *wholesale*.

Now that the national and State pure-food laws are in force something will be doing, for the trade is fairly howling for honey. Glucose can not piece out a light crop any more. We firmly believe that the best grades of comb honey should not be sold to the grocer for any thing less than 20 cts., to say the least. While extracted may not be able to hold its own, that in the comb should rule firm. Hip, hip, hurrah for the upward climb in honey prices!

A CITY COUNCIL VERSUS THE BEES.

A LOCAL newspaper, *The Hudson Morning Republican*, for July 18, contains a very readable article which treats quite at length on the status of the bee industry as a whole. The author of the contribution is James McNeil, who is not unknown to fame as a bee-keeper. The occasion which has drawn out Mr. McNeil from his usual silence is the discussion of a complaint against a bee-keeper of Germantown, Columbia Co., N. Y. The complaint in question was lodged before the board of health for Germantown by a fruit-grower who, it seems, averred that bees kept by a neighboring bee-keeper sucked the honey from the fruit-blossoms until they were worthless. For consummate ignorance about his own business—the pollenation of fruit-blossoms—this beats the world. From what we glean the board of health has in view the passage of an ordinance declaring bee-keeping in the village a nuisance.

Mr. McNeil has pointed out in his article that a board of health has no jurisdiction in a matter of this kind. The place to lodge such complaints is the Department of Agriculture at Albany. A board of health has a clear right to regulate matters pertaining to the public health, *and no more*. This looks like a clear case of pernicious activity. Mr.

McNeil is well posted on the law of bees, and is evidently in touch with the Manager of the National.

The board of health ought to read up on the Arkadelphia, Ark., and Rochester, N. Y., cases, where the authorities of these places tried to have bee-keeping declared a public nuisance. They were promptly squelched in the courts. Cases of this sort show the necessity of bee-keepers being banded together for mutual defensive purposes.

Later.—The case has been dropped.

GOLDENS FOR HARDINESS.

SINCE our editorial on p. 889, July 1, regarding the lack of hardiness in some strains of extra-yellow bees we have received several letters from breeders of these strains, together with letters from their customers, to the effect that these bees are not lacking in hardiness. One writer from Kansas City, Mo., in speaking of a queen of the Swarthmore strain, cites the fact that the colony with this queen produced 156 lbs. of fancy comb honey, selling at 25 cts. per lb. Furthermore, there was no swarming from this hive, and they wintered perfectly. We believe the wintering problem in the latitude of Kansas City would be a much less difficult one than it would be further north.

Of course, in the North, or elsewhere, where one is looking more for color than for other desirable qualities, there will always be a considerable demand for them on this account. We have no intention of decrying their value, for there will always be more or less demand for them in the North, and in the South we think that, in many in instances, they will be equal if not superior to the ordinary three-banded stock; but in view of the reports of a number of large reputable bee-keepers of their large winter losses of these bees as compared with the three-banded Italian, Carniolan, and Caucasians, under similar conditions, we felt that the publication of these reports was due our readers. It is the duty of this journal to state the facts, cut where it will.

THE USE OF THE NATIONAL FORESTS; BEE-KEEPERS' RIGHTS AS TO OVERSTOCKING PROTECTED.

WE have just received a copy of a book issued by the Forest Service at Washington bearing the above title. It is quite different from the "Use Book" issued by the same authorities. This one is intended for popular use and to a great extent answers the criticisms which have been hurled at the Forest Service of the United States government.

From this book we glean the important fact that the area of the forest reserves in United States, Alaska, and Porto Rico, is almost 150,000,000 acres, which is large enough to be considered an empire.

An idea has gone abroad that forest reserves are closed to private enterprise. This is not the case, however. On the contrary, cattle and sheep ranching, mining, hunting, and bee-keeping go on just the same as on the public range, except there is a certain amount of government regulation to protect the timber from thieves and forest fires. Land suitable for agriculture may be homesteaded. Mining may go on as on the range. Timber for building a house is allowed all settlers, and firewood is free to all. Lumbering can be done only after a contract has been made, and always under government supervision. The timber is handled in such a manner that cutting never ends. Ranching is allowed as usual, but the number of cattle or sheep is limited to the number the land will support, and measures will be taken to increase the pasturage. The cattlemen are expected to pay a fee for this service, and they are glad to agree to this, as they get protection and a good range for their animals. There can be no cattle-men's and sheep-herders' wars on a forest reserve.

Where the matter vitally interests a bee-keeper is in the regulations for the prevention of overstocking. In doing this the government does the bee-keeping interests a great service. And it may go further, if the bee-keepers ask for it, and much of the land may be seeded down with honey-plants such as alfilarela, sweet clover, white clover, and similar pasture plants.

By careful attention to this detail the Forest Service can do a very important work for the benefit of the bee-keepers of the West, and no doubt it will do so when the opportunity offers. The forest-reserve area is as follows (in acres): Arizona, 9,463,725; California, 21,849,171; Colorado, 15,748,772; Idaho, 20,336,427; Kansas, 97,280; Montana, 20,528,263; Nebraska, 556,072; Nevada, 1,391,999; New Mexico, 7,007,644; Oklahoma, 60,800; Oregon, 16,463,535; South Dakota, 1,263,720; Utah, 7,119,472; Washington, 12,065,500; Wyoming, 9,020,475. Total area reserved, 142,972,855. Alaska and Porto Rico also have reserves.

IRRIGATION FARMING AND NEW ALFALFA-FIELDS FOR BEE-KEEPERS.

As some of our readers are interested in the above subject we revert to it again to avoid being misunderstood. GLEANINGS has already dwelt briefly on the reclamation projects in course of construction by the United States government under the direction of the Secretary of the Interior, who will furnish particulars of any project. See GLEANINGS for May 15, p. 690. There are projects equally desirable, constructed under the Carey Act, passed by the national Congress. In this case a charge of 50 cents per acre is made by the government, and the cost of the irrigation works is added on to this. The canal and dams are constructed by a corporation which is responsible to the State, and which must sell water-rights at a price fixed by the Governor of the State, who has full powers in the matter. The maintenance of the irrigation-plant is borne by the settlers in coöperation. The conditions are, therefore, almost the same as in the case of the United States reclamation projects. The

largest projects we know of undertaken by capitalists under the Carey Act are in Idaho, Wyoming, and Oregon.

When the whole project is undertaken by a private concern the situation is quite different, for there is always a danger of the company's adding to the water-rent until it becomes excessive and burdensome. Such cases are not rare.

As a rule, farming in the arid regions is delightful work. The climate is fine, crops are abundant, and excellent in quality. Educational, religious, and social privileges are of the best.

For bee-keepers there will be many good openings within the next few years; but it will be evident, from what we have said, that it is necessary in all cases to look over the ground well before making a move; and for obvious reasons government projects should have the preference.

Some of the railroad companies advertise the government projects when the lands lie adjacent to their tracks, as the increased population brings business of a profitable nature.

The fifteenth National Irrigation Congress meets in Sacramento, Cal., Sept. 2—7, and anybody who is anxious to get posted on the subject can not do better than to study the proceedings or attend in person. The irrigation movement is one of the most important in our time, as its consequences are far-reaching and revolutionary; and it looks now as though the future typical American would be born on irrigated soil.

THE CHEMISTRY OF WAX AND NECTAR.

The Louisiana Experiment Station at Baton Rouge has recently published a bulletin (No. 91) which is of considerable interest to bee-keepers — if they understand a little of chemistry. On page 4 it alludes to cane wax in this wise: "The properties of cane wax were first studied by Avequin, an apothecary of New Orleans, over sixty years ago. He named the substance "cerosin" (from the Greek *ceros*, meaning wax), and gives the following description of its properties: 'It is yellowish, very hard, easily pulverized to a white powder, and, when molded in the form of a candle, burns like wax or spermaceti. It melts at 82 degrees Centigrade, solidifying again at 80° C. Its specific gravity is 0.961 at 10 degrees. It is odorless, unites with alkalies only with difficulty, and does not change on exposure to the air.' Avequin, by scraping, obtained more than two grams of wax from a stalk of purple cane. He also showed that an appreciable quantity of wax escaped into the juice during milling — the amount of this, however, being less than $\frac{1}{100}$ of 1 per cent of the weight of juice."

Avequin's work has been confirmed by Dumas and Lewey.

The actual amount of wax in Louisiana sugar can may be expressed thus:

	Pith.	Bundles.	Rind.
Fat and wax,	.41	.72	.98

In Louisiana the sugar cane seldom reaches perfection; but in tropical countries it does, and, naturally, more wax will be present in tropical sugar. Some varieties contain much more wax than others produced under identical conditions. The sugar-cane plant also contains a considerable percentage of gums, xylan, and araban, which are probably useful in wax-making, when cane juice is fed to bees.

There is a striking similarity between cane juice and flower nectar, as the analysis given in this bulletin shows, when compared with an analysis of nectar, and there is not a great deal of difference between cane juice and honey except that the former contains more water, of course.

The three principal sugars of the cane are —sucrose, dextrose, and levulose.

Sucrose ($C^{12}H^{22}O^{11}$) is the constituent for which the cane is most prized, and its physical properties are too well known to require mention. Its solutions rotate the plane of polarized light to the right, the specific rotation being +66.5. By means of inverting agents, sucrose is split up into equal parts of dextrose and levulose, hence the name of the mixture—*invert* sugar.

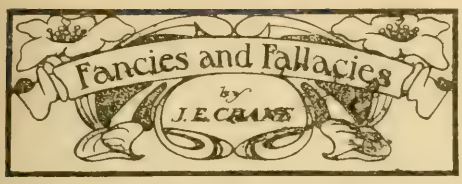
Dextrose ($C^6H^{12}O^6$), sometimes known as grape sugar, occurs in all parts of the sugar-cane. It is a white crystalline body, easily soluble in water, the solution rotating to the right—specific rotation +53.

Levulose ($C^6H^{12}O^6$), sometimes known as fructose or fruit sugar, occurs associated with dextrose in all parts of the sugar-cane. It is easily soluble in water, and much less easily crystallized than dextrose. Solutions of levulose rotate strongly to the left, the specific rotation at 20 degrees Centigrade being —89.2.

It may be stated that the cane sugar used on our tables is pure sucrose, whereas honey contains dextrose and levulose in addition to sucrose. Honey also contains rare sugars, gums, and acids, just as cane juice does, all derived from the nectar of plants exuded through the nectaries.

It will be observed that the honey-bees are far better workmen than the sugar-manufacturers, who are compelled to throw away the very best parts of the cane juice. The bee retains these unimpaired to tickle our palates. It will be noted, also, that the natural juice of sweet plants is far better for wax-making than granulated sugar, hence the experiments made in this line have been useless.

For wax-making, that tropical bee-keepers have a feed far better than we of the North possess, is evident. Those who believe the transformation of nectar into honey is effected by the saliva of bees drawn from certain glands would find this very instructive indeed, for it is evident that nothing of the kind ever happens. The spontaneous inversion of sucrose in nectar of flowers can be easily explained by the action of certain enzymes present in the fluid, which transform the sucrose into dextrose and levulose, the principal constituents of honey, so that the saliva theory fades completely out of sight.



What is the matter, Dr. Miller, with sheep in an apiary when the hives are low down? We have one yard in a sheep-pasture, and it suits us so well we would have them all so if we could, and the hives are low down too.

I wonder if the readers of GLEANINGS fully appreciate the beautiful first page of the cover of GLEANINGS during the present year. I believe too much can not be said in praise of them. I find myself enjoying these covers quite as much as the contents so full of interest beneath them.

The slogan of the saloon has long been, "You can't make men moral by law." It may have a grain of truth in it; but I notice that our new national pure-food law has a strong tendency to make men moral. Table syrups that were labeled "Pure Maple Syrup" a year ago are now labeled "Table Syrup; 50 per cent maple and 50 per cent cane-sugar syrup."

Some one inquires in a back number of GLEANINGS how to poison mice, and suggests sprinkling strychnine over flour. Strychnine is extremely bitter, and mice or rats are not fond of it. The following has proved very useful with me: Take one part flour, one part sugar, and one part arsenic; mix thoroughly, and place in hives or where the mice pass, and they will disappear very fast.

"Over-ventilation kills more bees in outdoor wintering than any one thing except starvation," writes J. E. Hand in March 15th GLEANINGS, and he is not far out of the way. I should say the smaller the entrance for winter the better provided, it is not entirely closed.

I have most of my hives fitted with a tin tube, say ¾ inch in diameter, 4 inches long, running through the outside case, packing, and brood-chamber, five or six inches above the bottom. Then I am not worried about their getting clogged. In very cold weather it fills nearly or quite full of frost, and thus automatically reduces the size of the entrance to fit the weather. If the lower entrance is entirely closed it does no harm, but may be a decided advantage. Thus fitted I sometimes do not visit a yard of bees for several months during winter.

Wm. Muth-Rasmussen inquires in the July 15th number in regard to the proper amount of brimstone to be used for killing moth-worms in brood-combs, and also for fumigating comb honey. In his footnotes the editor says, "To use too little sulphur does not accomplish the object, and too much will turn the white comb surface yellow." The first statement is quite correct, but it seems to me the second is a little off color. Don't you mean it will turn the combs green? That's the way it works with me. I have not had much experience in sulphuring old wormy brood-combs, but enough to know that it takes a large amount of smoke to kill large worms in their webs. Better use the point of a sharp knife, or hang them over such hives as are not at work in sections.

In regard to white comb honey, I have sulphured during the last three years somewhere from 15,000 to 20,000 lbs., or sections, not for the purpose of killing the larvæ of the wax-moth, but for the purpose of bleaching, and have had a pretty fair chance to learn something of the effect of sulphur smoke on white combs. I use my bleaching-room for this purpose, containing about 900 cubic feet. I commenced slowly and carefully, increasing the amount of sulphur burned, and the time before turning it off or changing the air of the room. I have a side door and a trap-door overhead, and can in thirty seconds drive most of the sulphur smoke out, so I can control the use of smoke perfectly. After considerable experimenting I made it a rule to burn six ounces of sulphur, and leave the room closed for eighteen minutes. Later I found some combs with little spots of green, and I reduced the amount to five ounces of sulphur and fifteen minutes' time. Still, there would be some combs a little greened, and again I reduced the amount to four ounces and twelve minutes' time. I believe that, while the above rules worked very well for bleaching, none of them was enough to kill even small larvæ of the wax-moth on the combs. I know it did not kill them all.

Now the above facts are not very accurate or definite, but my work along this line has taught me some things I did not know before. One is that combs of section honey vary greatly in their susceptibility to receiving color from sulphur smoke.

The combs from some hives will take two or three times as much smoke without harm as the combs from other hives. I believe there is even more difference than this, as I do not remember ever giving such enough to affect them in the least.

Those sections where the comb is thinnest and cappings most delicate appear to be the ones most easily or quickly affected by the fumes of sulphur smoke, while the sections where the most wax is used in the construction of the comb are the last to show color when receiving an overdose of smoke. I say the *last*, but really I don't know how much you would have to give them to green them, for I have treated such to smoke over and over again without in the least affecting them.

Another thing that I believe plays a part in smoking combs (perhaps a very important part) is the amount of moisture in the air.

I have no data to give, but have come to believe that there is much lees danger of greening combs when the atmosphere is dry than when more fully saturated with moisture. In other words, you can use a much larger amount of smoke in a dry atmosphere than in a damp one.

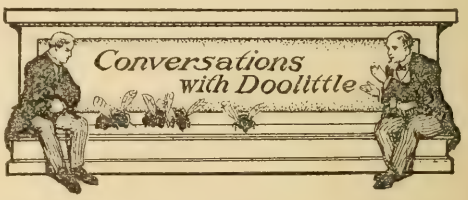
For destroying the larvæ of the wax-moth on new combs I should treat them as soon as they come off the hives, or within a day or two, assured that a much smaller amount of smoke will be effective at this stage than later. A neighbor bee-keeper treats all his surplus honey in this way, and says he never is troubled with worms on his combs.

I have recently built a small room for this very purpose, containing about 200 cubic feet of space. I shall begin by burning half an ounce of sulphur, and keep close for fifteen minutes. If this does not do, I propose to use more sulphur or keep the room closed longer.

I was much interested in the two articles by A. I. and E. R. Root on the dandelion. It has seemed to me for some years that this lowly plant was not sufficiently appreciated by people in general and bee-keepers in particular. My heart is always gladdened in spring time when they throw up their great honest faces to the sun and wind and cold of May. We may not tread the streets of the New Jerusalem in this life, but we can enjoy seeing the roadsides paved with gold; and this gold does not demoralize, for most of us would just as soon see these flowers on our neighbors' lawn as on our own. Besides, they play an important part in bee-keeping. I suppose our own bees have gathered as much as two tons of honey from this source the past spring, perhaps more. Our bees were rather short of stores, and the dandelions have supplied the lack of stores, and saved us the labor of feeding, and helped build them up into vigorous colonies before clover time, all at the same time, notwithstanding the cold spring.

Have our young friends, the bee-keepers of the future, given the dandelion much thought? Have you noticed the flower-head is not one but many flowers? To support such a head there must be a strong stalk, so the stalk is cylindrical, like a goose-quill, thus giving the greatest strength for material. Have you noticed how, as one head after another blossoms, they bend down to the earth to give others a chance to lift their head so the bees can see them as they fly over the fields? As the seeds mature, the stalk lengthens until it is three times as long as when the blossoms appeared. Again, the stalk straightens up, assuming an upright position so the spring breezes may carry the seeds away to form new colonies.

If you count the stalks on each plant you will find them about twenty; and if you count the seeds on each one you will find them to number about 250. Thus each plant can furnish not far from 5000 seeds; and such seeds! If we look at them through a glass we shall find them beautifully grooved lengthwise, and almost covered with little barbs pointing upward so that, when the seed takes its flight from the bosom of the mother-plant, the small end of the seed will point downward, and, alighting, it is able to work its way down through the grass or into the soft earth, there to produce a new plant to bless the world. Surely the Lord knew he was making a good thing when he made the dandelions; and if he has so carefully provided for all their wants, will he not provide for us who are so much higher in the scale of life?



WORKING FOR SECTION HONEY.

"Are the bees at work on basswood now? I see it is nearly in full bloom on some of the trees."

"Yes, Mr. Brown, they have been doing pretty well for the past three days."

"Isn't the bloom late this year?"

"Yes, our season is fully two weeks late with all vegetation. It is now the 23d of July, with only a few of the earliest trees in full bloom."

"Did you get much surplus honey from clover?"

"No. There are very few sections completed as yet; but if this good weather continues for a week or ten days we may secure quite a crop of section honey, though it will be impossible to have a large yield of white honey in sections for 1907."

"You say there are a very few sections completed."

"Yes. Some hives may have a dozen finished sections on them. I do not think that more than that can be found on any one hive."

"Well, that is about as my bees are, and what I wished to ask you was whether I had better take off these completed sections now or wait till all that are in one super are finished."

"That will depend somewhat on how much time you have to work with the bees."

"Well, that may be so. But will it pay me to spend time to take out the filled sections from among those partly filled and put those that have only starters in them in the place where the filled ones are taken out?"

"And, again, I must answer by saying it all depends upon how much time you have, or, perhaps better expressed, by saying it depends upon how valuable your time is during the flow of nectar from basswood. If not very valuable, then it *will* pay you to take out the completed sections from each

super once a week; but if very valuable, then I should say it would not pay."

"What do you consider *not very valuable*, and *very valuable*?"

"How do you want it expressed—in dollars and cents?"

"Yes."

"If you consider your time worth only $1.00 a day, then I think it would pay you to take off the sections as fast as they are finished. If, on the other hand, you consider your time worth from three to four dollars a day, then I do not think it would pay you to do such 'fussing work,' as it is called."

"Wherein would it pay if my time was worth only $1.00 per day?"

"First, in the nice appearance of the honey taken off."

"What does appearance have to do with this matter?"

"Appearance in comb honey has very much to do with the sale of it. In other words, the whiter the combs are sealed in the sections, the more money they will sell for."

"Yes; but how much extra will this appearance add to the price?"

"I used to think that it would add from one to two cents in price for each section; but of late years I have been a little doubtful in the matter."

"I see; but if it added only one cent to the price of each section I would have to take off only 100 sections each day to pay me for my time at $1.00 a day. Is this right?"

"It would look that way."

"Well, if I could not take out more than 100 filled sections each day I should be a pretty poor stick—should not be worth $1.00 a day to anybody. I actually believe that I could take off 300 sections a day, and at your figure this would pay me the $3.00 a day, the amount you have allowed me for very valuable time. Is this right?"

"Perhaps so."

"Wherein else does it pay besides in appearance?"

"It is calculated that the bees will store more honey where an empty space is made by putting empty sections with starters, and especially where such sections are filled with thin foundation, than where the bees have to be crowded out as it were to a vacant space at the outside of where they have been working. In other words, the bees are believed to hustle in with greater energy to fill a vacant space made between partly filled sections in which they are at work than they will do where they are allowed to have their own way of working, or continually adding from the outside."

"How much can be gained in this way?"

"Anywhere from five to twenty sections, according to the conservativeness of the one making the estimate."

"Very well. Put it at the lowest, and we make a gain of five sections per colony during the season, do we not?"

"Yes, it looks that way."

"Then if I can go over 50 colonies a day, I shall secure 250 extra sections shall I not?"

"Yes."

"And at ten cents each this will give me $25.00 to add to what I had from the better appearance."

"Possibly so."

"When you secured that large crop of honey some years ago, how did you work?"

"By taking out the sections each week as fast as they were completed."

"Do you practice that plan now?"

"No."

"Why?"

"Because I do not think it pays me."

"Have you ever had such a yield since you left off following the plan?"

"No. My average that year was 166 pounds to the colony, and the highest I have ever recorded since I left off the plan was 135 per colony."

"Well, then, I do not see how you figure out that it does not pay. You have an extra here of 31 sections to the colony, and this, added to the extra appearance, would give you a lot to buy your 'very valuable' time with."

"But you know of late years an offset has been figured out in these matters."

"No. What is that offset?"

"Keep more bees. And while each colony may not give quite so much honey as by the other plan, and the appearance may not be quite as nice, yet in the aggregate, when the year rolls round, the man working on the plan of keeping more bees will have more cash to jingle than will the one who is working for appearance and a larger yield from each individual colony."

"And you believed it, and so went to keeping more bees instead of working as you formerly did?"

"No. I should not like to say just that."

"But your actions admit it."

"Hardly."

"Why not?"

"They would do this, if I were as ambitious and energetic as in former years. But advancing age, together with the many infirmities accruing therefrom, compels me not only to spend less work on each individual colony, but to keep fewer colonies as well. At the present time I am more ambitious for more rest than I am for more work."

"I see. But suppose you were only 25 years old, and at liberty to adopt either plan as you chose, which one would you choose?"

"The old plan of securing the greatest yield with the nicest possible appearance would give me the greatest satisfaction, I believe, and put upon the market a class of honey which would tend toward building the section-honey industry up higher and higher than would the plan of keeping more bees."

GOV. FOLK has just appointed R. M. Washburne pure-food commissioner for that State. He has the power to appoint six food-inspectors as his assistants. In future, dealers in food supplies in Missouri will have to show just what is in the packages sold by them.

ONLY ONE ENTRANCE.

I have a friend whose veracity is so pronounced that I once heard it said that, when he said a thing was true, it was true, even if it was not true. Of course, we all feel much the same regarding such bee keepers as Dr. Miller and Mr. Holtermann; so when they argue so strongly for more than one hive entrance to the hive we must wonder if we are correct in believing that one is best. I acknowledge that the fact that the bees are wont to close all but one is not conclusive, but it surely has weight. The instincts of the bee must be in the main right. I have often known the bees to propolize wholly the second opening.

Of course, I mean *entrance*, and not device for ventilation, which is not used at all by the bees, and so is no entrance at all. It may be well at times to ventilate the hive, and in this case it may be well to raise the upper story a little. I am not at all sure of this, and feel very sure that, to give the double opening in making the hive, would be a mistake. In giving the two openings there is chance for draft; and in case of severe cold, brood may be chilled and much harm done. In case of two real entrances, both used by the bees, we must upon occasion close one, and then there is likely to be loss or confusion as the bees miss the regular exit.

I believe that a single entrance, as usually made, and so arranged that it may be regulated to suit the season and size of the colony, is the best plan; and if we may judge by the style of almost all of the hives made in the country, I have many who think as I do. I take it that very few of our hives are made with two entrances. I would always plan the entrance so that it could be much enlarged in times of great heat when the bees are very numerous and hard at work. I would have an arrangement so I could slightly raise the upper story to ventilate; but as many will forget to close this, it should never be a second entrance; and for the most bee-keepers, it would better be omitted. The cautious expert bee-keeper will use such ventilation to good purpose. So I say again that I believe the best hives will have only one entrance.

APICULTURE AT WASHINGTON.

I am sure we may all rejoice in the present personnel of the Bee Division of the Department of Agriculture. I have recently visited the new heads of the Division, and am very certain that splendid work will be done. I believe more and more that in Dr. E. F. Phillips we have a very able man, and one who has had fine training for his work. He is a man of great energy, and one who will work with his might to do the craft good. In working to combat our bee diseases, and to breed better bees, he has hit upon the very best things to push bee-keeping to a higher eminence. He now has a few bees at the Department, close by the main building, while the most are over at the farm at Arlington.

DR. G. F. WHITE.

I also had a very pleasant visit with Dr. White. We may well feel proud of the work that Dr. White has done for us. One of the greatest discoveries yet made in the real science that touches most deeply the interests of bee-keepers is made by Dr. White. He has cleared up many uncertainties that have vexed bee-keepers, and now we know what is what regarding the terrible disease of "foul brood," European "foul brood," which we may consider as the real foul brood, was the one described in Europe, and which is not the one that has been most in evidence in America. This disease works earlier, leaves many cells uncapped, leaves a looser scale at the bottom of the cell, and has not the elastic ropiness and rank odor of the disease that is most known to American bee-keepers. It is thought to be more contagious than the other, and is more likely to disappear without treatment. Yet it is a scourge, and is to be feared. The specific bacillus that produces this malady is easily cultivated on most culture media, and so can not be mistaken by the expert bacteriologist for the other, which, we will see, is very different. Cheyne's *Bacillus alvei* is the species that causes this European foul brood, and the one that has been known in America, principally in New York, as "black brood."

The other disease, American foul brood, is the one that the most of us have known in the States. This is the well-known ropy, ill-smelling, elastic, not so contagious, but more pertinacious disease, so well known to many of us in the United States. Indeed, it is the only form in many of the bee-keeping sections of our country. That this species, which Dr. White calls *Bacillus larvæ*, is quite distinct, is certain, not only from the differences suggested above, but it is much more difficult to grow, as it will not develop on most of the common cultures that are familiar to bacteriologists. Dr. White found that it did grow well on a culture medium made from crushed bee larvæ. This led him to give it its specific name. Dr. White has now some more data of great interest to give us which will soon appear in print. I saw cultures of this bacillus which were rank indeed. This work of Dr. White has been criticised by some of our writers, but it would not be were they competent workers in this field, or were they fully informed in the matter. There can be no doubt of these conclusions, and they are of great value to us. We may well rejoice that we have one so competent to work in this line, and may look

forward confidently for results in other fields, like pickled brood and bee paralysis as Dr. White gets time to investigate in these lines.

PARCELS-POST.

There is hardly any thing that would help our common people so much as a parcels post such as most European people are favored with. We now are limited to four pounds, and must pay 32 cents per pound for sealed mail, 16 for merchandise, 8 for books and magazines, and 4 for papers. Our rural service can not carry parcels, and so is carried on at a great loss. It is probable that the $30,000,000 loss could all be saved, and a clean one hundred million more were all the plans arranged for the people rather than for the express companies. The National Grange is working for this, and the administration favors it, as it does every thing that helps the people. Let us all "cry aloud and spare not." Let the motto be, less postage, never more than 5 cts. per pound, and at least a 25-pound package. It is believed by some that a one-cent rate per pound for any package, with a limit for letters, would pay and leave no deficit, with the right management. Let us try it. I hope that we shall all talk it, and demand it of our Congressmen.

Good news from the South, Mr. Editor. Texas has a pure-food law—no longer a part of the dumping-grounds for adulterators.

Save the bits of wax and melt them up. Just so much extra profit which is going to waste in entirely too many apiaries.

Save the waste honey, and the washings from cappings, extractor, uncapping and other honey-cans, etc., and make into vinegar. Use clean rain water in the washings. This is another waste which would amount to much extra profit if saved.

The sumacs of Texas, Dr. Miller, are not very much unlike *Rhus glabra*, with their large white panicles or spikes of small flowers. This is what Mr. Chambers meant in *American Bee Journal*. The flowers are small, but there are great white plumes of them—p. 868

The higher prices of wax, and the great loss of colonies this spring, have caused a thorough sorting of combs by those bee-keepers who are up to the times. There ought to be fewer drone combs, and crooked and defective ones now, and those left behind should be all the best to be had. In consequence of this there's been a drop in wax prices.

Combs infected with larvæ of the wax-moth are set out in the sun against some obstacle so that there are no sheltered parts under which the "worms" may hide from the sun. Then watch them "hike out," and the sun gets them, leaving the combs free of the pest. Don't leave the combs out too long or in too hot a sun or they will melt. Hundreds of combs have been "disinfected" in this way in our yards.

The end-bar projections of the shallow Hoffman extracting-frames are *not* a nuisance when uncapping, and they are most valuable in the hive for fast manipulations. A little knack in bringing the knife in and out of play when uncapping can be easily acquired, and will become so natural with the operator that the projections or spacers are *never* in the way. Twelve years of experience has taught me this, and I *have* uncapped combs in all kinds of frames.

Doolittle and Clark, page 889, are right. There are strains of extra-yellow bees that are hardy and hustlers. Out of a yard of 43 colonies, the 7 best ones are the yellowest in the apiary, and will average 100 pounds of both comb and extracted honey each. The best is filling its sixth thirty-pound super now. They are all daughters of one golden mother, but not entirely pure Italian, having just a sprinkle of Holy Land blood in her. It is not enough to hurt for breeding-purposes, as her daughters have all come up to her notch, and some better, as honey-gatherers, and from color and appearance they would be called pure goldens. They are a little more cross, but it's the honey I am after.

A PURE-FOOD LAW IN TEXAS.

The editor will have to quit calling the South the dumping-ground for adulterated stuff, for Texas has a pure-food law right in line with other States. This law was created by the last legislature, and conforms to the United States pure-food law. The pure-food bill is known as House Bill 5, creating a pure-food commission, with an appropriation of $5000 a year, located at the College of Industrial Arts, Denton, Texas. The bill provides for the appointment, by the Governor, of a pure-food commissioner, with a salary of $2000 a year; a deputy commissioner, with $1200 a year, and a stenographer for the office at $600 a year. The act is to prevent adulteration, fraud, and deception in the manufacture and sale of articles of food, drink, paints, and drugs. By adulteration is defined the mixing with any substance any thing which depreciates its strength and purity; the addition of a cheaper substance; the abstraction of a constituent or ingredient; selling an imitation for another article; if any is diseased, decomposed, putrid, infect-

ed, tainted, or rotten. This applies to milk, or animal or vegetable substances.

It is high time now that other States not yet having a pure-food law should get one, as they will otherwise be the sufferers from the adulterators who must "pull out" from the States having these laws. Texas is not really so far behind, after all, as many may have supposed.

AN IDEAL SHALLOW FRAME.

The shallow Hoffman (5⅝ deep) frames have been improved "a whole lot" by making the end-bars full ⅞ inch thick instead of ¼ and scant $\frac{5}{16}$ inch as before made. A thickness of $\frac{1}{16}$ inch seems to be only a very small fraction, but this addition makes a much stronger frame. Now let's improve this frame still more by making the top-bar thicker but narrower, and we shall have what I call my ideal frame. The top-bars should be only ⅞ inch wide the entire length —no offsets or shoulders for the end-bars to butt against. They should be ¼ inch thick to prevent sagging. I have tried many different kinds, and prefer these to all. They give more space between top-bars, hence better for tiering up, and by far a great advantage in divisible-brood-chamber hives. There are no more burr-combs than with the wide top-bars.

In uncapping there is no frame better than with such width of top-bars and the regular ¾-inch bottom-bars, as the knife is simply laid against the two, and the comb sliced down in one swoop. With the wide top-bars, and the frames spaced the regular distance, there is more or less trouble, as the comb does not extend beyond the wood.

No groove for inserting foundation is necessary on the top-bars, as I do not need them—especially in bulk-comb-honey production. Where the combs are cut out and foundation put in its place time and again, the groove is used only once, the first time. The groove only weakens the frame, and it is really easier to fasten the edge of the foundation on to the flat surface of the top-bar than to insert it into the groove, either when fastening with melted wax or the hot-plate-machine fastener.

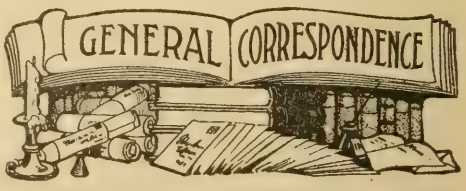
Such frames are easier and cheaper to make, I am sure, as there are fewer shoulders to cut out, no grooves, and only one plain width. What think you of such frames, and the cost of them, Mr. Editor?

ROBBING AND SOME "CURES."

One of the most provoking nuisances is a bad case of robbing; and I have seen many apiarists who, in the spur of the moment, knew not how to proceed with such cases. When *I* find a colony is being robbed in the apiary, an armful of hay and a bucket of water is my remedy. The hay, grass, weeds, or what may be handiest, is thrown over the entrance, loosely, so the bees, a few at a time, can pass through, and the whole—hay, hive, bees, and all—are given a good sprinkling of water.

The robbers scamper out of this mess in a hurry, and go home; and those new-comers that nose around also soon retire, for a while at least. Then the colony is exchanged for a stronger one and set on its place. This usually settles it. See cuts on next page.

When bees "go crazy" over a stack of supers or combs in hives, especially when the stacks have a leak, there is often great danger of such a demoralization that every thing on the place is stung. This is most disagreeable when living in a city, as I do. We had such a case yesterday—got started before I came home, and the women-folks had to play prisoners in their respective homes. The air was full of thousands upon thousands of bees, and half a dozen stacks of newly extracted supers were covered with a wild angry mass. The Jumbo smoker and some coal oil and a brush were resorted to in *this* case. The bees were smoked from the hives; and with the brush, coal oil was "painted" over the hive connections, only one stroke over each being all that was necessary. In *ten minutes* all was quiet—yes, the scared people wanted to know where the bees had gone to. I have used this for years most effectively.



A FEW THINGS NOT TO DO IN BEE-KEEPING.

BY E. W. ALEXANDER.

[Mr. Alexander always writes valuable helpful articles, but this one on the don'ts of bee-keeping is one of his best. It should be read alike by the veteran as well as the beginner. We are not sure but that some might cut this out and paste it in their hats, where it could be seen and read often.—ED.]

While we are so free to tell the inexperienced what they should do in order to succeed, would it not be well to remind them of some things they should *not* do?

INVENTING HIVES.

First, don't spend either time nor money in trying to construct a new form of hive—not but that there are some serious faults in nearly all of our standard hives, but let the experienced bee-keeper remedy those faults.

MANAGEMENT OF WEAK COLONIES; HOW TO PREVENT ROBBING.

Don't allow your bees to acquire the habit of robbing. Hundreds of weak colonies are lost annually by this provoking habit which is frequently caused by the neglect of their owner. One of the worst features of taking our bees from their winter quarters, a few at a time, is that it almost invariably starts robbing. The colonies that are taken out

first, and have had their cleansing flight, being well located are in prime condition to attack every colony that is taken out later, and before they become located the bees from those that were taken out first have full

A BAD CASE OF ROBBING.—SEE PRECEDING PAGE.

swing at their less fortunate neighbors. In order to prevent this costly and unpleasant state of things, where you have to set out your bees at different times, first contract the entrance of every colony; then as soon as you find a colony that is being robbed, even though it is only just started, close it up and keep it so for several days; then if they have any brood, set them on top of a strong colony with a queen-excluder between. If they have no brood, and still have a queen, give them a comb containing brood from some other colony.

In putting two colonies together in this way don't disturb either of them any more than you can help, especially the stronger one. If you keep a close watch on your apiary, and treat them as above described, you can save nearly all of your weak colonies with but little trouble, and at the same time prevent your apiary from getting into that demoralized condition which they frequently do when they find several weak colonies which they can overpower with but little loss of bees.

A CAUTION AGAINST MAKING INCREASE TOO RAPIDLY.

Then the desire for more bees is almost sure to tempt the inexperienced to divide his colonies to that extent that they are almost worthless, either for surplus or to try to winter. So, don't make your increase too fast. If you do, you will not only lose your prospect of securing a fair surplus, but the chances are that you will lose many colonies during the following winter.

KEEP GOOD BEES AND PRODUCE GOOD HONEY.

Then don't be contented in keeping bees that are not good honey-gatherers. This is the principal thing we keep bees for; and if they fail to give us a good surplus when they should, supersede their queens with queens of a good honey-gathering strain.

Then don't produce poor-looking comb honey. You have no more excuse for producing poor stuff than the dairyman has for producing poor butter; but produce a quality that you will take pride in stamping on every package of it your name and address.

SOME GOOD "DON'TS."

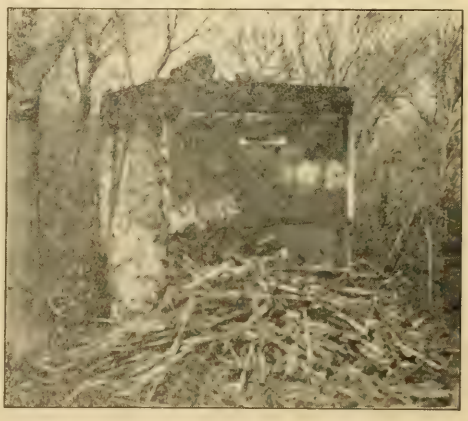
Don't set your bees in a place where they will annoy the public. Either keep them where they will not disturb any one, or sell them and go out of the business.

Don't allow drone comb in any hive except one or two, and see that these hives have choice breeding queens. There is no more profit in keeping a colony of bees where a large per cent of their combs is drone comb than there would be in keeping a poultry-yard of roosters.

Don't allow king birds, skunks, toads, and snakes to hang around your apiary. If you do they will weaken the working force of every colony.

Don't think that bees will give you good results in either increase or surplus honey if you neglect them and fail to do your part. The day is past when the word "luck" has any bearing on bee-keeping. The man who conducts his business in a careless slipshod way, taking it for granted that this and that will come out all right, is only fooling himself; and the sooner he realizes it to be a fact, the better for all concerned. So, don't try any thing of the kind, but look close to all the minor parts; and when you have united them into one fine method for practice you will be well rewarded for your study and perseverance.

Don't spend any time in worrying over the frequency of poor seasons, but spend your



A "CURE" FOR ROBBING—SCAMPERING HOME.

time in preparing your bees to make the most they can of any kind of season that comes, then you will be almost surprised to see how few poor seasons there are. We have not had a really poor season in 25 years,

while some of my neighbors complain of a poor season nearly every summer.

SECOND-HAND HONEY PACKAGES.

I almost beg of you not to buy second-hand packages to ship extracted honey in. I don't know when I ever read better advice than our friend Muth gave us a short time ago in GLEANINGS on this subject. Don't use those poor packages. If you do, you not only bear down the market price of honey but you indirectly raise the freight rate.

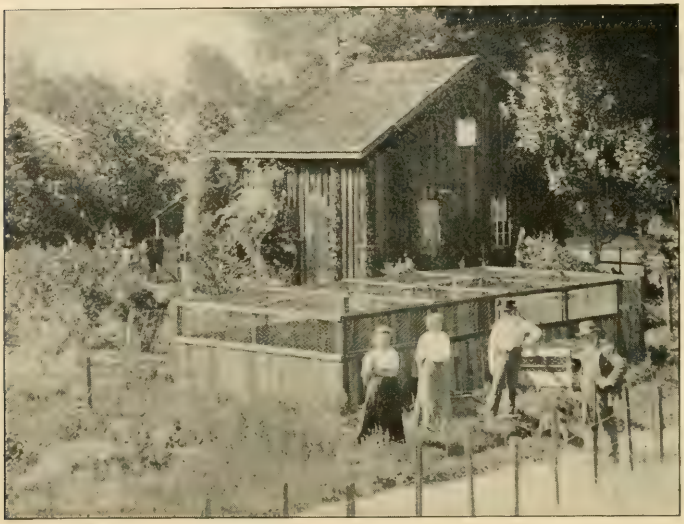


FIG. 1.—HOME OF MOSES BRAY, SANTA CLARA CO., CALIFORNIA.

Don't bother with starters of comb foundation in your breeding or extracting frames; but put in full sheets of foundation and prevent your bees from building that worst nuisance of the apiary—namely drone comb. The man with a few colonies may have time to fuss with starters; but if you have many hives to care for, the sooner you cut out this starter business, and the shifting around the apiary of brood, the better it will be for your net income. The earlier in the spring you can have every hive in your apiary, and every comb in those hives filled with worker brood, then keep them so to the end of the season, the less reason you will have to worry about poor honey seasons and overstocking. We have never had a strong colony of bees backed up with a hive full of worker brood fail to give us a good surplus.

PREPARING FOR WINTER.

Don't neglect to prepare your bees early in the season for winter. This part of the business should here at the north be all finished before September 10. To a certain extent we are preparing our bees all summer for the next season; then when the final finish comes, the last of August, we have but little to do, and I am sure that they will winter with less loss if they have a chance to quiet down and are undisturbed during the fall months.

Don't try to winter weak colonies. If you are anxious to save all you can, then feed them syrup made from granulated sugar as soon as the harvest commences to close, so as to keep them breeding until they are strong in bees. If you attend to them in this way they will often be your best colonies in the spring; but if you can not do this you had better unite two or more together in the fall; for a weak colony in the fall is usually a dead one in the spring.

Don't try to winter a queen the third winter. I am sure it doesn't pay. She is almost sure to die, either in the winter or early spring; and if she lives she is so slow to start brood in the spring that you will have a weak colony until mid-summer; and it will require more valuable time to build it up than three queens would cost

Don't fail to keep your bees as warm and comfortable as is possible during the first four or five weeks after taking them from their winter quarters. We contract the entrances of all colonies to $\frac{3}{8}$ by 1 or 2 inches. In doing so it prevents robbing to quite an extent, and helps them to enlarge their brood-nest, which is very important at this season of the year. We also try to retain all the heat we can at the top of the hive. We put a piece of canvas first over the top of the frames, then a board under cover, cleated so as to form two dead-air spaces; then our outside telescope top, which is kept well painted so as to prevent any rain from entering the hive. You may think this is taking more pains than is necessary. We think it has much to do toward helping the bees to give us a nice surplus during the summer.

Don't put your bees into winter quarters that will subject them to unnatural conditions. If you do you will lose many colonies, both during the winter and spring. It is almost impossible to save a colony that has been poorly wintered. We may talk and write of the thousand and one different things connected with successful bee-keeping; but when they are all summed up the whole combined is not of as much importance as perfect wintering. We could make more money the following season from strong colonies when taken from their winter quarters if they were in nail-kegs than could be made from little weak sickly colonies in the best hive that was ever constructed.

I will close by saying, before I run off on the subject of wintering, that close attention to all things connected with your bees is the magic word that unlocks the door to success in bee-keeping.

Delanson, N. Y.

BEE-KEEPING IN CALIFORNIA.

A Visit to the Apiary of Moses M. Bray.

BY W. A. PRYAL.

It was during a day late in October that I visited Mr. Moses Bray, an old-time bee-keeper in Santa Clara Co., this State. The hillsides in the canyons were well wooded, and, in a fair season, the honey-yield, I was told, is very fair through these canyons and ravines on the land side of the mountains. Off toward the Pacific, or water side, the honey secretion is not so good, owing mostly to the cooler condition of the atmosphere.

Mr. Bray is a very fine old gentleman, and has lived in these mountains for nearly forty years—see Fig. 1. Twenty-six years ago he was a cripple, rheumatism having got such a hold of him that he could hardly walk. At that time he had a colony of bees in a cracker-box.

FEROCIOUS BEES.

Crippled and all as he was, he went bee hunting and soon had twenty-four colonies captured from bee-trees. He states that they were the worst-behaved bees he ever "ran up against," and at one time the number of stings he received seemed to be nearly a thousand.

RHEUMATISM VS. BEE-STINGS.

Therein lay the cure for the malady that had so long crippled him. The rheumatism was routed by the poison from the stings, and the ex-patient vowed then and there that he would stay with the bees.

AN IDEAL APIARY SITE.

At the time of my visit Mr. Bray's average number of colonies has been about one hundred, and the yield a little over one hundred pounds per colony, with some extracted honey also. His apiary is on the crest of a hill, not far from the residence—Fig. 2. This location is ideal in many ways, especially as it takes the bees away from the roadway below; and it gives the hives an early exposure to the first rays of the rising sun. Then an extracting-house could be placed so that all the hives could be run to it by gravity, thereby saving heavy loads in handling and lifting. Then the honey could be run to the honey-house below by means of a pipe. The hives, too, would get the last rays of the sun, all of which would be better than if the colonies were in the valley. Against this scheme is the one that, during windy periods (which are very seldom), the bees would find it hard winging their way to their respective hives.

BRAY'S REVERSIBLE FRAME.

Mr. Bray is something of a genius. He shows a number of handy implements of his designing. Some two years ago he conceived a spring attachment for end-bars, which also makes it easy to make a frame a reversible one. Fig. 3 will probably make the device easily understood. A piece of sheet iron is bent in the shape of an L. A hole is bored near one end, and a slot parallel to the edges of the strip is made near the other end of the top-bar. Into the frame small staples are driven equi-distant from the screw, so that, no matter which way the iron

FIG. 2.—A PART OF MOSES BRAY'S APIARY, 100 FEET ABOVE THE CREEK BELOW.

hanger is turned, up or down the frame, the slot will slip over a staple. The latter also serves to space the frame from the ends of the hive. At diagonal corners on the sides of the frame are more small staples for comb-spacers. The hive shown in the half-tone is a special queen-rearing hive of Mr. Bray's designing. His manner of wiring is somewhat novel, although, perhaps, not new. While I was posing Mr. Bray for a picture of himself and bee-yard, the genial Pat Keating stepped upon the scene, as he wanted to show Mr. Bray (and others too, I suppose) some of the good features of his bee-veil.

FIG. 3.—PATRICK KEATING AND MOSES BRAY SHOWING NEW PLAN FOR REVERSING HANGING FRAMES.

Oakland, Cal.

[The manner of reversing the frame invented by Mr. Bray greatly resembles the Heddon reversible frame of the eighties, and now discarded. Such a frame is considered too expensive by the average buyer of hives. —Ed.]

THE BEES OF THE CARNIC ALPS.

The Curious Hives Used by the Natives; Carniolan Bees.

BY RALPH BENTON, B. S.
Assistant in Entomology, University of California.

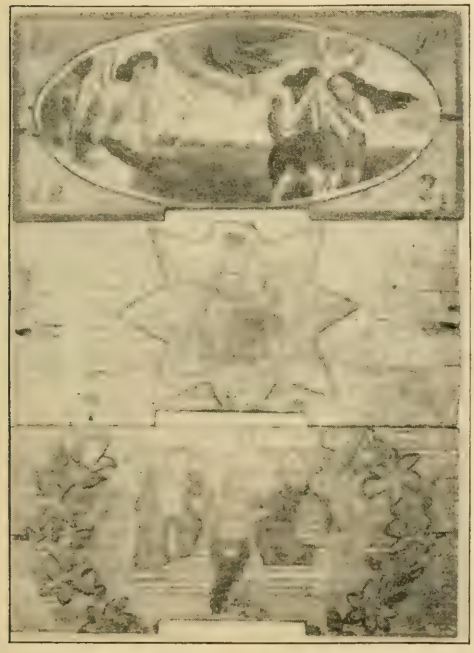
The peasants of the Austrian and Carnic Alps are extensive bee-keepers. They have a rare race of bees; and, though a simple and agriculturally primitive people, have done much to take advantage of their stock in trade. Winding in among the Carnic Alps is the broad and shallow yet swift-running Save River with its turbulent mountain tributaries rushing on to meet the slow-moving, sluggish Danube threading its way through the plains of Hungary. The people who inhabit these narrow valleys among the rocky spurs are Slovenians, and cling tenaciously to their language and national customs against the encroachments of German Austria. Their system of bee-keeping is peculiarly their own.

The hives are made of thin material, about three feet in length, six inches in depth, and perhaps fifteen inches in breadth. The bottom-board is but loosely secured by four iron nails, or in some cases screws, and projects in front two or three inches to form the alighting-board. The fronts of the hives alone are movable, and are temporarily secured by inserting the top edge close under the slightly projecting top-board, and then wedging in by pushing in snugly along the bottom-board. The front pieces contain the entrance three to four inches long. On these fronts are usually painted scenes illustrative of some well-known proverb or a cardinal event in Biblical history, as shown in the illustration. The hives are placed one above the other in rows of ten or a dozen, or even

longer rows—a hundred or two hundred colonies thus occupying a single shed, the depth of the hives' length, with open front. The fronts of the hives thus painted form a striking front to the shed. The writer has traced Bible history from the Creation down to the Acts of the Apostles, depicted on the fronts forming the side of a single shed.

Hives so constructed lend themselves easily to transportation. With a bit of evergreen stuffed in the entrance just at nightfall the bee-keeper can load as many as a hundred colonies on a single wagon; and when well on the road the evergreens are removed and the bees allowed to cluster on the outside for better ventilation.

Carniola is the home of migratory bee-keeping, and each year late in the summer the bee-keepers of the upper valley move



ELABORATE DESIGNS ON THE FRONTS OF OLD CARNIOLAN BEE-HIVES.

down to the broad buckwheat-fields of the lower valley. "In die Heide" is a well-known expression, and there they are—numbering thousands of colonies rowed out to harvest the great crop of honey from the acres of buckwheat.

On a certain day the bee-keepers all assemble, and barter and sell their crops of honey and their bees; and on this day colonies numbering into the thousands are sulphured and the honey-combs cut and thrown into great tubs to be jammed and strained. Of late years, since this race of gentle bees has become world-famed, and the value of their bees known, this wholesale slaughter has been largely abandoned, and now the honey is cut from the rear of the hives and the colonies united for the winter. Travel by rail is now largely supplanting the old wagon transportation, and the great ceremonial days of old are fast passing away.

The Carniolan bees are now quite well known in this country, and their excellent qualities fully demonstrated. They are very gentle, good honey-gatherers, somewhat larger than blacks or Italians, and strong vigorous flyers. Very prolific, coupled with the quality of extreme quietness, they are most excellent winterers; and, gathering a minimum of propolis, are particularly well adapted to comb-honey production. They are, in the main, well marked with steel or dusty gray bands with the queens varying from a light brown to a deep bronze. The drones are the largest of any race of honey-bees. Combining all these qualities it is not surprising that bee-keeping is such an important and successful industry in this little Austrian province.

The adjoining province to the north, Kärntner, has also many bee-keepers, and the bees are about of the same type—if any thing showing even a less tendency to yellow than toward the Italian border.

Some of the more educated people who know German have tried to introduce the Berlepsch hive from Germany, but with not much success—so conservative are these independent mountaineers. Many carry on a successful queen-trade with France, Switzerland, and Germany—some even sending queens and nuclei to Holland and England. A great exchange of nuclei goes on in the absence of the perfection of sending queens by mail. Queens in most instances are reared naturally in full colonies, and fertilized perhaps in nuclei in the full-sized hives—after-swarms being largely so utilized.

WHITEWOOD FOR HIVES.

Some Arguments in its Favor.

BY F. GREINER.

In my former communication I omitted to comment on what I found in the A B C of Bee Culture with reference to whitewood lumber. It is stated that this lumber shrinks endwise, and that it is, for that reason, unsuitable for hives. Science may say lumber shrinks endwise. When a very delicate measuring instrument, a sort of micrometer, is used, a stick of timber or a board of whitewood may be found to have lost an infinitesimally small fraction of $\frac{1}{16}$ inch; but for practical purposes whitewood shrinks no more than other kinds of timber, or about as near nothing, so far as it can be detected. Whitewood has been used in these parts of New York in barn-building, mixed in with other timbers, and no perceptible shrinkage has ever been noticed. Houses have been sided with it, and late years bee-hives have been made from it, and it serves the purpose, not as well as soft white pine, for there is probably no better timber growing anywhere than this; but it can be or it may be used

without any complication arising, such as is mentioned.

Whitewood is a much stronger and somewhat harder wood than pine. It does not nail as easily, but nails hold better in it, and and therefore end-pieces of wide frames and section-holders can be made to advantage from it. If cement-coated nails of proper size and fair length are used, a wide frame will never give out. The bottom of a honey-shipping case will never come off in transit if the head pieces are whitewood.

Some whitewood is very hard, and splits easily. When nailing through it, nails ought not to be very large or the resulting work will be bad; but I have had pine (cut on low land) which behaved even worse than the hardest kind of whitewood in that respect.

Whitewood has greater strength when warping, and it is difficult to draw a wide

EXTRACTING IN THE TROPICS, ALL OUT OF DOORS, TRINIDAD, B. W. I.

badly warped board straight without checking the board. I consider this the worst feature of this timber when it comes to hive-making. The boards which come out of the center of the log work pretty well; but those from the outside had better be cut into something narrow.

Naples, N. Y.

[Whitewood is, perhaps, the next best substitute for white pine for hives and frame-work, unless we except redwood, which is not obtainable, except at a prohibitive price, in the Eastern States. A large number of bee-keepers do not paint their hives, and for all such the white pine is obviously better. Cypress will stand the weather without paint better than any other wood and is an excellent material for bee-hives. Under present conditions whitewood of a uniform grade is not as easily obtained in large quantities for the bee-hive factories as white pine. It is harder to work, and more difficult to nail, although it holds a nail better than a softer wood. While it is no cheaper, yet at the same price we doubt if the bee-keeping fraternity would accept it in place of white pine.—Ed.]

THE SELECTION OF A BREEDING-QUEEN.

On What Basis Shall the Choice be Made? the Importance of Getting Rid of the Poorest Colonies in a Breeding-apiary.

BY C. F. BENDER.

Mr. Holtermann's article on page 413 of the May 15th issue is a very clear statement of what we ought to know about our bees, and don't; but I rather doubt such knowledge being of very great use in the practical breeding of bees, even if we possessed it. I should like very much to know which of my queens produce the longest-lived workers, which bees would fly the furthest, live on the smallest rations, resist unfavorable weather the best, carry the largest loads, or make the most trips. But even if I knew all these things I might yet be a little puzzled to know which queen to breed from if I had nothing else to judge by.

If we turn our attention to practical results, instead of looking for the cause of those results, the decision is much easier. We want the bees that will store the largest quantity of the most marketable honey, and they must be gentle enough so that we can handle them. Those are the requirements in a nutshell.

To take a case from my own practice:

The season last year was nearly a failure, but I had one colony that produced honey to the value of $11.00, besides their own stores. The next best gave a net return of $6.00; several others of $5.00, or nearly that. It would be interesting to know what combination of qualities caused those bees to go so far above the average, but such knowledge would probably make no difference in the selection of a breeding-queen. As it happened, all the best colonies were gentle, and all were pure Italians, and so were more likely than hybrids to hold those qualities in the next generation. Other things being equal, of course the colony storing the greatest amount of honey would be chosen. But the best colony produced watery cappings, so that was not suitable for comb honey.

The point I am aiming at is this: That, while the qualities enumerated by Mr. Holtermann are important, they are important only as they affect the honey crop. And of the honey produced we have a ready means of judging.

In regard to controlling the drone parentage, I think the best we can do is to follow Dr. Miller's plan. If one has more than one apiary, keep all the best colonies at the home yard—that is, those that gave the best records the previous season. Then do all the queen-rearing at the home apiary, and let the drone question take care of itself. Where we have a hundred colonies in one place, the mating with drones from other sources will not exceed five per cent. If we are to make any improvement in our stock, it is quite as important to weed out the poorest as it is to breed from the best.

Newman, Ill.

A SEVEN-YEAR-OLD BEE-KEEPER WHO RAISES QUEENS.

BY W. K. MORRISON.

The little boy shown in the two illustrations is John Thomson, of Couva, Trinidad, an island on the coast of South America. His father is a Presbyterian missionary from Canada, also his grandfather on the maternal side. Missionaries are expected to teach almost every thing, and Mr. Thomson set about learning bee-keeping that he in turn might be able to instruct the East Indians among whom he labored. It did not take him long to master the elements of the business in Trinidad, where bees may be handled nearly every day in the year. Among his most apt scholars was his own little son, who speedily mastered the details sufficiently well to be able to raise queens for sale on his own account.

It is evident this young bee-keeper is an exponent of the shallow hive, which is admirably suited to his strength, and, moreover, answers all the requirements of a tropical bee-hive. He not only does not use a veil, but, as may be observed from the picture, does not use shoes to protect his feet. The bees he has are pure-bred Italians. There is, of course, an occasional hybrid colony, and one of these produced $24 worth of honey, sold at only fairly low prices. He gets $1.20 for pure-bred queens. His father is away so much looking after out-missions that the burden of the apiary falls on this boy. One day when all were absent he took down a very large swarm and successfully hived it, just as he appears in the illustration, barefooted and barefaced.

YOUNG QUEEN-BREEDER THOMSON MAKING NUCLEI.

Fifteen of the East Indians have small apiaries fitted out with these hives and the lat-

est devices, which goes to show what can be done for that race. They are a very bright, studious race of people, and readily take to bee-keeping when some one offers to instruct them how to do it.

When Johnny Thomson gets back to Canada we naturally expect he will go to work to teach the natives of our Lady of the Snows the latest kinks in twentieth-century bee-breeding. In any event we expect to hear more about him in the years that are to come.

A SEASON'S WORK WITH SECTIONAL HIVES.

Swarm Control and Comb-honey Production; Feeding Back and Feeders.

BY J. E. HAND.

[The problem of feeding back has been considered a difficult one. Many, in attempting it, have failed; others have partially succeeded. A few, and a very few, have made a grand success of it. Among this minority may be named our correspondent, Mr. Hand. He has gone so minutely into the subject that there should be no reason why any one should fail. In the previous article he explained that, while the honey-flow was on, he ran his colonies up to the point of capping the sections when he took them off. These he held till after the honey flow had ceased, when he put them on the hive again, and fed back thinned-down extracted honey to get them capped over. In this article he explains fully this last procedure.—Ed.]

Judging by the reports that have appeared in the bee-journals from time to time it would seem that very little is really known regarding the science of feeding back to finish off fancy honey. Some of the statements from those who have made a failure of feeding back are really amusing. One bee-keeper conducted some extensive experiments along this line; and, basing his judgment on the result of these experiments, he offered to pay $1.00 per lb. for 100 lbs. of comb honey that could be produced at a profit by feeding back extracted honey. On further inquiry regarding these experiments, we found that they were conducted during October, after every thing green was killed by the frost, and at a time when the bees were in a semi-dormant condition, and had settled down for their winter's rest, and therefore were entirely unfit for such an experiment. This party also caged the queen. While it would, no doubt, be perfectly safe to offer even $10.00 per lb. for honey that could be produced at a profit under the above conditions, yet it should be evident to even a novice in bee-keeping that such an experiment does not amount to any thing, and that judgment based on the result of such work would be far from correct. It is folly for any one to make the statement that comb honey can not be finished off at a profit by feeding back extracted honey, with the difference in price that exists at the present time between comb and extracted honey.

Just now people are going wild about the great profits to be made in feeding hens for winter eggs; and, while there is a handsome profit in winter-egg production for the poultryman who is master of his business, yet the profits are not greater than can be obtained by feeding bees to finish off partly filled sections. I speak from the standpoint of the poultryman as well as that of the honey-producer. Feeding back is somewhat similar to feeding poultry for winter eggs; and unless you possess the "know how" you will, no doubt, come out at the little end of the horn as did Bro. McGlade with his poultry venture.

The object of this article is to tell you just how we are not only able to feed back at a handsome profit but also how we get our sections more perfectly and evenly filled than it is possible for us to get in any other way during our very short honey-flow.

WHAT KIND OF FEEDER SHALL WE USE FOR FEEDING BACK?

Perhaps the first thing to be considered in feeding back is the feeder. For several years we were handicapped in our operations because none of the feeders that were listed in any of the supply catalogs were of any account for the purpose, so we invented several of our own; and, although some of them were an improvement over the others, yet they were not entirely satisfactory.

Finally we found a feeder illustrated in "Quinby's Bee-keeping Explained" that was just what we wanted; and, although we have used it for more than ten years, we have not been able to improve it, and we are using it to-day just as Mr. Quinby did more than fifty years ago. Fig. 1 will show how it is used.

FIG. 1.—THE QUINBY FEEDER AS USED BY J. E. HAND FOR FEEDING BACK EXTRACTED HONEY.

The feeder is a tin tray two inches deep, inclosed by a wooden frame of the same depth. The wooden frame is of the same width as the hive, and 2½ inches longer, while the tin tray is the same length as the hive. This tray is pushed to the back end of the frame surrounding it, leaving a space of 2½ inches in front for the bees to pass out and in the hive, and at the same time allows the tin tray to project beyond the hive at the

back end for filling the feeders, see Fig. 2. There is also a framework of slats, lengthwise of the feeder, and of the same depth, standing on edge about ¾ inch apart, for the bees to travel over while working in the feeders, so that no bees will be drowned. The

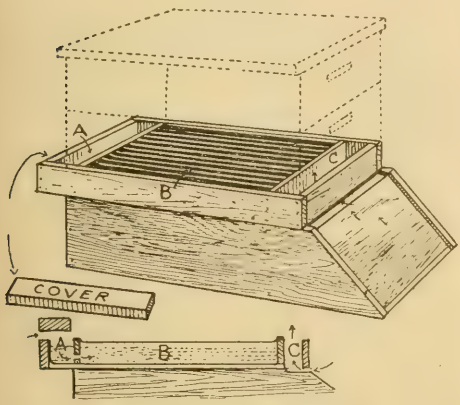


FIG. 2.—DETAILS OF CONSTRUCTION OF THE QUINBY FEEDER AS USED BY J. E. HAND.

feeder rests square on the bottom-board, and the hive rests square on the feeder except the 2½ inches at the back end, which is covered by a little board. The bees can not get into the place where the feed is poured in, and the feed flows evenly under all parts of the hive, where it will be quickly taken up by the bees.

This feeder will hold six quarts; and after using it quite extensively for feeding back we do not hesitate to pronounce it by far the best one that has yet come to our notice, and we doubt if it can be improved.

A PROLIFIC QUEEN NECESSARY TO SUCCESS IN FEEDING BACK.

Next to the feeder, perhaps our success or failure depends upon the queen more than on any other one thing. Indeed, we are not sure but that more depends upon the queen than upon the feeder; for we have never been able to make a success in feeding back with a colony having a poor worn-out queen, even with the best of feeders; while we have had fair success with a good queen and a poor feeder.

We have stated elsewhere in these articles, and we repeat it here, that bees will not do satisfactory work in sections over a brood-chamber crowded with honey. The queen must be able to hold her own against any amount of heavy feeding. This is why we prefer a *young* queen. We have had queens that would hold our shallow brood-sections against heavy feeding for six weeks, and finish hundreds of sections without allowing the brood-chamber to become crowded with honey, simply because it was kept full of brood. A colony having such a queen will always give good results in feeding back. By selecting the queens for breeders that produce bees that cap their honey the whitest, we have been able to improve our bees greatly in this respect. We breed for quality, and would use a black queen for a breeder if she possessed the necessary qualities. Color cuts no figure with us. Handsome is that handsome does is our motto in selecting a breeding-queen.

A CONTRACTED BROOD CHAMBER FOR FEEDING BACK

Having decided upon our feeder and queen the next thing to be considered is the hive. It is necessary to resort to extreme contraction of the brood-chamber in feeding back; for unless the brood-chamber is small the queen will not be able to keep it filled with brood; hence we would have our feed stored in the brood-chamber instead of in the sections. We use one section of our brood-chamber, which is of about the capacity of four L. frames, and spreads the brood out evenly under all parts of the super. It is true that we can use a full-depth frame, and contract by means of dummies; however, we have not been able to get satisfactory work done in sections over dummies, and our time is too fully occupied to permit of handling them. We have found that an eight-frame brood-section five inches deep will give best results in feeding back; and as our sections are nearly full of honey, no queen-excluder is used. If there were very much pollen being gathered at the time we were feeding back, we would use two brood-sections and two queens. We have had good success in feeding back in this way. However, we seldom have any trouble from pollen.

Another very important factor to be considered in finishing off sections over a feeder is the brood-combs, for the bees have a habit of incorporating bits of wax from the brood-combs into the cappings of the sections; and if the combs are old and black, our sections will look dirty and soiled or travel-stained, which would bar our product from the fancy grade; hence we *must* have *new white* combs in our brood-section. It is also very desirable to have as many young bees as possible in our feeding colonies, for young bees are considered best for comb-building. Having our shallow brood-section of white brood-combs, and a strong force of mostly young bees with a vigorous young queen, and a feeder holding six quarts of feed, and that will spread out the feed evenly under all parts of the hive, we may proceed to finish off our partly filled sections with every assurance of success.

We have described our method of feeding back at considerable length for the purpose of impressing upon the minds of those who would make a success along this line the necessity of *starting* right, and then using the same judgment and common sense that are essential to success along other industrial lines.

A FEW DON'TS.

Don't attempt to feed back with a caged queen. Don't wait until September, but begin just as soon as the honey harvest is over, and before the bees have quit comb-building. Don't neglect the smallest detail of your business, for feeding back is made up of small details and our success will depend upon just how well we attend to them. Don't feed during the honey-flow, for it keeps the bees from going to the fields, where they might get as much as they would from the feeders; and it doesn't cost any thing; and, above all, don't expect to get something from nothing; therefore don't be afraid to feed, for judicious feeding is the key to successful comb-honey production in *my* location and it *may* be in *yours*.

Having all the elements necessary to perfect success in feeding back we will push our operations as fast as possible while the weather is favorable and our bees are still secreting wax nicely. So just before dark, and after the bees have quit flying, we will fill our 50 feeders, putting in each feeder from four to six quarts of honey made thin by adding water. We have found that it is better to feed two days and skip two. This gives the bees a chance to move the honey from the brood-combs up into the sections to make room for the queen to lay eggs. In heavy feeding, every available cell in the brood-chamber will be filled with honey until the feeder is empty, when the honey will be moved into the sections as fast as the combs are drawn out. If any of the sections are partially capped, the caps should be shaved off or else the sections will be rough and uneven when finished. As it is not desirable to have more than two supers of sections on our feeding colonies at one time we will remove the two top supers, using the bee-escape board. Our object in placing all the supers on the feeding colonies at first was to get into our feeding colonies the bees that were building combs. This is important. When the sections in the super next to the brood-chamber are nearly capped it is raised up, and the top one is placed next to the brood-chamber. As soon as the top one is finished and capped solid to the wood it is removed, and another super of partly filled sections is placed next to the brood-chamber until all our partly filled sections are finished and ready for market, where it will go just as fast as we can grade and pack it, for our honey is usually sold before it is finished, and our customers are pushing us to send forward their shipments, so we will begin at once to grade and pack our honey for shipment. However, before we remove the last super of sections we will, with our hive-lifter, swing up the hives of our feeding colonies and remove the feeders, placing on each bottom-board, in place of the feeders, a brood-section taken from the piles that we tiered up seven or eight high for this purpose. This gives these fifty feeding colonies their full quota of brood-combs.

To be continued.

THE HONEY-FLOW.

The Value of Knowing the Local Conditions; Putting on and Taking Off Supers; Full Sheets of Extra Thin Foundation Recommended for Sections; Some Seasonable Suggestions to Beginners.

BY E. D. TOWNSEND.

There are some bee-keepers who do not seem to know that there is a period during which the great share of the surplus honey is gathered. In the northern States there may be two such periods; but most of the locations in those States have only one main flow, and this from white clover, although in some places this is followed by a basswood flow. The period of white honey varies from a very short flow in a poor year to one extending over as much as six weeks in an extra good year.

The time of the commencement and ending of the season is also a little uncertain. In some seasons clover begins to bloom the first of June, and produces honey a week or ten days later; then in other seasons it does not produce honey before the 20th of June. We figure that a late season means a short one, and our guess has usually been about right, along these lines.

The basswood is even more uncertain as to the time of bloom and duration of the honey-flow. It blossoms with us as early as the 1st of July in some years, and as late as the 10th in others; but an average date is from the 4th to the 7th. About this time clover is through yielding; and so, usually, the basswood laps on and makes a continuous flow of white honey until the season closes, which is rarely later than July 15. Where there is no basswood the flow from clover usually ends about July 8, and the novice can figure on his crop of white comb honey being ready to remove from the hives about the middle of July.

These calculations are based on the supposition that there is to be an ordinary flow of honey. Of course, there are seasons of failure and seasons like the last, where only half a crop was harvested; and, once in a while, an extra good season when the flow may be somewhat longer than usual.

It is of vital importance to know the location well, so as to be able to tell very nearly when to expect the main surplus flow to begin and to close, for in no other way can comb honey be produced intelligently. If the beginner does not know his location it would be well to visit and "pump" some old "vet" in the business.

PUTTING ON THE SUPERS.

A very good rule is to put on the sections when the first bees are seen on clover; then when they have worked three, or, perhaps, four weeks they can not be expected to work much more. In a basswood location, if the trees should appear full of blossoms, and the weather is suitable for the bees to gather honey, the honey-flow may be lengthened out a few days. With favorable conditions bass-

wood is the freest yielder we have in Michigan; but since it happens that these conditions are rarely right we do not put much dependence on basswood, especially as it is being cut so fast for lumber.

I use, and advise that beginners use, full sheets of extra thin foundation in the sections, and I think that these sections should be built between separators. To do this it is absolutely necessary to know the location in order to tell when the main flow begins, and thus get the sections on at this time.

When the season is over—that is, a week after the flow stops—and the bees are through capping their white honey, every super should be removed from the hive, no matter whether full or not. If there is a fall flow, the supers should be put on again when this commences, but not before. Many leave their partly filled supers (left over from the white honey-flow) on the hive during the dearth of honey between the white-honey flow and the buckwheat flow. During this time the bees tear out a great share of the unused foundation in the sections. This is the worst time of the year for the bees to propolize, and this and the mutilated foundation leave the sections in any thing but a desirable condition for the buckwheat flow.

This is the kind of honey we have to compete against when we ship our honey to market. If only the people who produce this stuff were hurt there would be less reason to complain; but every one who produces honey for sale is affected; one has only to look at the honey quotations to see how things are going, for the quotations usually read, "Market overstocked with low-grade honey."

I have told you heretofore that bees would bring up honey from below, and cap and finish sections for a week after the honey has ceased coming in from the field. Taking advantage of this fact we leave our comb honey on the hive until the end of this period. If this is the end of the first (or white) honey-flow, escape-boards are put in under every super in the yard; and when free from bees the supers are removed to the honey-house, and sorted. Those that are fit for the market are cased up, and the rest either "fed back" to be finished or the honey extracted. In the latter case these partly filled sections can be used for baits for the fall flow if there is a fall flow; if not, they are stored away until the next season, when they are used.

I hate to be compelled to record the fact that three-fourths of the comb-honey producers practice the slovenly way of leaving their comb-honey supers on the hive clear through the season—that is, those partly filled supers at the end of the white-honey flow are left on the hive to be finished up with buckwheat honey. This makes a bad mess. The white-honey part of the section will be travel-stained, and covered with propolis. Then sections containing two kinds of honey are never satisfactory. This practice is especially undesirable when there is an interval of three or four weeks between flows, as with the light and dark honey-flows in the northern States.

It is necessary that the comb-honey producer should have an extractor. It need not be so elaborate an affair as the extracted-honey producer would require; but, nevertheless, good comb honey can not be produced without one. Each kind of honey should be produced by itself as much as possible. The bees should never be allowed to commence a certain honey-flow unless all the honey of a previous flow has been extracted from the sections so they can commence anew and do good work. It is impossible for the bees to fix over an old job and make a satisfactory new one.

There is plenty of missionary work for the bee-journals along this line. As the season advances, this class of bee-keepers should be told, step by step, how the season is progressing, whether the clover is early or late in maturing, and when it will probably begin to produce honey in the different locations; then when the indications are that the season will close, the most important part of all is to impress upon the readers the necessity of taking off comb honey at the proper time.

If this class of bee-keepers would only eat all the dirty honey they produce there would be no particular occasion for writing on this subject, for then they would hurt no one's business but their own; but this is not the case, for no one can deny that such honey finds its way on the market.

Remus, Mich.

DEEP HIVES VS. SECTIONAL HIVES.

A Reply to Mr. Dadant's Article.

BY J. E. CHAMBERS.

Mr. Editor:—I note on p. 485 Mr. Dadant's reply to my article, p. 181. He has acknowledged most of the points of superiority in favor of sectional hives; but I should like to take exception again to some of his arguments.

First, Mr. Dadant says that it seems from my article "that the shallow hive is of such great advantage that it is forcing the manufacturers to handle it in spite of themselves." Just so, Mr. D., but not in the sense you have implied. These manufacturers are business men who do not handle goods from a purely philanthropic motive, but for the dollars that are in them. If there are dollars to be gotten, most of them are willing to let their preconceived notions and even their prejudices slide a little to one side, and they supply the goods that are called for.

Second, Mr. Dadant goes on to relate the experience of Mr. Heddon in trying to introduce his shallow hive, or, rather, divisible-brood-chamber hive. Granted that all this is fact, does it prove any thing? I think not, for I know of many good things that have never been taken hold of by the crowd. But I deny that Mr. Heddon ever made one-tenth the effort to put his hive before the public

that the so-called standard-goods crowd have made to keep theirs at the front. In proof of this I refer any one to the back numbers of bee-journals and catalogs issued by these firms during the past several years.

Third, Mr. Dadant says that, if he judges by the amount of foundation made for the shallow hives, there are but few of them in use. Now, if I judge by the same standard, I can say that there are no Dadant hives in use, save those that Mr. D. himself uses, for I know of very few who make much of that special size of foundation. However, I do not think such an argument at all valid, for the reason that I know of many shallow-hive users who split standard sheets in two and make two nice full sheets for this size of frames; in fact, I have always used foundation in this way. Besides, I am sure there are quite a few who use home-made foundation.

Fourth, Mr. Dadant admits that the shallow hive is easier to handle and transport than the deep one; but he says he does not move hives—would as soon think of moving a house as a hive. This would be all right for you, Mr. D., but all wrong for most of us. I have always regarded mobility as a very valuable point in favor of any hive, and that conviction has been a good deal strengthened by studying the many mechanical devices for lifting and handling heavy hives that have lately been shown in the bee-journals, and whole apiaries are moved now and then.

Fifth, Mr. Dadant admits that foundation is easier put in frames of the shallow kind, but says he puts in foundation but once in 30 years. This is true in his case; but there are many, especially in the South, who cut out honey in chunks to sell as bulk comb honey. How about these? Besides, combs often must be cut out for various reasons. But granted that a man needs to do a thing but once in life, is that any reason for making it as hard as possible to perform?

Sixth, Mr. Dadant does not relish the idea of shaking out an entire colony in order to find the queen. Neither do I; but I seldom need to find a queen in order to know whether or not she is failing; and when I want to supersede one I never go to the trouble to hunt her up. I have a better way of doing it. But no one would need to shake out all the bees in a hive in order to find a queen. When I need to find one, which is not often, I can do it quite as quickly as can the deep-hive advocates.

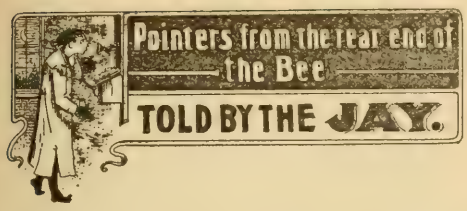
Seventh, Mr. Dadant does not like the idea of helping a weak colony by giving a full story of brood and honey from a strong one. He prefers a more gradual help. Let us compare methods, and then leave it to the intelligent unbiased mind to decide which is easier and better. Mr. D. gives a full comb of brood to a colony already too weak to cover and protect what their own queen can produce. Result, they contract into a still more compact cluster, and egg-laying is stopped for a time at least; neither do any field-bees fly out on cold days to gather new honey and pollen. With my method I leave all weak stocks alone just as they come through the winter, only seeing that they have plenty of stores; and as soon as settled warm weather comes, and my best colonies are fixing to swarm, I select four or five frames of hatching brood with some empty combs, and place over these weak ones. Thus I make them all up to a standard strength; for by this time, all unaided, these weaklings have reached a fair degree of strength, and the brood given at once put them into honey-gathering condition, and at one operation, without the risk of chilling any brood or wasting any undue amount of time; and the strong colonies never miss the bit of brood taken from them. In fact, it is a help to them, for it keeps back swarming until the honey-flow is at hand, when, of course, they do not swarm in this locality. Now, which is the better for the large honey-producer — this making full strong colonies at one operation, or a slow nursing process that involves the opening of the hive several times, with all the consequent risks?

Eighth, Mr. Dadant says he gets more brood in his deep hives. Near me are a few Dadant hives bought from Mr. D. himself, so they must be the simon-pure kind. For a number of years I have had opportunity to observe the bees in these hives, and here is what I have invariably found: When my other colonies were strong, occupying five and six shallow bodies, with from 25 to 30 combs of brood, these Dadant hives had about five frames of brood with two solid slabs of honey and pollen at the sides, and about two inches of honey next to the top-bar in all the frames, thus reducing the actual brood space to about five frames. On top they usually had a section-case in which were half enough bees to work it. If there was any honey coming in, this has been the condition of every deep hive I ever examined in my life, and I have owned and used several different kinds by the hundreds.

Ninth, Mr. Dadant admits that the circular style of egg-laying is not maintained when warm weather comes; but he attributes it to the wrong cause. He says the bees put honey and pollen here and there, and thus break up the harmony of brood-laying. I think it is due to the fact that the queen has filled the lower chamber, and the colony has developed to such an extent that brood is as easily and naturally reared in one part of the hive as another. To form a brood-nest in any part of a tiered-up hive, only three conditions are necessary: First, heat; second, plenty of bees of all ages; third, empty comb. Given these three conditions, the bees make all the harmony they ever need.

In closing I wish to thank Mr. Dadant for the kind manner in which he has admitted most of my claims in favor of the shallow hive and frames, but I also want to say that I think he is a little unfair in trying to minimize the effect of these several admissions and also by striving to compare our modern shallow hives with antiquated ekes.

Vigo, Texas.



QUEEN WANTED.

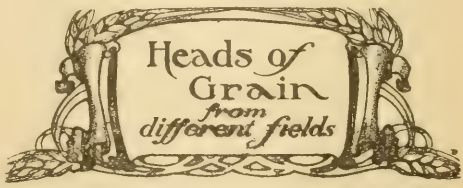
I want to buy a queen, and here is a chance for any up-to-date queen-breeder to make a reputation. First, she must be all yellow—wings, feet, and all of those little celluloid washers that make up the back part of the bee. These must be all yellow and not just the fuzz that grows on them. The sting must be yellow—no, just send us one without any sting. They are not a necessity in this locality. I want her of an intelligent turn of mind so she can instruct her progeny to make white-clover honey out of ragweed. She must also have a bad-weather and drouth attachment so her egg-factory will not shut down when we have a two months' rain; and, if short of stores, or in case of dire necessity, she can raise brood on rain water. I will pay a little above the regular price if she can make us some mistletoe honey. Mistletoe honey is great stuff at a spooning match. It comes on here about Christmas (I mean the mistletoe), when it is awfully cold (not the spooning-match but the weather). If any of you GLEANINGS fellows believe in degeneration I wish you would send me a queen that degenerated from a she bumble-bee so she could curl up in the fall and go to sleep without any thing to eat, and be happy while all the neighbors' bees are kicking for something to eat. Then when spring comes (when we have one it comes anywhere between January and July) she will wake up and hustle her breakfast off from the lilacs. But here is a technicality that might cause some one to turn down the order. If she sleeps all winter, how on earth can she get that mistletoe honey in February? Let's strike out the bumble-bee clause, as I don't want to ask any thing unreasonable.

This brand of bees must have a little latitude. If they can stay here in Indiana and gather mangrove honey in Florida, and, a little later, go after the red-raspberry honey in Wisconsin and Michigan, that will suit me all right. I am not so particular about latitude.

Say! I nearly forgot to order a tongue. Lawsy massy sakes! put a tongue on this one so she can stay in the hive on rainy days and suck the nectar out of the apple-blossoms. What would any thing feminine do without a tongue? Just don't be afraid to put on a good long one, as our trees are high. I have a little garden-hose reel I can lend her if she gets cramped for store room.

But about that stinging apparatus. Better put one on, as the queen never uses them. Only have this one curl up instead of down. It would look so much better, and that is all they are good for any way. Can't I get a queen that knows how to bring up her girls better? Now, boys are like their ma—they never do sting. But the plagy girls! When they sting I try to shame them by telling them their mamma never used to do that way, but it doesn't do any good.

Now, if you can send me a queen that can meet these requirements I will keep the lid on on Sundays, and swarm only when told. I'll try her. About the price, I don't suppose you will guarantee one to do these stunts for seventy-five cents, so suppose I shall have to pay a dollar, as I want her tested. If you prepay the charges you may send her in a special car. If not, send her in one of those wooden pill-boxes for one cent. I will pay this cent, even if I have to; as I said before, I hate a fellow that is unreasonable. I told a newspaper guy to put it in the paper about what a fine queen I was going to have, but he was not educated on bees as I am, and he thought I was lying, and he said that newspapers never publish any thing but what they know is so.



HOW TO CLIP WINGS OF QUEENS WITHOUT DANGER OF CUTTING LEGS.

I practice clipping queens, for I could no more undertake to handle my bees without clipping the queens than I could handle them without a smoker. I have, in the last four or five years, clipped about 2000 queens and haven't crippled or killed one in the operation.

HOW I CLIP QUEENS.

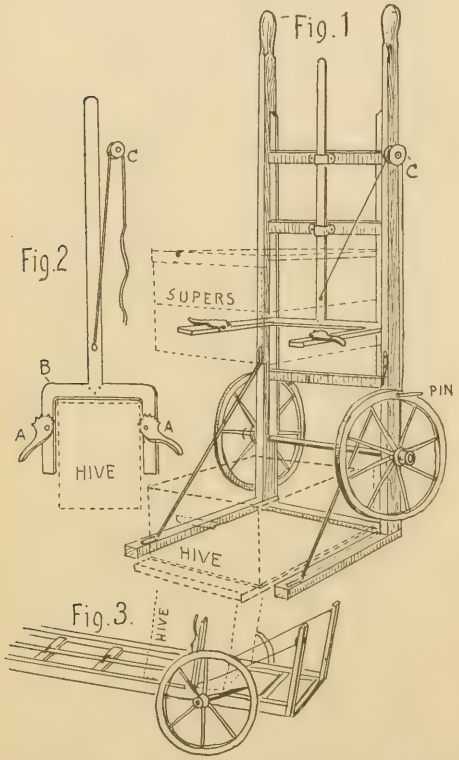
I catch the queen by the wings with thumb and first finger of my right hand and turn her over almost on her back; then catch her by her legs with thumb and first finger of left hand. Never try to hold a queen by one leg, as she will twirl it off. Catch two or all three legs on one side; turn her straight back, and her wings will be over the lower edge of your left thumb-nail. I use small scissors. Take these in the right hand, opened somewhat. Run the back of the scissors along on the thumb nail till you get under the wing you wish to clip. Close the scissors almost together, then clip. Do not open your scissors wide and make one big stroke, but have them almost together. Queens have four wings—a long and a short one on each side. I usually clip the two on one side one-third to one-half off. I sometimes clip queens with the small blade of my pocket-knife by catching her the same way and letting her wings come over the edge of

the hive on top, and clip with a sharp knife. In this way you do not catch a queen by her body, and no danger of hurting her or throwing up her leg and clipping it off.

Chariton, Ia. L. RIEBEL.

A HIVE-LIFTER AND MOVER.

I submit my plan for the much-needed hive-lifter, as shown in the enclosed drawing. The right wheel and axle makes the windlass, after inserting the bolt (not shown) through the hub-band and axle. The frame within the frame has adjustable grip to press the sides of the hive. This frame is lowered to the desired height by the rope on windlass. Turn the grip and the hive or supers



are ready to raise. If we want to move the hive, tip the machine backward so the whole can touch the ground, and remove the bolt from the hub-band. The wheels are about two feet high, and wide enough apart to straddle the hive.

Hartford, Mich. CHARLES KLECHLER.

CLEANING UP MOLDY COMBS; GETTING BEES INTO SUPERS, ETC,

1. Will bees clean up moldy combs that contain dead bees so that they are suitable to use for extracting purposes?

2. Is it advisable to put frames of honey containing some brood in the top story, with queen-excluder between to start the bees working above?

3. Is it necessary to have chaff hives double, and packed on under side?

4. Is it best to uncap sections that are used for bait? ERNEST C. BLODGETT.

Putney, Vt.

[1. Bees will clean up old moldy combs in a very satisfactory way; but not more than one such comb should be given any colony at a time, and that colony must be strong.

The best extracted honey can not be produced in old combs; but if not much brood had been reared in them, they probably would be all right. Whenever it is possible, new combs should be used, or at least combs in which brood had never been reared.

2. Yes.

3. There probably is really no need of having chaff hives packed on the under side unless they are raised on stakes some way so that the bottom-boards are exposed. Our colonies in single-walled hives protected by winter-cases, so that there is a packing-space around the walls, but none under the floors, seem to winter just as well as those in the regular chaff hives in which there is packing under the floors.

4. If bait sections are not uncapped, the new capping will look altogether different from the old, which will have become travel-stained, and for this reason such bait-sections, when finished, can not be classed as fancy. On the other hand, if the sections are uncapped they will be uniform in appearance when finished.—ED.]

SHIPPING HONEY; PRACTICAL SUGGESTIONS FROM A DEALER.

After reading a number of articles in GLEANINGS about the troubles that bee-keepers have in finding a market for their honey I should like to give them a few facts about selling honey to the grocers of this city, as that is my business.

In the first place I find that the majority of the grocers want a case of 24 sections of nice white honey. I say 24 sections, because it is just as easy to sell that size of case as it is to sell a 12-section case to weigh from 21 lbs. to not over 24 lbs., as about the first question they ask is, "How much does it cost me a section?" In most stores honey is sold by the section and not by the pound; but the dealer buys it at so much a pound, and so many pounds net to the case.

I have bought honey from a good many commission men, and do not know of one whose word I could take as to quality, condition, or weight on a lot of honey he had for sale. If a bee-keeper would raise honey, and grade it "fancy," No. 1 and No. 2 white, and the same in light and dark amber, and be honest in doing so, and pack and ship it the way Mr. Wm. W. Chase explains on page 562, April 15, 1907, he will have the same success in finding a market for his honey that Mr. Chase has. And if honey-producers would put a classified advertisement in GLEANINGS, stating what they have for sale, they would find that they could do better in getting a cash buyer for their honey than by sending it to some one to sell on commission. L. H. MOREHOUSE.

Chicago, Ill., July 12.

OUR HOMES

by A. I. ROOT

And he shall turn the heart of the fathers to the children, and the heart of the children to the fathers, lest I come and smite the earth with a curse.—MAL. 4:6.

It has just been my good fortune to have the privilege of spending a couple of hours with Prof. Holden, of Ames, Iowa, the celebrated "corn man." I can not take the space here to tell you about our rambles in the cornfields of this county; but I wish to give you a part of the closing words of his two-hour lecture. His audience was composed largely of old people—perhaps most of them gray-headed. This is a catching time for haying and harvesting; in fact, it was the last day of July when Mr. Holden visited our Medina Co. Chautauqua Assembly, and, as a natural consequence, the young and able-bodied men were most *exceedingly* busy. Said he:

"Now, I have got something to say to you old people, and you want to mark my words. Do not get it into your heads that you will have an easier time by selling out or turning your farm over to the children and going to town to live. Don't do it. The town people do not want you. The country people *do* want you. I know you think there will be a good many comforts in the town, and that you can take things easier, etc. You are making a big mistake. Look around you and see. The people in town are not interested in the stories you tell about the crops you used to raise. And, by the way, please notice that you forget a little, and every time you tell the story you get it a little bigger. The folks in town laugh at you. They don't know you, like your old friends and neighbors in the country, who make allowances. Besides, you are worth more in the country, where you were brought up, than anywhere else in the world, and you will be very much happier there to the end of your days."

The above reminds me of a letter I just received, striking on this very point; and even though the good lady does say at the end, "This is a strictly private letter," I have taken the liberty to copy a paragraph or two, of course omitting the name and address:

I wish to express my gratitude to Mr. A. I. Root for his kind advice as to accepting a present of several colonies of bees six years ago. I had given up my lifework; and I have been led to see that, when elderly people "retire" they go down mentally; and if they go much beyond their allotted "threescore years and ten" they become imbecile much sooner than if busy, even if it be "busy idleness." My bees have increased until I have more than I can manage very well by myself, and the labor problem is something fearful here. I should like to know from some experienced person if one could put a colony "out of commission" in the fall and get honey enough out of the brood-chamber to pay. I hived only swarms that took reasonable places to settle: the rest took to the mountains.*

During the last years of my father's life, when I saw him working on the farm I thought it was too hard for him, and persuaded him to move to town and help me in the store. Well, he did so, and he stood it for about two years; but he was not used to being indoors nor to waiting on customers, and he became unhappy and discontented and out of health; and as the farm was not yet sold he went back there, and soon became, I might almost say, young again, with his cows and horses and pigs and chickens. I have seen many such instances.

Prof. Holden went on to say that when old people decide to stay on the farm they should use a little common sense; and he illustrated it by telling about his own boyhood days. By the way, his home was near Traverse City, Mich., the locality I have told you about so much; and he said, as we were going along through a cornfield, that there was an inspiration and vigor out in the open air in *Northern Michigan* that he never got in any other locality. Now about his boyhood.

He said that, when he was about fourteen years old, one Monday morning his father called the boys out on the porch and said something like this: "Boys, I want you to help me plan about the way in which we shall manage our farm this year. You are going to do a great part of the work, and I want you to advise about what crops we shall grow, how we shall plant each particular field, etc."

"Why," said he, "we boys in our teens grew an inch or two taller that very morning. We went and told the neighbors' boys about it. We talked about *our* farm and what we were going to do and what crops we would raise. In looking back I think that was one of the biggest speculations my father ever went into—making his boys *partners* in the farmwork."

Now, I wish I could tell you the rest, but I can not take space. The boys took a course in the Michigan Agricultural College under our good friend Prof. Cook. Why, I could see and hear friend Cook's words and actions in every move the speaker made while on the stage. It was actually Prof. Cook over again†—his genial smile, his enthusiasm, his peculiar gestures, etc.

Well, after the boys got home from college the father took them out on the porch *again* and said, "Boys, I am getting too old to

* Will some of the veterans or others who have had experience in getting rid of bees where there was no sale for them tell our friend how to get the honey and get rid of the bees? I sincerely hope nobody will take the back track so far as to suggest or advise brimstone at the present stage of our industry.

† By the way, it is not surprising, and it ought to be encouraging, for our great teachers to know that in after-years their impress is left on men and women scattered all over our land. In traveling, every little while I find men occupying important places who got their first training for usefulness in the Michigan Agricultural College; and the greater part of the time it transpires they were pupils under Prof. Cook. May be it is all right as it is, but it has often seemed to me that he was needed more in the great State of Michigan than away off in California, where he is comparatively unknown and out of sight.

run this farm. I am going to turn it over to you. I will be hired man and mother will be hired girl, and we will try to make ourselves useful while God lets us stay with you."

Then he gave us an illustration of how the old father made himself *useful* by letting go of the hard work. One day the mowing-machine was hauled out into the yard. The father said, "Boys, is the haying all done?"

"Yes, all done."

"Then you will have no further use for the mowing-machine this season. I will fix it up so it will be ready for use next year."

"The old gentleman went to work at it very slowly and deliberately," continued Prof. Holden, "examined all the bearings, made such repairs as he could where there had been wear, took off the knives, and the first rainy day when we boys could turn grindstone he ground them up in beautiful shape, stowed the machine where it would be out of the way for the following six or eight months, and finally tied a piece of red rag on it, put up in a conspicuous place, with the understanding that any machine that had the red-rag signal was all in tiptop order and ready for work."

Now, friends, what do you suppose the saving would be during the season if all of your farm machinery was all cared for in that way? How much would such an "old man" be worth on a farm? That is one of the things old people can do, and which they ought to enjoy doing. I believe the old mothers are in the habit already of making themselves useful in that way.

Dear friends, I am sorry to say—in fact, I am sorry to ask you to look about you and note the instances where the young people and the old people *have not* got on well in just the way that Prof. Holden has pointed out. It grieves my heart whenever I hear of old fathers and mothers (especially where they have reared large families) who do not seem to be wanted anywhere. Sometimes the fault is on one side and sometimes on the other. But I am forced to believe it is mostly on account of the way the parents have brought their children up. "Whatsoever a man soweth, that shall he also reap" applies not only to seed corn but to raising boys and girls; and there is nothing in this world that I know of that will turn the heart of the fathers to the children and the heart of the children to the fathers, as in our opening text, like the gospel of Jesus Christ. There is nothing in the world that I know of that will hold the family together like that dear old Bible, the blessed word of God.

Let me say in closing that I am really enjoying my old age. Besides the ducks that I have told you so much about I have my little greenhouse, my flower-beds scattered over the lawn, and a garden of foliage plants, especially such as will not bear the noonday sun, on the north side of the house. Then I have a cutting-bed out of doors where I have learned to make all sorts of things grow from cuttings—the cuttings placed in wet sand. Several times a day I go over the grounds, through the factory, printing-office, and look over that part of the mail that is addressed to myself. When I come across some of the younger ones in trouble or perplexity I really enjoy helping them out. I know the younger people are glad to see me. A shower was coming up a few days ago when they were cutting hay, and they wanted more help. I told them to send to the foreman of a certain department. The teamster replied, "Mr. Root, it will not do a bit of good. They will not pay any attention to it whatever. They will say they have not a man to spare. If *you* will just go over and tell them what you want you will get it in a minute."

Now, friends, here is an illustration of what an older man can do. It is true I might have called men off from almost any job; but if I did not inquire into the matter, I might have stopped some work that was of ten times more importance than the hay with the thunderstorm coming up; but after looking over the ground and shifting men a little from one department to another I succeeded in getting two hands who were experienced farmers, and our hay crop was secured without a bit of injury from rain, except a shower of about ten minutes after the last load was put on the wagon and on its way to the barn. Old men have learned by experience how to manage things without making trouble; and an elderly man who has made a success of business has usually learned how to give emergency orders without provoking ill temper or even bad feeling among his men.

I read a few days ago that the explorers in some of the northern regions came across some Esquimaux who got rid of their old people (their fathers and mothers), when they had ceased to be useful. The way they managed it was to build a little hut of blocks of ice, put the old people in them, then throw water all over the cracks until every crevice was frozen up and sealed, and the old people were left to smother. You see they would be out of sight so the children could not witness their sufferings, and then they would be already *buried* in ice. Of course, the gospel had never been preached in those regions. You are well aware that, away down in the tropics, before Christianity had gained a foothold the old people were thrown over precipices when they were no longer of use. May God be praised that such things are known now in only a very few spots in the remote corners of the earth. In our own United States, as a rule our old fathers and mothers are reverenced, respected, and cared for. There are some exceptions, of course. There are times when either the young people are unfeeling and unfilial, or else the old people are crabbed and cross, so that no one could get along with them. Sometimes they are sent to the infirmary, even when the young people are well-to-do; but the community generally makes a fuss about it, and may God be praised that this thing is not very common.

Let me now say to the dear brothers and

sisters who are getting old and gray-headed, and who begin to think they are not of much use in this world, let me beg of you, dear old friends, to beware how we get into a habit of complaining and scolding and finding fault, even if things are not as they used to be when we were young. If we have pains and aches, let us be careful about having too much to say about it when the younger ones are around. Above all, let us strive to make ourselves useful, and that, too, without worrying the younger folks. Let us strive so to live that they will be glad to see us when we come around. How pleasant it is to have a child—yes, and a grandchild too, say, "O grandma! I am *so* glad you have come! you can help us so very much in the fix we are in!"

And another thing, it will not be half so hard to be cheerful and pleasant and good-natured when we have some little duties of our own to look after. For a year or two past Mrs. Root and I have had no garden of our own—that is, here in Medina. The garden stuff is grown mostly in the fields or in the children's gardens. A few days ago Mrs. Root said, "I should like just a little garden all my own, close by the house, where I can see things grow, and go and get them myself."

I said, "All right, Sue. You shall have a little garden right near by, where you can see it a dozen times a day, and I will make you the daintiest little garden that has ever been seen since the time when Adam and Eve lived together in the garden of Eden."

Well, it took me some time to get it in shape; but now it is one of the joys of my life. Shall I tell you what is in that garden? There are just two cabbages, four pepper-plants, and eight tomato-plants (Mrs. Root is particularly fond of tomatoes); besides this there are four stalks of rhubarb and about fifty strawberry-plants—I have three plants each of all the most popular varieties. For myself I would rather have the old-fashioned Sharpless than any other strawberry grown. The garden is so small and so near by that I can watch every bud and blossom. I find every cut-worm or cabbage-worm as soon as it commences gnawing a single leaf. The tomatoes are trained on a trellis; and it is just fun to tie up the new shoots every morning. The ground was first prepared by plowing under a great lot of old fermented manure from the cow-stable. Then I put on a good dose of bone-dust and ashes. I had to put a two-foot poultry-netting around the same to keep the ducks out; but that two-foot fence serves to keep dogs and chickens and toddling grandchildren from unconsciously and innocently marring our treasures. God's first gift to Adam and Eve was a garden; and, dear gray-headed brother and sister, such a little garden will not only keep you from growing old prematurely, but it will be a great preventive of that fearful thing that is sometimes to be more dreaded than death itself—losing our minds and becoming imbecile. Of course, in that little garden you want the very best and choicest of every thing; and in order that you may have it you should read the papers and keep posted. Why, every new leaf that comes out on my new and choice varieties of strawberries gives me another thrill of pleasure every morning.

HOME TREATMENT FOR TUBERCULOSIS.

Since my write-up in regard to my sister's case a great amount of correspondence has come up; and some professional men have congratulated me on having mapped out the way in which any sufferers might have most of the advantages of an expensive sanitarium while they remain in their own home. So many have made kindly inquiries in regard to the progress toward recovery that my sister is making I have thought best to submit to you a letter recently received from her:

Brother Amos:—I am still taking treatment, and I think that I am getting better; but when such a day as this comes, cold and foggy, I am discouraged, as it is so hard to breathe easily. Your letter, containing the one from California, came yesterday. How nice it seems to feel that even strangers have an interest in one's recovery! I thank you and your friends most heartily. I have a very strong feeling against leaving my home, and for one so advanced in years it seems foolish to think of it. Great cures have been performed here in our own town. I was attracted one morning by a sign "Flowers for sale," in a remote part of our town. While there the lady told me that, five years ago, she was given up by all of the physicians here, excepting one (Dr. McLarty). He told her if she had a bit of sand at her home to go out and sit there all day long. She did so; but soon began to dig, and finally planted seeds, and soon put up a sign, "Flowers for sale." She is now a healthy woman. She supposed she had consumption. I wrote this for the *Advance* last year. Perhaps you may have seen it. I have no sand very near, but think I shall soon try the cure, especially if I go to Onekama. All my mornings are taken up now with the treatment.

This woman where I go has a husband who had consumption, they supposed, years ago. She prepared a remedy that cured him, and is certainly helping me. She takes goose oil (no other will do), chops a lot of onions and cooks them in it, then she adds turpentine, peppermint, and chloroform, then applies it to the surface of the lungs (on cloths wrung out of hot water), and then applies the oil, all the time rubbing the surface till it is well absorbed. Relief is obtained immediately. I am there usually an hour and a half, and feel very much benefited each time. I have told you this remedy, as I know she has performed many cures with it, and a good thing should be passed on. She is greatly in favor of outdoor living also.

With love to all,

SISTER SARAH.

After receiving the above I wrote for further particulars in regard to the treatment, and she gave me the following additional:

My dear Brother:—The woman who gives me treatments is a professional nurse; has her home arranged to give brine baths and massage, but pays particular attention to lung troubles. Several years ago her husband was very low with consumption. They sold their home here and sent him to Colorado. He grew worse there, and she went and brought him home and went to work to save him, and discovered this remedy I told you of. He is working every day, and comparatively well. She says he uses a great many lemons and also eats a great deal of honey, and occasionally he takes quinine if he feels chilly. She has certainly done well for me. I walk over to my daughter's (one-half mile) and back after supper, and do not mind it.

I think it is better for me to stay at home and be quiet. I hope to get so well this summer that I shall not be obliged to leave home this winter. I find when a housekeeper has been laid up for nearly a year there are many things to look after, so I am pretty busy—when I *want* to be.

A CAUTION FROM A TRAINED NURSE.

It is really alarming the numerous cases of tuberculosis that are rapidly developing here. This nurse says, "Our young women are all going to die if they do not change their mode of dress. Such very thin waists, just where there should be protection, and low shoes and thin stockings, are very destructive to health." MRS. C. D. GARDNER.

Manistee, Mich., July 11.

Now, although I am not a doctor I wish to take the liberty of suggesting that the hot water, the rubbing, and the animal oil to wind up with, is about all that is essential. The turpentine may, however, have some beneficial property; and while I think of it I wonder if *duck* oil ("Indian Runner ducks," of course) would not answer just as well as goose oil. May God help us in this effort to help ourselves along the line of God's pure air, outdoor exercise, pure water, and wholesome food.

A HINT IN REGARD TO BATHING.

Some years ago I told you of the wonderful benefit I received while at the cabin in the woods in taking frequent shower baths out in the woods; and I have wondered since then why I did not receive a like benefit when I take a bath (once or twice a week before retiring) here at my home in Medina. I think the secret of it is that, while up in the woods, I wore so little clothing that it was no trouble at all to strip off and take an open-air shower-bath back in the woods out of sight *when I felt like it;* and the times I felt like it were particularly when I was covered with perspiration from working in the potato-field; and I noticed, also, that this perspiration often felt sticky or glutinous, especially when it was the first severe exercise out in the sun that I had had for the season. I had an instinctive feeling at the time that, unless this glutinous sticky matter that seemed to cover me from head to foot were washed off *immediately* it would not all come off. If I sat down in the shade until my body and light clothing became dry, and then took the bath in the evening, even with soap and water, no such exhilaration of feeling followed as with the open-air shower bath at the time I was covered with sticky sweat. Please excuse me if I am taking space to make this matter plain, for I deem it an extremely important thing. I remember that, one afternoon, I had planned to go over to neighbor Hilbert's, a mile and a half through the woods, when I had completed a certain piece of work; but by the time I got through I was so tired that it almost seemed as if I could hardly drag one foot after the other; but after taking a good wash in that shower bath, all the weariness and used-up feeling were gone. Not only had strength come back, but exertion seemed so easy I almost felt as if I could fly. I went over to my neighbor's and back again (three miles) without feeling the least bit of fatigue. I remarked at the time that, if I had taken some drug or medicine, I should have felt troubled about it, because I could not conceive how such an amount of strength and energy could come without any reaction afterward. My comments on the matter were copied by Dr. Kellogg, of Battle Creek, and he called attention to the fact that, in his large medical book, there is a statement that a shower bath is one of the greatest stimulants known, and at the same time, if taken properly, no bad effects ever follow. Now here comes something from the Philadelphia *Farm Journal* which not only indorses but explains the very fact that I have been trying to get before helpless humanity; and the great point summed up is that the very best time in the world *to* take a bath is when you are covered with perspiration, and while it is streaming from every pore. If you are where you can not have access to soap, my opinion is that it does not make very much difference. The glutinous matters that nature throws off will take the place of soap.

The man who works all day in the hot sun, with perspiration streaming from every pore, will at night be covered from head to foot with a thin coating of effete matter, which, if not removed, the absorbents will take right back again and carry back into the body, clogging its delicate machinery and acting as old gummy oil does on a mowing-machine. If he sleeps at night in the same clothes worn during the day, still more of it will be absorbed. When a man comes in tired from the field, it is a temptation to sit down in the nearest chair or lie on the nearest lounge, until, he learns by experience that this is not the best way to rest. If a room can not be spared for this purpose, a shed or lean-to near the kitchen door, would make a good summer bath-room, where basins, tubs, towels, and soap could always be handy; and a quick bath and rubbing, and clean evening clothes, will make a man much more agreeable to himself and others. Here the soiled working-clothes can hang and air through the night, and the evening clothes through the daytime.

SELLING SECRETS, ETC.

The various poultry-journals seem to have encouraged this business of advertising secrets more than any other class of journals. I have sent the money and got quite a number of them; but the secrets are so absurd, and of so little value, that I have not thought it worth while to give them space here in GLEANINGS. I will, however, give you one as a sample. It is a fair average of the whole lot. It was sent in by one of our readers who suggested that I get the valuable secret and give it to the rest. Read it, and see if it does not look reasonable that such an advertisement should rake in the dollars from our hard-working people:

TO MAKE HENS LAY EGGS.

It will make every hen on your farm a steady layer —you can depend on it. It is correct in principle, and has for ages been an approved regime for game cocks to give them courage and endurance.

I have found that for which poultry-men have for years been seeking, viz.: something that will cause hens to lay eggs as well in winter as in summer; something that will do the work, not merely claim to do it. The problem of winter egg production is solved The day of unprofitable hens is past. Poultrymen can now have their hens lay plentifully whenever they desire. Nature's secret is out. I have wrested it from her. It took years of close observation, patient thought, and careful experiment, but the results high-

ly reward the effort. For ten years I worked away in the poultry business, depending on scientific feeding and good housing for winter eggs, as you likely have done, only to be disappointed. I was groping in the dark. Then a thought came to me—it was nature's secret; I knew it at once. I began immediately to experiment. I applied the most severe tests. The results were always the most satisfactory. At any time of the year, and under unfavorable circumstances, hens that were not laying would at once respond to my treatment, and soon begin to lay plentifully, reaching in a short time a 70-per-cent yield, and maintaining that average as long as fed the prescription. Now I am enthusiastic. I have a right to be. My secret is worth more to the egg-farmer than all else he has ever learned. I now wonder that I did not make this discovery sooner; and when you learn my secret you will wonder that you never thought of it. You will agree at once that it will bring you success, because you will work in harmony with nature.

It is not difficult to get. The ingredients can be bought in any drugstore. It will not weaken your stock; it makes them bright and vigorous. Remarkable results have been obtained from the use of the formula. Neighbors will wonder by what method you secure such numbers of eggs.

Fill out this form and enclose it with one dollar, and these secrets will be mailed to you; and after having received them I am confident you will freely concede it was the most profitable outlay ever made.

Bradford, Pa CHARLES STEWART.

The conditions were, of course, that I should send along with the dollar my signature to a promise not to divulge, etc. I did not make the promise, however, but I got the secret all the same. In fact, I do not know that I have ever failed. When these chaps get hold of cash it is too hard work for them to let go of it and send it back. Well, here is the substance of what I got for my dollar:

FORMULA "A."

Stir into the water for the daily mash one drop for each four or five hens of tincture of cantharides.

FORMULA "B."

Stir into the water for the daily mash one teaspoonful for each 30 or 40 hens of common black gunpowder.

Feed formula "A" each day for one week and then alternate with formula "B;" i. e., feed "A" one day, "B" the next, and so on.

It is not necessary to feed these condiments every day after the first three weeks Once every three or four days will be often enough then, but feed formula "A" every fourth day all winter. In mild weather once a week is often enough. Each time "A" is fed, the following day feed "B."

Wonderful to tell! Tincture of Spanish flies and gunpowder! I wonder if a little dynamite or nitro-glycerine in homeopathic doses would not work better still. Well, I shall have to confess that I have not even tried the above, even if I did invest a dollar. I object, not only to dosing *chickens* with drugs and chemicals, but I object to drugging humanity in the same way. One of our best physicians said recently that giving medicine was a bad way to cure folks, any way you can fix it. Granted that medicine does sometimes give relief or effect a cure, he said that, in the majority of cases, the drug may make a disturbance somewhere else, so that in the end it is a question whether the medicine was a real benefit or not. Now, if any of you poultry people want to try cantharides and gunpowder, all right—go ahead. You have the great secret without its costing a dollar each all around.

While the above was in my hand a letter was handed me inclosing an advertisement headed "A chance to make money." It is the "California cold process" of keeping grapes, peaches, apples, etc., fresh. The way you "make money" is by going around among your neighbors and getting a dollar of each by showing them the trick. If you send any money, however, you will find you have been tricked yourself. To do the "trick" you have to go to the drugstore and get some "compound extract of salix." A footnote says, however, that some druggists do not keep it (you will find *no* druggist keeps it), but they will send you enough for a dollar to put up a great lot of fruit. Now, this does keep fruit after a fashion; but after having sampled some of it I do not call it good; and, besides, they use a preservative that has been pronounced unwholesome, and which has been ruled out by the government. The rascals who advertise this should be sent to the penitentiary; and something ought to be done with the papers and periodicals that accept such advertising. I have repeatedly warned our readers against investing in the same thing. See GLEANINGS for Sept. 15, 1906.

YELLOW SWEET CLOVER, ETC.

What is the best time to sow it? Are there two kinds of the yellow? I got enough of G. W. York to sow an acre, and sowed it in with oats It came up well, and grew four to six inches high, then bloomed. None of it reached 12 inches high, and I believe every bit of it died, root and stalk. What is the trouble with it? I sowed three acres of the white sweet clover at the same time and in the same way, and it is all right. I never heard the white variety blooms the first year.

I am much interested in honey-plants. I have sown buckwheat for many years among the corn, just before plowing it the last time over, solely for the bloom or honey, and I am satisfied it has paid me well one year with another, even if it does fail some years.

I tried a bushel of that new hulless buckwheat last year. It grew finely and bloomed heavily, but scarcely a bee touched it. I shall try it once more. It is a big producer, but it is hard to save the seed, as it falls off so easily. M. W. HARRINGTON.

Williamsburg, Iowa.

So far as I know, there is only one kind of yellow sweet clover; but it is much more inclined to blossom the first year than the white. It blossoms earlier, and does not grow so tall; but I think yours that grew only four to six inches must have been on unsuitable soil or the weather was not favorable. I have never known it to blossom so early. There is a constant unsupplied demand for *yellow* sweet clover. As soon as anybody has any seed for sale I wish he would let us know. Your idea of sowing buckwheat among the corn at the last cultivation is something I do not remember to have heard of before. But we get very good crops of crimson clover sown in the same way, and I can not learn that there is any objection to sowing crimson clover with

buckwheat as a regular thing. In our locality the crimson clover comes right on rapidly as soon as the buckwheat is harvested, or killed by frost, and it has always wintered nicely with us so far. I do not remember that I have before heard of the hulless buckwheat that you speak of. Can anybody else tell us about it, and tell us where the seed is offered for sale?

SWEET CLOVER—DOES IT WINTER KILL?

The seed you sent me I sowed on clay land last spring, 1906. It made a good stand last summer. It is almost 3 ft. high now, and looks fine, but it winter-killed in spots, making it uneven. I think it would be a fine clover for the South; but I fear it winter-kills too badly for the North.

Lanesboro, Ind. CLARENCE NEAL.

Friend N., we have never had any trouble with winter-killing when the seed was sown tolerably early—say before July. When sown in the fall it has sometimes failed to winter over. But the seed that drops off and sows itself always makes a stand with us, especially along the railroad tracks where the hard clay subsoil is piled up in heaps. These heaps are covered with a dense rank growth of sweet clover year after year, where it is not molested, and where cows and other stock can not get a chance to eat it off.

JAPANESE CHESTNUTS; THEIR QUALITY; WILL THEY BEAR?

Mr. Root:—Some time ago you said you wanted to hear from subscribers who had been raising chestnuts. I bought some Japanese Mammoth chestnuts, and planted them, and they came up and grew, and bore nuts in about four years. The nuts are very large, about 1¾ or 2 inches across, and are of very poor quality according to my estimation. They tasted about like a red-oak acorn, but not quite as astringent. They might be better cooked, or in other localities they might be better than they are here. I never tried them any way except raw.

Paducah, Ky. ALBERT R. SHERRON.

Why, friend S., that is just wonderful, if you grew a tree that bore nuts in four years from the time they were planted. I do not quite agree with you in regard to quality—that is, if yours are like those I have found on the market. It is true they are not very palatable when raw; but when properly roasted I find them not only delicious food, but very nutritious, and easy of digestion. I am inclined to think there is a difference in quality, for the tree I have mentioned on our premises bore one nut last season that was as rich and sweet as almost any of our native American chestnuts. Well, if we can expect to get bearing trees in four years, quite a lot of us will go to planting chestnuts. I suppose they should be planted in the fall, soon after being gathered. Who can tell us more about this?

THE "DANDELION COW," ETC.

Quite a number of our agricultural exchanges have copied what I said in regard to the value of dandelions for milch cows, the New York *Tribune* included; but only one of them seems to have had practical experience enough to indorse my statement. Here is what T. B. Terry says about it in the Philadelphia *Practical Farmer:*

Mr. A. I. Root, in GLEANINGS, tells of the wonderful effect that a dandelion pasture produced in giving a free flow of milk in his family cow. We have found the dandelion, when grown in a sunny exposure in early spring, one of the best milk-producers imaginable, and giving a rich golden-yellow color to cream and butter.

What I wish to get at particularly is this: Is this cow of ours peculiar, or would all cows take dandelions, or the majority of them, as this one does? And is it the fact that these dandelions which grew unusually rank (because they were on rich underdrained soil) were more greedily appropriated by the cow?

LATEST FROM OUR ROBINSON CRUSOE ISLAND.

Dear Friend:—Your letter is at hand asking about the Caucasians as honey-gatherers. I really don't know, for I haven't given them a good test because I have been drawing from them so much to keep nuclei going. They began storing honey first, and I didn't know whether it was the bees or location; but the apiary on the main land has averaged better; but taking bees from these continually would surely make a big difference. I have taken 1600 lbs. of honey, and think there is four or five hundred more about ready—about all cabbage honey. Mr. Drumwright says he never before knew the palmetto cabbage to make such a yield.

We are very sorry Mrs. Root is having her old trouble. It must be bad not to be able to sleep in hot weather. Tell her to come and listen to those singing hens—one of your white ones especially. She is the most wonderful "singer" I ever heard. It is her daily stunt to march around the house and sing at the very top of her voice, until the women-folks declare she seems to want to proclaim to all the world that *she* belongs to Mr. Root; and how she *does* lay—*almost* an egg every day since you left.

Osprey, Fla., July 30. I. T. SHUMARD.

I will explain to our readers that that particular pullet's mother was remarkable because she was always laying eggs or raising chickens every month in the year, even in Florida, where hens seldom lay during the hot summer months. In order to get in more time she always began laying when her chickens were ten days or two weeks old; and then as soon as she got another nesting of eggs she would begin sitting again. I am glad to know that at least some of her five daughters have inherited some of her valuable traits.

THE ONLY SOLUTION OF THE LABOR QUESTION.

We clip the following from an article in the *Chicago Advance:*

Men who want open saloons and closed churches on Sunday will never establish enough rights to be worth talking about. But if all the wage-earning world were to "repent and be converted" most of the labor problems would be solved before the year is out. When the masses turn to God they will turn this old world of ours upside down and set it right side up so quick that the angels will come down to join in celebrating the achievement.

The above does not include with the "wage-earning world" the employers and capitalists as well, but the writer no doubt means that that should be so understood. When the people generally, rich and poor, turn to God there is no question but that the angels in heaven will *gladly* come down to join in the celebration.

IN THE HEART OF MICHIGAN

Did you know that within one hundred miles of me are over three-fourths of the bee-keepers of Michigan? Are you one of them? If so you will find it to your advantage to write for my new catalog. A full line of Root's Goods at Root's Factory Prices. Hilton's double-walled hives are used more than any other in my State. It has stood the test of thirty years. . . . . I ship goods promptly. Wholesale or retail. . Cash or exchange for beeswax at all times.

George E. Hilton - - Fremont, Michigan

NOW is the Time to Order Your

BEE-SUPPLIES

AND SAVE MONEY

IT will cost you only one cent for a postal card to get our **delivered prices on Dovetailed Hives, Sections, Section-holders, Separators, Brood-frames, Foundation, Smokers, Extractors, Shipping-cases, etc.** It may mean a saving to you of many dollars. It is the natural advantage we have over others that enables us to make you the Best Price. There are no better goods than ours, and we GUARANTEE SATISFACTION or REFUND your MONEY.

We MANUFACTURE and keep in stock all standard Bee-goods, and can ship promptly.

MINNESOTA BEE-KEEPERS' SUPPLY COMPANY

NICOLLET ISLAND, No. 20. (JOHN DOLL & SON, Props.) MINNEAPOLIS, MINN.

BINGHAM BEE-SMOKER AND KNIFE.

What catalogs say :

The A. I. Root Co., Medina, Ohio: "The cone fits inside the cap so the liquid creosote runs down inside of the smoker."

Chas. Dadant & Son, Hamilton, Ill.: "This is the smoker we recommend above all others, and it has given universal satisfaction."

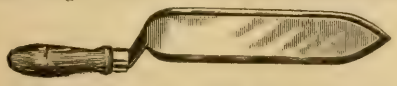
G.B.Lewis Co., Watertown, Wis.: "We have sold these for a good many years, and never a complaint. They include all improvements."

Marshfield Mfg. Co., Marshfield, Wis.: "The original direct-draft Bingham Smoker is the best smoker made."

The Bingham Smokers and Honey-knives have been the standard in America and every European country 29 yrs. There is no *smoker* so *old*, so *new*, so *perfect*. Accept thanks for 30 yrs. liberal patronage.

BINGHAM SMOKERS. Name.	Size of barrel.	Price of 1	Price of 3	Postage.
Smoke Engine	4-inch	$1 25	$3 45	25
Doctor	3½ "	85	2 40	25
Conqueror	3 "	75	1 95	25
Large	2½ "	65	1 65	25
Little Wonder	2 "	50	1 35	15

Three larger sizes in heavy copper at 50c ea. extra.



Bingham Uncapping-knife, 70c; postage 10c.

T. F. BINGHAM, FARWELL, MICH.

TO THE

BEE-KEEPERS OF CANADA.

WE are pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we do not offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

E. GRAINGER & COMPANY,

Deer Park,

Toronto, Ontario, Canada.

CANADIAN AGENTS FOR
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

H. M. Arnd, Prop'r York Honey and Bee-supply Co. (NOT INC.)

Long-distance telephone, North 1559. CHICAGO, ILL. 191-193 East Superior Street.

Carries a full line of new Lewis Bee-supplies, Hershiser Wax-presses, etc. Slightly damaged Poultry and Bee Supplies at greatly reduced prices while they last. Send for 1907 catalog and fire-sale list. Beeswax wanted. Italian Queens, Nuclei, and full colonies in up-to-date hives for sale.

JOBBERS FOR
Central Pennsylvania
. . . for . . .

ROOT'S GOODS.

TRY THE DANZ.
COMB-HONEY HIVE

The Danzenbaker hives I got last season have given splendid satisfaction; in fact, I have kept my bees outside this winter, which is seldom attempted in Manitoba, and up to date they have come through in splendid shape. I think the hive did it.
Yours truly, LAURENCE C. CLARKE.
Morden, Man., March 5, 1907.

Send for catalog. Best shipping facilities in the State.

Frank W. Prothero
Dubois, : : : Pennsylvania

North Texas . .

. . Bee-keepers

will find Dallas the best point from which to purchase supplies. We have a carload of ROOT'S GOODS IN STOCK, and sell them at the Factory Prices. Don't forget that we can furnish any thing in the way of Field or Garden Seeds, Plants, and Poultry Supplies. Our large illustrated catalog for 1907 free on application. Mention GLEANINGS when you write. . . . . .

Texas Seed and : Floral : Company
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NORTHERN NEW YORK BEE-KEEPERS.

BUY your supplies where you can buy to the best advantage. Save freight charges and time. Large stock of new goods. "Root's goods." Cash paid for beeswax. Send for catalog and price list.

A. H. REEVES & CO., Watertown, N. Y.
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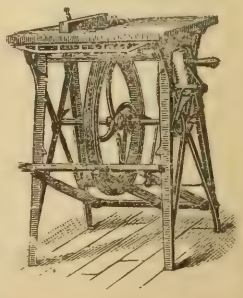
HAND and FOOT POWER MACHINERY



This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, etc.

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Send for illustrated catalog and prices. Address
W. F. & JNO. BARNES CO.
545 Ruby Street,
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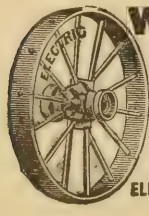

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Don't break your back and kill your horses with a high wheel wagon. For comfort's sake get an

Electric Handy Wagon.

It will save you time and money. A set of Electric Steel Wheels will make your old wagon new at small cost. Write for catalogue. It is free.

ELECTRIC WHEEL CO., Box 95, Quincy, Ill.

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SWARTHMORE QUEEN-REARING OUTFIT

Prices of Complete Outfits:

Outfit No. 1--Experimental

POSTPAID, $1.50

1 Cell-bar, 1 Holding-frame,
16 Waxed Flange Cups, 12 Transfer-cages.

Outfit No. 2--Amateur

POSTPAID, $3.50

2 Cell-bars, 1 Holding-frame,
35 Waxed Flange Cups, 18 Transfer-cages,
1 Needle, 1 Cell-stick.

Outfit No. 3--Professional

BY FREIGHT OR EXPRESS, $7.50

2 Blank bars, 2 Cell-bars,
3 Holding-frames, 1 Incubating-cage,
1 Cage-pocket, 1 Grace Cell-compressor,
1 Grafting-plug, 100 Flange Cups,
2 Double mating-boxes, 2 Swarth. nursery-cages,
1 Bar-holder, 24 Transfer-cages,
1 Swarm-box with lid, 1 Needle, 1 Stick.

Prices of Separate parts:

		post. extra
Bar-holder	$ .10	.04
Blank Bar	.05	.04
Bottle Feeder	.10	.05
Bulb Filler and Feeder	.75	.08
16-hole Cell-bar	.10	.02
Cage-pocket	.25	.09
Flange-cups, unwaxed, 1c each; per 100.	.75	.09
Flange-cups, waxed, 2c each; per 100	1.75	.14
Grace Cell-compressor, each	1.75	.14
Grafting-needle, each	.15	.01
Grafting-plug, each	.10	.01
Grafting-stick, each	.10	.01
Holding-frame, each	.10	.05
Incubating-cage, each	.35	.07
Double Mating-boxes, complete, $1.00; 10	7.50	
Nursery-cages, complete, waxed cell-cup	.35	.05
Nursery-cages, no cups	.25	.04
Swarm-box, with lid	1.00	
Swarm-box, lid only	.25	
T Stands, each	.10	.06
Transfer-cages	.10	.02

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Northwestern Bee-keepers!

We are headquarters for the ROOT supplies for the States of Montana, Minnesota, the Dakotas, and Western Wisconsin.

You can save freight by ordering from this branch. A complete line of bee-keepers' supplies always in stock.

Secure a catalog at once.

BEES and QUEENS.—Your orders will be attended to.

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to all points in the South and Middle West.

Send for our free illustrated catalog of

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We sell at factory prices.
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202-204 Market St., **St. Louis, Mo.**

Manufacturers and Jobbers of Dairy, Creamery, Ice-cream, and Poultry Supplies.

ITALIAN

QUEENS

AND NOTHING BUT ITALIANS

A superior improved strain, Northern-bred, are hardy and vigorous; always come out strong in the spring. Our stock is well known, and not necessary to say more here. :: :: :: :: :: :: ::

Send for circular and list of testimonials.

Prices of Queens after July 1.	1	6	12
Select queens	$ 75	$4 00	$7 00
Tested queens	1 00	5 00	9.00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	5 00	

Young queens from our improved stock is the best security against poor seasons. Requeen now and have bursting strong colonies in the spring. We employ 500 swarms. Queens sent outside of United States or Canada, 25 cts. extra.

QUEENS NOW READY!
SAFE ARRIVAL AND PURE MATING GUARANTEED.

Address all orders to

QUIRIN-THE-QUEEN-BREEDER
Bellevue, Ohio.

BEES and SUPPLIES
— FROM —
NEW YORK CITY.

For fourteen years we have been furnishing every thing the Eastern bee-keeper needs. Our office and warerooms are at the same old stand—105 Park Place, New York. Full colonies Italian bees in new hives, $9.00. Catalog free.

Apiaries, Glen Cove, L.I. I. J. STRINGHAM.

ROSE LAWN QUEENS

ABHASIANS: In order to distinguish our superior Caucasians of the genuine imported Abhasian stock from the common dark Caucasian, we have termed them "ABHASIANS." These are the YELLOW CAUCASIANS and possess all the valuable characteristics of the race in addition to their color, which commends them to the lover of bright color.

Untested queens, $1.50; tested, $2.00.

BANATS: The backward season renders it impossible to ship these before July. Choice untested queens from imported stock, at $2.00.

ABHASIANS OR BANATS imported direct to customer, $6.00.

Golden and red-clover Italians ready for shipment.

ROSE LAWN APIARIES, College View, Neb.

ITALIAN QUEENS and BEES

I can supply select untested Queens until November 1st at 50 cts. each; $5.00 per dozen. Orders for early delivery will receivecareful attention.

David S. Hurst, Box 102, **Letohatchee, Ala.**

Caucasian and Long-Tongue Italian Queens.

1905, '06 Queen-breeder in Apiary of Dept of Agriculture, Washington, D. C.

Both Races.	1	6	12	
UNTESTED,	$ .60	$3.35	$6.50	TESTED $1.25
SELECT "	.75	4.00	7.50	SELECT TESTED, 1.50

Satisfaction Guaranteed. Descriptive Cir. free.

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Queens from 65 Cents Up!
Bred from Root's Imported Italians. Write for prices, stating wants. . .
C. M. Church, Arnold, Pa.

MINNESOTA QUEENS

Nothing Better. Try Them.
Three-band and Golden Italians.

We warrant our bees free from disease of any kind, and guarantee safe arrival of all queens. We want your orders and will fill them promptly on and after June 1st, at 75 cts. untested, and $1.25 for tested of either strain. A postal will bring you a circular. Send your orders to

MENNIE & FENTON,
Pine Island, . . Minnesota.

Taylor's Strain of Italians is the Best

Long tongues and goldens are the best of honey-gatherers; 18 years a specialty, breeding for the best honey-gatherers. Untested, 75 cts. each, or $8.00 a dozen; tested, $1.00 each, or $10.00 a dozen; select tested, $1.50 each. Breeders, the very best, from $3.00 to $5.00 each. Carniolans same price as Italians. Try them. We sell nuclei and full colonies. Bees in separate yards. Safe arrival guaranteed. Send all orders to

J. W. TAYLOR & SON, Beeville, Bee Co., Texas.

"Better than an Island" Queens

There are no other bees within five miles, and so pure mating is guaranteed. The fastest trains stop here, and hence when you order queens they are not away from the colony long enough to impair their usefulness. The *Banat* bees are my specialty. They are the best and gentlest bees in the world. They work when others are idle and make snow-white comb. Queen-breeders should secure their breeding-queens from this pure stock, imported from Austria. Order now. Laying Banat queen, $2.00; laying golden Italian queen, 75 cts.; tested queens, one year old, double these prices; breeders from $5.00 to $15.00.

DELE COLLINS, PH. D., :: EMPORIUM, PA.

3-BANDED ITALIAN BEES.

The best all-round bees on earth. My stock is composed of selections from my own strain of 3-banded Italians that were awarded diploma at the Pan-American Exposition, and The A. I. Root Co. clover stock.

Tested queens, $1.50; select tested queens, $2.00; fair breeding queens, $3.00; extra select breeders, $5.00—ready to go promptly. Untested 1907 queens, $1.00; select untested queens, $1.25—ready early in March. Yours for a prosperous 1907.

W. O. VICTOR,
Queen Specialist, HONDO, TEXAS.

W. H. Laws says, If there is a queen-breeder who can boast of better stock let him trot out the proof. Testimonials enough to fill this book. Will give you only one. Mr. J. C. King, Washington, D. C., writes, "For two years I have had one of your queens in my apiary. Each season she has given me over 200 lbs. comb honey; last season she actually stored while other colonies starved. I have over twenty strains in my three apiaries, but yours is the best."

Now is the time to get a fine breeding queen; stock up this fall and double your crop of honey the coming season. Single queen, $1.00; 6 for $5.00. Extra select breeders, $5.00. Safe arrival and satisfaction guaranteed.

W. H. LAWS, Beeville, Bee Co. Texas.

Special Offer for the Season for Queens.

Golden-all-over, Gray Caucasian, and Banats

FIVE HUNDRED queens ready to mail. All queens mated with select drones; no foul brood here; all hardy stock. Banat bees from Hungary. This wonderful new race of bees takes the lead of all other races; are great honey-gatherers; builders of very white combs; do not stick the joints all over with propolis so that the frames can not be moved; very gentle, quiet on the comb; are not inclined to swarm; if a hive is boiling over with bees they will keep at work while other races are swarming. My Banat bees were gathering 42 lbs. extracted honey while many other races were loafing.

Price list from Aug. 1.

GOLDEN-ALL-OVER QUEENS.

Untested queens, 1, 75 cts.; 6, $4.00; 12, $7.00.

GRAY CAUCASIAN QUEENS.

Untested queens, 1, 75 cts.; 6, $4.00; 12, $7.00.

BANAT QUEENS.

Untested queens, 1, $1.00; 6, $5.00; 12, $8.00.

Also fine tested and breeding-queens. We are ready to fill orders by return mail. Ask for price list We guarantee safe arrival in lots of one hundred or more. Ask for special price.

The Snyder Apiaries
Lebanon, Pa.

NONE BUT THE BEST

QUEENS

are sent out by our firm; should any prove unsatisfactory, we promptly replace them. Try our strain of three-band Italians; they will not disappoint you. Tested queens, $1 each; untested, 75 cts., $8 per doz.

J. W. K. SHAW & CO., LOREAUVILLE, IBERIA PA., LA.

—ITALIAN QUEENS—

Red-clover and Golden

Untested: 1, $1; 6, $5. Select untested: 1, $1.25; 6, $6. Hardy, Prolific, Gentle. Great Honey Gatherers.

Satisfaction guaranteed.

W. A. SHUFF, 4426 Osage Ave., Philadelphia, Pa.

Moore's Long Tongue and Golden

Fine select untested queens, $1; 6, $5; 12, $9. Tested, $1.50; 6, $8. Breeders, $3.50. Safe arrival gar'd.

Queens

W. H. RAILS, - ORANGE, CAL.

QUEENS of MOORE'S STRAIN OF ITALIANS

Produce workers that fill the supers, and are not inclined to swarm. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Mr. W. Z. Hutchinson, editor of the *Bee-keepers' Review*, Flint, Mich., says: "As workers, I have never seen them equaled. They seem possessed of a steady, quiet determination that enables them to lay up surplus ahead of others. Easier bees to handle I have never seen."

My queens are all bred from my best long-tongued three-banded red-clover stock (no other race bred in my apiaries), and the cells are built in strong colonies well supplied with young bees.

PRICES: Untested queens, 75c each; six, $4; doz., $7 50. Select, untested, $1.00 each; six, $5; doz., $9.00. Safe arrival and satisfaction guaranteed.

Descriptive circular free. Address

J. P. Moore, Queen-breeder, Rt. 1, Morgan, Ky.

Yellow from Tip to Tip!

My Adel bees and queens are very handsome. Every queen a breeder, and guaranteed to produce golden queens and beautiful bees; non-swarmers, very gentle, and hustlers for honey. Each queen, $1.00. Catalog ready. **H. ALLEY, Wenham, Mass.**

Try the Robey strain of three-banded Italians that have become so famous all over the country as honey-gatherers. W. L. Coggshall and E. W. Alexander have both said in their writings to GLEANINGS that in extracting they always found better filled combs when they came to colonies containing the Robey queens. Many of the largest honey-producers of this and other countries use the Robey queens and pronounce their bees high-rollers for honey. Warranted queens, 75 cts. each, $4.25 for six. Safe arrival and satisfaction guaranteed, or money refunded.

QUEENS

L. H. Robey, Worthington, W. Va.

Special Offer.

For the next ninety days I will sell my choice Italian red-clover honey-queens at the following prices: untested, each 75 cts.; half doz., $4; tested, $1 each; six, $5. Every queen guaranteed to give entire satisfaction.

Fred Leininger, Ft. Jennings, O.

Virgin Queens

are not injured in the mails. Give them a trial and you will be pleased. Instructions for introducing, free. Select Italian virgins, 40 cts. each; dozen, $4.50.

GEO. H. REA, Maplewood Apiary, R. 2, Reynoldsville, Pa.

500 YOUNG RED-CLOVER AND CAUCASIAN QUEENS

Ready now at 75 cts. each; tested, $1.00.

G. ROUTZAHN, :: BIGLERVILLE, PA.

ADVANCE BEE-VEIL (postpaid) 50c

Made of imported French tulle veiling, cotton with silk face, and cord arrangement, which permits the wearer to handle bees in shirt sleeves, with no chance of bees crawling up and under veil. With a hat of fair-size brim you are as cool and comfortable, movements as free and unrestricted, and as secure from stings, as if you were at the sea-shore. No wire screen dancing around and wearing the hide off the end of your nose, and the cord arrangement does away with the hot, stuffy, uncomfortable feeling of other veils. Bee-stingers are extra long in August; get our veil by return mail and be comfortable.

Here is what the general manager of the National Bee-keepers' Association has to say about the Advance Bee-Veil.

A. G. WOODMAN CO. Platteville, Wis., April 7, 1906.
Enclosed find 50 cents for one of your veils. N. E. FRANCE.

A. G. WOODMAN CO. Platteville, Wis., April 14, 1906.
Bee-veil just received and is as advertised, the best on the market. Find enclosure for ten more veils. N. E. FRANCE.

A. G. WOODMAN CO. Platteville, Wis., June 10, 1907.
Please send me two more of your bee-veils. I have tried all kinds and yours are best of all. N. E. FRANCE.

A. G. WOODMAN COMPANY, GRAND RAPIDS, MICH.

BREEDING-QUEENS

AT THIS SEASON OF THE YEAR better queens are bred than at any other. This is natural, as the conditions are most favorable to a high organic development of the queen. For this reason this is the time of times to look around for a breeding-queen of high quality. By watching the performance of a queen now, we are in a good position to judge what she can do. Those who intend to get a new breeder for next season's operation ought to bear this in mind and get in their order for what they will need in ample time. Even if they do not require the queen at once it would be safer and better in every way to order now what is needed.

Spring compared with summer is a poor time to order select breeding-queens by mail for several reasons, and we advise parties desiring an extra-fine breeder to send their orders now. If desired we will retain the queen till next spring, sending it at the first favorable opportunity. We desire to impress on our customers that it takes careful observation during the height of the breeding season to determine just what a queen is worth as a breeder for producing fancy stock. Prices are as follows:

Breeding-queen $5.00
Select Breeding-queen 7.50
Extra-select Breeding-queen. . 10.00

Special breeding-queens at $25.00 and up a matter of correspondence.

THE A. I. ROOT CO., MEDINA, O.

R. DEGEN & CO.

NEW DURHAM, N. J.

IMPORTERS OF QUEEN BEES.

Banats from Hungary.
"Echte Lüneburger Heide Bienen"

for late flow. Very prolific. From Hamburg queens are in charge of responsible parties who will care for them across the ocean, thus eliminating the danger of the mail-bag. Price $5.00 each.

Italian Queens

Golden, Three-banded, or Leather-colored. Write for circular to-day. . Prices right. . Queens all right.

Robt. B. McCain, Rt. 1, Oswego, Ill.

TRY

Miller's Italian Queens

Untested—in May, 90 cts.; after June 1st, 60 cts. Tested—in April, $1.40; May, $1.25; after June 1st, $1.00. One, two, and three frame nucleus, and full colonies with tested or untested queens at proportionately low prices. Send for free price list. Remittance by P. O. money-order on Bluffton P. O. preferred.

THE STAR APIARY, S. E. Miller, Propr., BLUFFTON, MO.

Golden Italian Queens

Guaranteed—"Nuff Ced." Untested, 75 cts.; six, 4.0; dozen, $8.00. Select, 25 cts. extra. Tested, $1.25 up. Your order right back, if you say so, if order can not be filled in two or three days.

J. B. CASE, PORT ORANGE, FLA.

Northern New York Bee-keepers.

10 PER CENT DISCOUNT.

We have a large stock of shipping-cases and feeders, and all orders for same will be filled promptly. Beeswax and old combs wanted; cash or trade; 10% discount during the month of Sept. on every thing but cases and feeders. Comb honey wanted; write stating how put up, kind, and lowest cash price deliver'd in Watertown, N. Y.

A. H. REEVES & CO., 17 Morrison St, WATERTOWN, N. Y.

Italian Queens

Fine young prolific three and five banded Italian queens by return mail. Untested, only 60 cts., or $6 00 a dozen; tested, 75 cts., or $8 00 a dozen; extra fine queen, $1.00. Directions for introducing go with every queen.

J. L. FAJEN, ALMA, MO.

IMPORTED

Caucasians, Carniolans, Cyprians; and Banats (Hungarians). Largest stock in America. Choice breeding-queens by return mail. $4.00 each.

FRANK BENTON, WASHINGTON, D. C.

Classified Advertisements.

Notices will be inserted in these classified columns at 20 cents per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Help Wanted.

WANTED.—Man for balance of season to prepare bees for winter, and do such other work as may be required. W. HICKOX, Berthoud, Colo.

WANTED.—Six salesmen wanted to introduce our new State surveys. An absolute new idea and a splendid opportunity for energetic men.
RAND, MCNALLY & COMPANY, Chicago, Ill.

Wanted, Situations.

I would consider operating 500 to 1000 colonies bees next season; small salary and per cent of profits; will go to any part of the United States, or can secure one of the finest locations in Texas.
H. H. HYDE, 416 Temple Bldg., Houston, Texas.

For Sale.

FOR SALE.—New patent on bee-hive. For particulars write
CHAS. SPIERLING, Dolton Station, Ill.

FOR SALE.—20-light acetylene generator, first-class condition. G. A. WATT, Bellevue, Ohio.

FOR SALE.—Opaline honey-jars, all kinds; send for price list. HAROLD E. SHORE, Germantown, Pa.

FOR SALE.—Fine job-printing outfit.
C. A. STEBBINS, Broad Creek, Va.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1907 send your name and address to FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE.—Best Wisconsin sections, per 1000, $4.00; No. 2, $3.40; plain, 25 cts. less. Discounts on Danz. hives and other Root's goods; also berry-boxes. Italian bees for sale. H. S. DUBY, St. Anne, Ill.

KODAK and Camera users, send us your developing and finishing. Send for price list. A full line of Kodaks, films, and all Photo Supplies.
FURNAS & MADDOX, 552 A, Louisville, Ky.

FOR SALE.—60-lb. cans. Just received three cars honey in new cans and cases; look good as new. Empty cases in quantity lots, 30 cts.
J. A. BUCHANAN & SONS, Holliday's Cove, W. Va.

FOR SALE.—Homestead farm crops in their season, consisting of honey, grapes, pears, apples, etc.
C. J. BALDRIDGE, Kendaia, Seneca County, N. Y.

FOR SALE.—The following foundation-mills. Wish to dispose of them at once. Write for sample if interested, and fuller information will be given about any mill.

Mill No. 1—14-in., old-style high frame, in perfect order, price $15.00.

Mill No. 2—6-in., old-style high frame; has had a pin run through the rolls, otherwise is in good order; price $8.00.

Mill No. 3—12-in. new style, large rolls, used but very little, in perfect order; price $25.00.

Mill No. 4—12-in. blank rolls, used but little, in perfect order; price $20.00.

Mill No. 5—6-in. mill, new style, in perfect order, used but little; price $12.00.
W. W. BLISS, Duarte, Cal.

FOR SALE.—Fifty cases of one-gallon (will hold 12 lbs. honey) friction-top tin pails. Put up six pails in a very strong case. Price per single case, 80 cts.; in lots of five or more, 75 cts each. S. C. SWANSON,
Cannon Falls, Minn. Rt. 2. Box 78.

Real Estate for Bee-keepers.

FOR SALE.—The oldest and best bee-supply business in the South. Two-story brick factory, fully equipped, two large apiaries, and a good trade in queens and bees. Reason for selling, approaching old age, and other interests. Full particulars by mail. Address
BEE-SUPPLIES, Box 474, Montgomery, Ala.

FOR SALE.—Small homestead, first-class buildings, fully equipped apiary, in one of the most desirable locations to be found. Will sell for less than the improvements can be replaced for. This was the home and the apiary of the late B. Taylor. Write for particulars. JEWELL TAYLOR, Rt. 5, box 23,
Preston, Minn.

FOR SALE.—652 acres of choice land in the prairie-belt of east Mississippi, situated 12 miles east of Macon, Miss. Telephone and R. F. D.; 100 acres in young hard-wood timber; 400 acres in pasture; Bermuda, melilotus, lespedesa, white clover, and blue grass predominating; about half this land will grow alfalfa, which can be cut six or seven times each year. Also 700 stands of Italian bees in three yards; my average for 15 years has been about $8.00 per stand—no disease, no failure in 15 years; 75 head of high-grade Jersey cows; butter sells for 20 cts. in summer and 25 cts. in winter, and the demand has never been filled. Improvements—7-room house, barn accommodating 52 cows; barn for horses; 10 cabins, 400 acres fenced in four pastures, best of water in abundance. Fine and healthful climate. Write for further particulars.
GEO. A. HUMMER, Prairie Point, Miss.

Bees and Queens.

FOR SALE.—Italian bees in Danzenbaker hives with super, $7.00 each. H. W. COLEY, Westport, Ct.

QUEENS—Red-clover strain; imported mothers, leather color, $1. A. W. YATES, 3 Chapman St., Hartford, Ct.

FOR SALE.—Fine golden Italian queens by return mail, 50 cents. J. F. MICHAEL, Winchester, Ind.

FOR SALE.—Bees, 35 colonies in 10-frame L. hives. All in splendid condition. C. E. PHILLIPS,
R. Route 5, Springfield, Mo.

FOR SALE.—400 colonies of bees; 2 apiaries in Delta, Colorado; 2 apiaries in New York, in the buckwheat location. W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—Untested Italian and Carniolan queens at 75 cts. each; virgins at 30 cts.
EDW. REDDOUT, Box 62, Baldwinsville, N. Y.

FOR SALE.—Bees, queens, and bee-keepers' supplies (Root's goods), at factory prices.
F. W. VAN DEMARK, Mehan, Okla.

FOR SALE.—Mismated Italian queens now, at 30 cts. each; 50 more about Sept. 15. No more untested for sale this season.
B. F. AVERILL, Howardsville, Va.

FOR SALE.—By return mail or money refunded: Italian queens, each, 75c; 6 for $4. Caucasian queens, each $1; 6 for $5. Warranted purely mated.
D. J. BLOCHER, Pearl City, Ill.

FOR SALE.—Bees. Bargain. J. P. Moore's superior stock. Full colonies, 10 frame (Hoffman), strong, $4.00 each. Speak quick. FRED. HOLTKE,
Southold, Long Island, New York.

FOR SALE.—300 colonies pure Italian bees with tested queen in one-story eight-frame Dovetailed hive with Hoffman frames, at $3.50 each.
F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—Red-clover strain of Italian queens exclusively; no better honey-gatherers in existence. Warranted purely mated queens, 75 cts.; three for $2. M. O. office, Schwenksville.
F. M. MAYBERRY, Lederachville, Pa.

TO NEBRASKA BEE-KEEPERS.—We will have a special live-bee exhibit and daily demonstrations with Caucasian bees at the Nebraska State Fair. We desire to meet all Nebraska bee-keepers and show you Root's goods and Rose Lawn queens and bees.
ROSE LAWN APIARIES, College View, Neb.

FOR SALE.—My experience with red-clover bees and circular of queen-bees for the asking. Queens reared by the most improved methods to get good long-lived queens. Root red-clover stock, the best that money can buy.
A. H. KANAGY, Milroy, Pa.

FOR SALE.—250 colonies bees in 10-frame hives, 4 yards; fixtures for comb and extracted honey; no disease; 22 acres land; 12 under fence, rest in timber; first-class buildings; joining railroad station; 6 miles east of Paragould; would make fine chicken ranch. Good reason for selling; part cash, balance time. Sell bees alone if wanted. J. H. ZEINER, Bard, Ark.

FOR SALE.—60 colonies from J. P. Moore stock, 10 in Danz. hives, 50 in 8 frame Dovetailed hives, at $3.50 each: 25 supers, 5¾ inches, 8 wired combs, 35 cts. each; 25 supers, 9⅛ inches, 7 wired combs, 50 cts. each; 100 supers for comb honey; No. 15 extractor, $10. Hubbard section-press, $1.50. Daisy foundation-fastener, 65 cts. Nearly new.
B. HOLLENBACK, Spring Hill, Kansas.

FOR SALE.—200 colonies of three-banded Italian bees in Root's ten-frame hives—half in two deep bodies, and the rest in one deep, and two shallow extracting-supers. Hives have all been well painted during the last two years, and are in fine condition. Combs are straight, and all drawn out of full sheets of foundation. Colonies are guaranteed to be free of all disease, and are in splendid condition.
A. Y. WALTON, JR., San Antonio, Texas.

Wants and Exchange.

WANTED.—100 colonies of bees or more for cash.
S. C. JONES, Schenectady, N. Y.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To know you (if you are a bee-keeper) personally. To that end we will make a demonstration with live bees at the Minnesota State fair and also at the Wisconsin State fair this fall (September). Make yourselves known to us a ." we will show you our specialties. We also want to learn your method of handling bees. PUTNAM & PEAKE, River Falls, Wis.

WANTED. — ROOTS and HERBS. We need all kinds. We have advanced our price for Red Clover tops on account of special need, and will pay $7.00 per 100 lbs. for several tons. It is necessary to write promptly if you wish to collect them. The work is simple and profitable. Blood roots, May-apple, Wild Ginger, Poke, Golden Seal, and others are needed in large lots. A *revised* book giving full information will be sent on receipt of 8 cts. postage. In writing mention this ad. Address
J. L. HOPKINS & CO., 100 William St., New York.

Honey and Wax Wanted.

WANTED —A ton of basswood extracted honey. State lowest price.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

WANTED.—To buy comb and extracted honey for cash; car lots or less. E. R. PAHL & Co.,
Broadway and Detroit Sts., Milwaukee, Wis.

WANTED.—Fancy clover honey, both comb and extracted. Send average sample of extracted honey, and give lowest price.
J. E. CRANE & SON, Middlebury, Vt.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.
R. A. BURNETT, 199 S. Water St., Chicago, Ill.

WANTED.—Comb and extracted honey in any quantity; state quality, quantity, and price f. o. b.
THE WAXELBAUM-HEARD PRODUCE CO., Macon, Ga.

WANTED.—No. 1 and fancy comb honey; 4x5x1⅜ section preferred. Also light extracted. Must be guaranteed pure. Write, stating grade and how put up, and lowest cash price.
C. M. CHURCH, Arnold, Pa.

WANTED.—By Oct. 1, one car extracted honey, California sage, water-white. Must be of heavy body, and first-class in every respect.
M. H. TWEED, 1125 Penn Ave., Pittsburg, Pa.

WANTED.—To buy for cash, comb and extracted honey, also beeswax. ROBT. A. HOLEKAMP & SON,
4263 Virginia Av., St. Louis, Mo.

WANTED.—Well-ripened extracted basswood and clover honey. Prompt payment on receipt; 8 cts. per lb., F. O. B. West Bend.
H. C. AHLERS, West Bend, Wis.

Honey and Wax For Sale.

FOR SALE.—20,000 lbs. light extracted honey, well ripened and of fine quality, in new 60-lb. cans. Sample, 10 cts. JAMES MCNEILL, Hudson, N. Y.

FOR SALE.—800 pounds of pure beeswax for sale. Refuse from wax-extractors wanted. Will pay cash.
W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—Alfalfa and sweet-clover honey, mostly 4¼x4¼ plain sections, put up in 24-section glass front single-tier cases. Solicit offers on car lots or less.
J. E. PRYOR, Plateau City, Colorado.

FOR SALE.—75 cases of No. 1 white comb honey in 4x5 plain sections; 20-section no-drip cases, at $3.60 per case on cars here—a very superior lot.
E. D. TOWNSEND, Remus, Mich.

FOR SALE.—Extracted honey from clover and alfalfa, produced by the Emery Co. Bee-keepers' Asso'n. Car lots a specialty. Sample and prices free
PETER NIELSON, Sec., Huntington, Utah.

FOR SALE.—21 tons California sage honey; 12 tons water-white at 7 cts.; 9 tons light amber at 6½ cts. F. O. B. Piru, California; 10c for sample.
E. F. MCDONALD, Piru, Cal.

FOR SALE.—Alfalfa honey. If you want nice honey for the table try a can of Colorado alfalfa honey, $5 a can of 60 lbs., F. O. B.
A. A. LYONS, Ft. Collins, Col. R. F. D. No. 2.

FOR SALE.—We have a small quantity of honey on the hive, *curing*, that will be extracted about August 1st. This left-on-the-hive-all-summer honey will be put in new 60-lb. cans, and will be the finest article that skill and pains can produce; of course, it costs more to produce this superior honey than the ordinary, and it is worth more. It is from white-clover and wild red raspberry. Ask for free sample. The price in any quantity is 10 cts. a pound f. o. b. shipping-point. E. D. TOWNSEND, Remus, Mich.

Bee-keepers' Directory.

QUEENS.—Clover stock. Experience and methods count. Write me. H. G. LARUE, LaRue, Ohio.

ITALIAN queens bred for honey, untested, 75c each. GEO. H. PLACE, 816 No. 49th St., Omaha, Neb.

Extra honey queens and choice mountain honey. Francis J. Colahan, Bernardo, San Diego Co., Cal.

QUEENS.—Pure Gold, Red-clover, Caucasian, Banat. ROSE LAWN APIARIES, College View, Lincoln, Neb.

ITALIAN QUEENS.—Golden and leather, 60c each; worth $1.00. G. W. BARNES, Box 340, Norwalk, O.

Bee-keepers' supplies, Italian queens. Send for a free catalog. ARTHUR RATTRAY, Almont, Mich.

ITALIAN BEES and queens—Red-clover strain imp'd mothers. A. W. YATES, 3 Chapman St., Hartford, Ct.

ITALIAN BEES, queens, and Root's bee supplies. E. SCOGGIN, Carlsbad, N. M.

I club a high-grade Italian queen with GLEANINGS, new or renewal. W. T. CRAWFORD, Hineston, La.

WANTED.—500 colonies of bees in Texas, Arizona, or California. N. E. MILLER, Box 373, Logan, Utah.

ITALIAN BEES and queens—red-clover and golden strains. E. A. SIMMONS, Greenville, Ala.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York City.

ITALIAN bees and queens bred for honey; price list free. B. F. YANCEY & SON, Angleton, Tex.

FINEST Golden and red-clover queens, Caucasian and Carniolan. DANIEL WURTH & GRANT, Pitkin, Ark.

ITALIAN AND CAUCASIAN bees and queens of best quality; price list free. A. E. TITOFF, Ioamosa, Cal.

MAPLEWOOD APIARY.—Choice comb honey, Italian bees and queens. GEO.H. REA, Reynoldsville, Pa. R. 2.

ROOT'S SUPPLIES at factory prices; wholesale and retail. ANTON G. ANDERSON, Holden, Mo.

ITALIAN BEES, queens, and bee supplies. H. H. JEPSON, 182 Friend St., Boston, Mass.

ITALIAN BEES, queens, comb and extracted honey. A. T. DOCKHAM, Rt.1, Box 95, Eagle Bend, Minn.

ITALIAN BEES, queens, beeswax, honey, and bee-keepers' supplies. M. E. TRIBBLE, Marshall, Mo.

FOR SALE.—Bee-keepers' supplies. Write for catalog. Lengst & Koenig, 127 S. 13th St., Saginaw, Mich.

FOR SALE.—Golden and red-clover Italian queens. WM. A. SHUFF, 4426 Osage Ave., Philadelphia, Pa.

ITALIAN BEES and queens—red-clover and golden strains. E. E. MOTT, Glenwood, Cass Co., Mich.

SWARTHMORE Golden-all-over, Caucasian, Banat, Carniolan, Cyprian queens. E. L. Pratt, Swarthmore, Pa.

GOLDEN yellow Italian queens—my specialty. Price list free. E. E. LAWRENCE, Doniphan, Mo.

ITALIAN BEES, queens, honey, and ROOT's bee-keepers' supplies. ALISO APIARY, E[illegible], Cal.

FOR SALE.—Root's bee-supplies, wholesale and retail; factory prices; catalog free. Beeswax wanted. W. E. TRIBBETT, Staunton, Va.

I must say to my friends, please do not send me any more orders for queens this season, as my health is so poor I find it impossible to continue queen-rearing. Thanks to all my friends for their very liberal patronage. W. W. CRIM, Pekin, Ind.

GOLDEN-ALL-OVER Caucasian Banat bees and queens. We book orders for early queens from our best imported breeding stock for honey, with 600 twin mating-boxes. THE SNYDER APIARIES, Lebanon, Pa.

QUEENS.—Improved Red-clover Italians bred for business; June 1 to Nov. 15, untested queens, 60c; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

IMPROVED ITALIAN QUEENS now ready; nuclei and colonies about May 10, Danzenbaker or L. frames; 20 years a queen-breeder; 500 colonies to draw from. Circular and testimonials free. QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

ANGEL'S GOLDEN BEAUTIES and his bright three-banded Italian Queens have but few equals and no superiors. A fine large queen of either strain for $1.00; an extra select breeder for $2.50. I have had 12 years' experience at queen-breeding. Address SAMUEL M. ANGEL, Route 1, Evansville, Ind.

QUEENS FROM OUR OWN APIARY.

We now have about the nicest lot of Italian queens reared in our own apiary, *from our choicest breeding queens*, that we have ever sent out; and we have such a surplus that caged queens are every day placed on the mailing-table to be sent off almost the minute the order reaches us. We also have a nice lot of Caucasian queens reared on the Florida island. So if you want a queen quick, and want something the best The A. I. Root Co. can produce, now is your time to get it promptly. A. I. R.

PRICES ON SUPPLIES FOR 1908.

We are at work on a revision of our catalog for the season of 1908, and are not ready as yet to announce such changes in prices as we may find necessary. The past season has been most disappointing, not only to bee-keepers but to supply-dealers as well. After paying all fixed expenses the returns for the year have been very small — indeed, less than any other year since we have been organized as a company. Although material and labor have advanced steadily, there has been no general advance in prices in four years; and because of the unfavorable honey-yield we have been reluctant to advance prices on supplies; but the time has come when such a course seems inevitable if we are to receive a fair return for capital invested. Till further announcement we will continue to fill orders at prices as they appear in our catalog for 1907.

Special Notices by A. I. Root.

INDIAN RUNNER DUCK EGGS.

Mr. Kent Jennings, of Mt. Gilead, Ohio, who furnished me eleven Indian Runner duck eggs for $1.00, now offers thirteen for the same price.

A CUTTING-BED FOR STARTING FLOWERS, FOR CHILDREN.

Two of our grandchildren, seven and eleven years of age, are now interested in making cuttings from coleus, *Impatiens sultani*, dusty miller, and other ornamental plants. They use a shallow box about half full of coarse sand, with a pane of glass to lay over the top, and a light thin board to cover the glass when the sun is too hot. With a pail of potting-soil and some nice little pots for the plants when they get rooted, quite a lot of nice plants may be grown, even by a child, and it can all be done outdoors on the lawn. Miss Mildred, the older one, promises to become quite proficient in the art.

SUCCESSFUL POULTRY-KEEPING.

The above is the title of a beautiful new book of 175 pages, 9x12 in., most fully illustrated with some of the finest half-tones, and the illustrations are gotten up especially to illustrate the subject treated. One especial value of this book is the great number of questions and answers. One that especially interested me was, how to distinguish drakes from ducks. The answer was, "By the sound of their voices," etc. No one would think a dollar a big price for this beautiful new book, especially if he is interested in poultry. We can send it postpaid by mail for $1.00.

THE A B C OF CORN CULTURE; OR, "MAKING TWO NUBBINS GROW WHERE ONLY ONE GREW BEFORE."

The above is the title of a book by Prof. P. G. Holden, of the Iowa State College. The title alone, with the name of the author, ought to be sufficient evidence that the book is one of the most valuable (*especially* to everybody who grows an acre of corn or more), books of its size and kind now before the American public. Prof. Holden has already, although he is still a young man, added by his teachings *millions* to the wealth of our nation, and he is at present entirely unable to respond to calls made from the different States to give his celebrated lectures on corn to audiences that almost invariably go away up into the thousands. It contains nearly 100 pages, and is beautifully illustrated; and although 25 cents is but an insignificant price for a book of such value, a subscription for one year to the *Farm News*, of Springfield, O., is included with each book; for sale at this office.

THE FORAGE AND FIBER CROPS OF AMERICA.

Prof. Holden, in his lecture a few days ago, told us that the corn crop of Ohio for last year was worth in round numbers $45,000,000. This is away above any other crop; but next to it comes the hay of Ohio. And this reminds me that the O. Judd Co. has just gotten out a beautiful new book with the heading as given above. The book contains 428 pages, and is fully illustrated. It is by Thomas F. Hunt, of Cornell University. It discusses all of the clovers and all the legumes, and ought to be exceedingly valuable. So far as I can discover, it seems to be orthodox on almost every thing except our old friend sweet clover. Instead of writing sweet clover up to date as it justly deserves they content themselves with a brief quotation from the Nevada State Bulletin for 1900, and the book is permitted to go out containing the following sentence: "It is, however, exceedingly distasteful, either green or cured, to all classes of domestic animals, and hence unfit for forage." I immediately wrote to the publishers, and told them I thought the book should not be sent out without an appendix correcting the above, and giving sweet clover the credit of being ahead of all other plants for inoculating the soil with the "nitrogen nodules" that are just now not only being *discussed* but actually *worked* at the present time. The book gives a considerable chapter to this matter of nitrogen bacteria, and makes some brief allusions to the part that sweet clover has played and is still playing; but such references are altogether too brief.

The chapter devoted to alfalfa is valuable; also those devoted to the different kinds of beans and peas used as forage crops. The price of the book is $1.75. Mailed from this office postpaid on receipt of that amount.

"THE TWO P'S TOLD IN THE PLEASURE AND PROFIT OF COLD-FRAMES."

On page 573 of our issue for April 15 I mentioned briefly the fact that the Lord & Burnham Co. paid a man for the value of a greenhouse and contents that was broken down by a heavy fall of snow last winter. The Lord & Burnham people did not build the house. They furnished only the plan and supplied most of the material. The owner of the house had one of his happy surprises when the above firm made good his loss. Well, this same firm, Lord & Burnham, 1133 Broadway, New York, has just put out about the prettiest little catalog (title as above) of hot-bed sashes and appliances that I ever saw. It is given to anybody who applies for it, and it ought to be worth a whole dollar to all who are interested in high-pressure gardening. Why, it gave me a thrill in looking it over such as I have hardly felt since I first got hold of one of Peter Henderson's "Gardening for Profit." It is beautifully illustrated; tells you all about how to make either hot-beds or cold-frames, composting the soil, also tables of what to plant, when to plant, and some beautiful pictures of successful high-pressure gardening under sash. Now, if any of our readers have ever felt as though they would like a few hot-bed sashes to play with they had better send for the catalog in question. We can supply the sashes.

Convention and Fair Notices.

Through the courtesy of Mr. Percy Orton, of Northampton, N. Y., we have been favored with the catalog of the Fulton Co., N. Y., agricultural fair, to be held at Johnston, Sept. 2—5. The highest prize in the apiary department is $5.00, and there are others in proportion worth competing for.

NEWCASTLE, DELAWARE, COUNTY FAIR.

This year Dr. Joel S. Gillfillan, of Newark, is superintendent of the apiarian exhibit at the Newcastle Co. fair to be held at Wilmington, Sept. 2—6 inclusive. He will be assisted by Mr. E. M. Miller, of Wilmington.

INDIANA STATE FAIR AT INDIANAPOLIS.

In connection with the foregoing there is quite a liberal premium list to attract bee-keepers who are in a position to make a good exhibit. In two cases the first prize is $25.00, and in other two the first is $20.00, with second and and third prize in proportion. The date is Sept. 9 to 13 inclusive. Charles Downing is secretary. If you wish to exhibit send for the premium list.

WASHINGTON STATE FAIR BEE EXHIBIT.

Mr. Anson L. White, of North Yakima, has been appointed superintendent of the apiarian exhibit of the State fair to be held at that point Sept. 23—28, which is sufficient guarantee that every thing will be properly supervised. He will personally care for any exhibits sent to him. He is anxious to get in touch with the bee-keepers attending the fair, for the purpose of enlisting them in the Washington State Bee-keepers' Association, which, in conjunction with Pullman College, is endeavoring to carry out the State foul-brood law, with the view of stamping out the disease within the State. Mr. G. A. Graham, North Yakima, is secretary of the fair.

ILLINOIS STATE FAIR.

The officers of the Illinois State Fair mean to do the right thing by the bee-keepers, and offer a number of handsome prizes for apicultural exhibits, which ought to draw many competitors. The premiums offered for comb honey (500 lbs.) are $20.00 for first, $15.00 for second, and $10.00 for third. It is the same for extracted honey—500 lbs. Candied honey gets similar prizes, but only 300 lbs. is required. Designs in beeswax get the same as comb honey, 50 lbs. being required. There are numerous premiums, ranging from $15.00 down to $2.00. Such an array of liberal money prizes ought to draw exhibitors from other States, as the managers say "open to the world," and doubtless they mean it. The fair takes place Sept. 27 to Oct. 5. We shall publish the prize-list later, probably.

TENNESSEE STATE FAIR, NASHVILLE, SEPT. 23 TO 28.

Bee-keeping in Tennessee has recently experienced a revival, and as a consequence the State Fair managers have decided to offer liberal premiums as an inducement to bee-keepers to make up a striking display of what they can do, and it is to be hoped the bee keepers in that section will rise to the occasion with a really handsome display. Mr. J. M. Buchanan, Franklin, Tenn., who is superintendent of the apiarian department, will endeavor to give every exhibitor a square deal.

PREMIUM LIST.	1	2	3
1. Best 10 lbs. extracted honey	$10	$ 5	$ 3
2. Best display of extracted honey	15	10	5
3. Best case of comb honey	10	7	3
4. Best display of comb honey	15	10	5
5. Best display of beeswax	10	5	3
6. Nucleus of dark Italian bees	5	2	1
7. Nucleus of golden Italian bees	5	2	1
8. Nucleus of Caucasian bees	5	2	1
9. Nucleus of any other race	5	2	1
10. Largest and best display of bees and bee products, etc., by individual exhibitor	25	15	10

SCHEDULE OF THE BEE SHOW OF THE WORCESTER COUNTY BEE-KEEPERS' ASSOCIATION, TO BE HELD IN HORTICULTURAL HALL, WORCESTER, MASS., SEPT. 13, 14.

[The following is a complete schedule of the above show, as announced in our last issue.—ED.]

Honey.—In numbers 1 to 5 there will be two classes—one for those living in Massachusetts and one for those outside.

1. For the best 5 lbs. of comb honey in section boxes.
2. For the best crate of comb honey packed for market. Neatness of package will be considered.
3. For the two best frames of comb honey for extracting. Weight, color, quality, as well as general appearance, will govern.
4. For the best display of chunk honey.
5. For the best display of comb honey in general. This is open to the taste of the exhibitor.
6. Extracted or strained honey. For the best 5 lbs. of extracted honey in glass. Color, quality, and general neatness will govern.
7. For the most attractive display of extracted honey.
8. *Vinegar.*—For the best display of vinegar made from honey. Sharpness and clearness will govern.
9. *Beeswax.*—For the best pound of beeswax. Softness and color will govern.
10. For the best display of beeswax.

Bees.—All bees must have been raised by the exhibitor. Numbers 11 to 15 are to appear in single-frame nuclei. Each nucleus must contain a queen. Numbers 15 to 17 may be shown as the exhibitor desires.

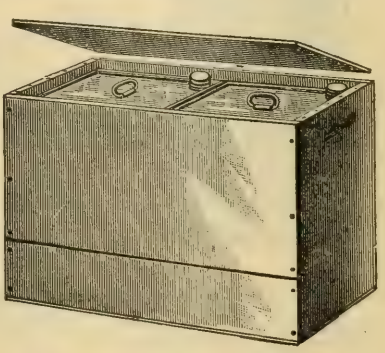
11. For the best Italians.
12. For the best black or German bees.
13. For the best Carniolan bees.
14. Varieties not scheduled.
15. For the best display of bees.
16. For the best display of queen-bees ready for shipment.
17. For the best display of a queen-rearing outfit showing cells in different stages of development.
18. *General Display.*—For the best display of bees, honey, bee furniture, wax, etc. Exhibitor is given full freedom. Products and bees must be of his own raising. Please write to the secretary that space may be reserved.
19. *Cookery.*—For the best cake made with honey, recipe attached.
20. For the best cookies made with honey.
21. For the best display of cake, cookies, and confectionery made with honey.
22. *Photography.*—Photograph of a swarm of bees.
23. Best photograph of a New England apiary.

Displays not scheduled above are solicited. Meritorious exhibits will be awarded a diploma. Manufacturers, tradesmen, and publishers are urged to make a display. Free space will be awarded each applicant. Points of merit are neatness, perfection of workmanship, as well as instructiveness and general effectiveness of display.

Communications may be addressed either to the secretary or to A. A. Hixon, Horticultural Hall, Worcester, Mass.

There will be lectures by people prominent in the bee world, both days of the fair. A. H. ESTABROOK, *Sec.*
Worcester, Mass.

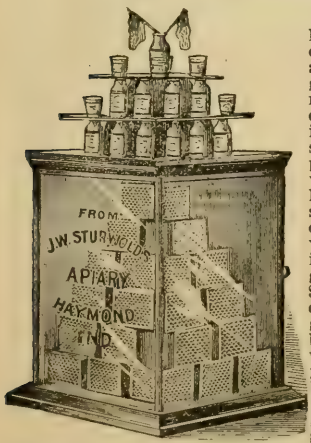
HONEY-PACKAGES IN TIN



This cut shows a box of two 60-lb. tin cans, which is the standard package for storing and shipping extracted honey. It is far superior to barrels, because there is not the same chance for leakage or taint from the wood; and, being square they economize space. Owing to light honey crops, the last two years, the demand has been light, and we have a good stock bought below the prices ruling at present. To reduce this stock we will ship from Medina any orders mentioning this notice, at the following special prices: One box, two cans, 80 cts.; 10 boxes, $7.50; 25 boxes or over, at 70 cts. a box. One box of one can, 50 cts.; 10 boxes, $4.50; 25 boxes or more, at 42 cts. a box.

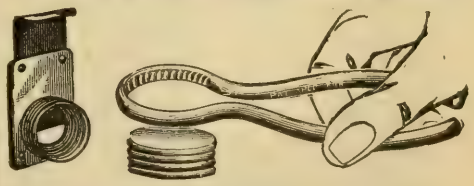
One-gallon square cans with 1¾-inch cap, 100 in a crate, at $10.00 per 100; 500 or over at $9.00 per 100; packed 10 in a case at $1.35 per case; 10 cases, $12 50.

Sturwold's Show-case.



This case is 28 in. high, 20 in. square, outside measure, top and bottom. The glass of which it is made is 16×24. The case is to be set up in any grocery, drug-store, or any other place of business where you want your honey exhibited or sold. The frame is of chestnut, filled and varnished, and finished in natural grain. Price, plain, $5; with name and address, $5.50. As the glass is very apt to be broken in transit, we will ship them, if you prefer, with glass boxed separately, at same price. In flat, no glass or finish, $2.50; glass included, $4.00.

Screw-cap Honey-gate and Can-screw Wrench.



Price 15 cts.; by mail, 18 cts. Price 10 cts.; 75 cts. per dozen. By mail, 4 cts. each extra.

We furnish the gate for 1⅛, 1⅜, or 1¾ screw. Other sizes made to order from caps you may furnish.

The wrench fits a 1¾ screw, and can be used on 1⅜ or smaller by bushing between cap and wrench.

When you order these gates separate from cans we can not guarantee a fit unless you send us a cap from the screw with the order.

Sample Mailing-blocks.

Price, each, 6 cts.; by mail, 8 cts.

These are small wide-mouthed glass bottles, which hold ⅛ oz., with cork, put up in a mailing-block with top which screws on and is easily removed.

THE A. I. ROOT COMPANY, :: :: :: MEDINA, OHIO

Honey-Packages in Glass

We have quite a variety of glass packages for putting up honey for retail. We mention first our

Half-pound Tumbler.

This is shown at the left with a diamond label, No. 95. These include tin cover with wax or parchment paper disk for sealing tight. No labels. Will hold 7 oz. of honey when filled; and the price, $5.50 per barrel of 32 dozen; 5-bbl. lots at $5.25. In reshipping-cases of 4 dozen packed ready to reship, when filled, $1.00 per case; 6 cases, $5.70; 20 cases or over, at 90 cents per case.

No. 25 Jar.

This holds one pound of honey; has an opal cap with rubber ring and lacquered tin screw rim which seals tight. Packed in reshipping cases of 2 dozen each; price $1.10 per case; 6 cases, $6.30; 20 cases or more at $1.00 per case.

Tiptop Jar.

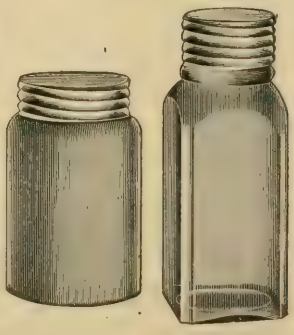
We keep these in two sizes, for half and one pound of honey. The shape of the jar is shown in the cut. It has a glass top, a rubber ring, and a spring-top fastener. Packed a gross in a crate at $5.00 per gross for 1-lb., or $4.50 for the half-pound size. We have them also packed in reshipping-cases of 2 dozen each at $1.10 per case for 1-lb. size; 6 cases, $5.30; 20 cases or over at $1.00 per case. Half-pound size, $1.00 per case; $5.70 for 6 cases, or 90 cts. per case in 20-case lots.

Simplex Jar.

This is one of the handsomest jars we ever handled. The factory making them was wrecked last August, and we have been unable since to secure any more of the size, which holds one pound. We can supply the next larger size, which holds 18 oz. of honey. Packed in reshipping-cases of 2 dozen. Price $1.15 per case; 6 cases for $6.60; in 20-case lots or over at $1.05 per case. We still have at Philadelphia a few cases of the 1-pound size which may be had from there while they last, at the same price as above.

Sq. Jar.

Hershiser Jars.



These jars were designed for use in the honey exhibit at the Pan-American Exposition in Buffalo, and are very neat and attractive. They have cork-lined aluminum caps which seal them tight. They are made in four sizes square and three sizes round. The 1-lb. size in each style is shown in the first two cuts at the left.

¼-lb.	square Hershiser jars, doz.,				50c;	$5.40	per	gross
½-lb.	"	"	"	"	55c;	6.00	"	"
1-lb.	"	"	"	"	80c;	9.00	"	"
2-lb.	"	"	"	"	1.00;	10.80	"	"
½-lb.	round	"	"	"	60c;	6.60	"	"
1-lb.	"	"	"	"	75c;	8.40	"	"
2-lb.	"	"	"	"	1.10;	12.00	"	"

The ordinary square jar to seal with cork, similar to that shown in cut at extreme left, is very largely used for honey. They are made in four sizes. The 1 and 2 lb. sizes are packed ½ gross in a package; the smaller sizes one gross. Price including corks:

5-oz.	square jar	.....	35c	per	dozen;	$3.25	per	gross
8-oz.	"	.....	45c	"	"	4.25	"	"
1-lb.	"	.....	60c	"	"	5.75	"	"
2-lb.	"	.....	75c	"	"	7.50	"	"

Either Golden or Leather colored.

The Stock with a Reputation.

ITALIAN QUEENS

"One of your queens made a record of 350 pounds of nice comb honey in 1904."
JOS. A. RENECKE, Seneca, Kan.

Prices of queens after June 15:	1	6	12
Select untested	$ .75	$4.00	$7.00
Tested	1.00	5.00	9.00
Breeders	3.00		

Two Carloads of Root's Bee-keepers' Supplies.

Mfrs. of Weed New-Process Comb Foundation.

BUCK & WILSON
BUTLER CO. AUGUSTA, KANSAS

PROMPT SHIPMENTS

If you are in a rush for supplies at present, send us your orders. We have a large stock of

Root Co.'s Supplies

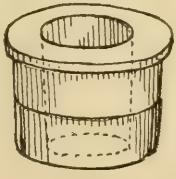
on hand to fill orders promptly. Also a fine lot of Italian

Queens and Bees

in one, two, and three frame nuclei and full colonies. Send for our forty-page catalog, etc.

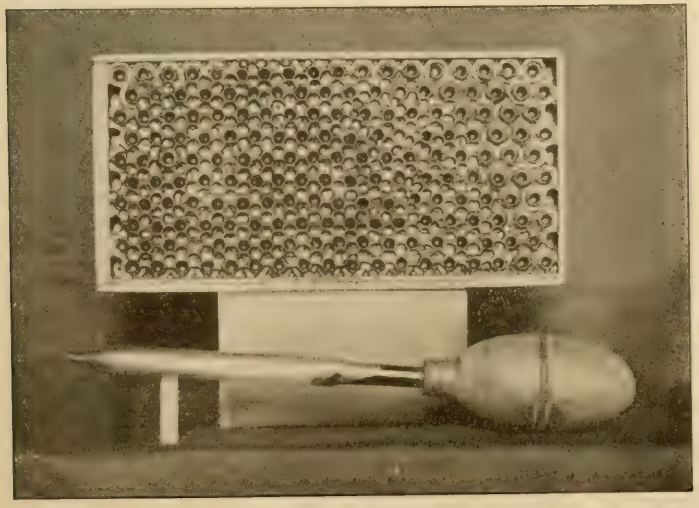
John Nebel & Son Sup. Co.
Montg. Co. :: High Hill, Mo.

SWARTHMORE INNER SHELLS



SWARTHMORE HOLDING SHELLS

SWARTHMORE DIE FOR INNER SHELL



SMALL FRAME FILLED WITH CUPS

We are now prepared to furnish these items at following prices:

	Unwaxed per 100	Postage
Inner Shells,	65c	5c
Holding Shells,	65c	5c

If waxed, add $1.00 per 100

Die for Inner Shell, . 35c

The A. I. Root Company
Medina, :: Ohio

WE ARE NOT IN A TRUST

Bee-hives, Sections, Brood-frames, Extractors

Every thing that bee-keepers use at **Lowest Prices.** Quality the highest. We've been making them twenty-five years.

American Bee-keeper. A profusely illustrated practical bee-journal which we have published for 17 years, **50c Yr.**

Sample copy and our 1907 illustrated catalog and price list free. Address

THE W. T. FALCONER MFG. COMPANY
DEPARTMENT G . . . . . JAMESTOWN, N. Y.

NEW GOODS! BIG STOCK!

NEW WAREHOUSE ROOT'S GOODS PROMPT SHIPMENT LOW FREIGHT

Every Thing for the Bee-keeper at Savannah, Georgia.

We are now prepared to furnish promptly a full line of supplies; choice new stock just from the factory. **Bees** and **Queens.** We have large apiaries of fine stock. Book your orders at once, as there will be a heavy demand this season. Catalog sent free. Correspondence solicited.

HOWKINS & RUSH, 241 Bull St., SAVANNAH, GA.

Dadant's

Foundation

It Excels

EVERY INCH EQUAL TO SAMPLE

Beauty! Purity! Firmness!
No sagging; no loss.
Twenty-eighth Year.
We Guarantee Satisfaction.
Wax Worked into Foundation.

Bee-supplies of All Kinds

Beeswax wanted at all times.
Send for Our 1907 Catalog.

DADANT & SONS, HAMILTON, ILL.

ROOT GOODS for the West

Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS.

My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

Write for estimate with liberal discount for orders sent in now.

JOSEPH NYSEWANDER
565-7 W. 7th St. Des Moines, Iowa

GLEANINGS IN BEE CULTURE

Vol. XXXV *September 1, 1907* *No. 17*

The view shows Brother Columban, of St. Mary's Abbey, Buckfast, Devon Co., England, in the act of instructing a novice in the science of bee-keeping. The Catholic clergy and the various brotherhoods have always been ardent promoters of bee-keeping.

The A. I. Root Company, *Medina, Ohio, U. S. A.*

Entered at the Postoffice, Medina, Ohio, as Second - class Matter

STATE FAIR AT DETROIT
AUG. 29 = SEPT. 6

We will be more than pleased to have you call on us, and make yourself known. Our exhibit will be under the grand stand. We have set September 3d as a day especially for bee-keepers; and if you want to meet other bee-keepers at the fair, come on that day.

We will have on display "Everything for the bees, and all Root Quality."

M. H. HUNT & SON, REDFORD, MICH.

GREAT FIRE SALE

On account of a recent fire which slightly damaged our stock of goods, we are closing out all

POULTRY AND BEE SUPPLIES

AT A 10 PER CENT DISCOUNT.

It will pay you to order any supplies which you will need for next season's use. Make up your order and deduct 10 per cent. Goods guaranteed to be as good as new, except hives are discolored on outside. Don't delay, as they are going fast. Will exchange supplies for honey and wax

The Griggs Bros. & Nichols Co.
523 Monroe St., Toledo, O.

European Bee-keepers!

Save Time and Expense

by sending direct all your orders and correspondence to our exclusive agent for the European continent and its colonies. . .

EMILE BONDONNEAU
142 FAUBOURG - ST. DENIS, PARIS

Prompt Service and Satisfaction Guaranteed. . . .

The A. I. Root Company

C. H. W. WEBER

Headquarters for . . .

BEE-SUPPLIES

Distributor of Root's Goods Exclusively at Root's Factory Prices

GIVE ME your orders for the **Best Goods Made.** You will be pleased on receipt of them. You will **save money** by ordering from me. My stock is complete; in fact, I keep **every thing** the **bee-keeper** needs. **Cincinnati** is one of the best **shipping-points** in the Union, **particularly in the South,** as all freight now **goes through Cincinnati.** Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly **free.**

WANTED.

Fancy White Comb and White Clover Extracted HONEY.

Queens and Nuclei

Let me book your orders for queens. I breed the finest **Golden Italians, Red-clovers, and Caucasians.** Can furnish **Nuclei** beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White Sweet-scented Clover, Alfalfa, and Alsike.

C. H. W. WEBER

Office and Salesroom, 2146-48 Central Ave.
Warehouse, Freeman and Central Avenues.

CINCINNATI, OHIO, U. S. A.

Honey Markets.

The prices here quoted are wholesale, or what the honey brings on arrival.

NEW YORK.—We are now beginning to receive small shipments of the new crop of white comb honey, but do not expect to have any large lots until a few weeks from now. While the crop is certainly very short in some sections of New York State, and in the East in general, there are some sections where they produced a larger crop than that of last year, but, of course, not enough to offset the shortage in other localities. The quality is reported to be fine. The demand is good. No doubt white comb honey will find ready sale all through the early fall, providing prices are not prohibitive. Let us bear in mind the fact that comb honey is not a necessity, but a luxury; and unless people can buy it at a certain price they will do without it. This we have experienced more than once heretofore. Fancy stock will find ready sale at 16; No. 1 at 14 to 15; No. 2, 13. Prices on dark and buckwheat are not established as yet. The season is very backward, and we do not expect to have any buckwheat until the middle of next month, if then. Extracted is in good demand, and prices are very firm. We quote California white sage at 8½ to 9; light amber, 7 to 7¾; choice grades in barrels or kegs at 7 to 7½; average common Southern at 60 to 65 per gallon. Beeswax is steady at 30 to 31, according to quality.

HILDRETH & SEGELKEN,
Aug. 22. New York.

PHILADELPHIA.—The outlook in the honey market is as yet unsettled. Some sections report a good crop and other sections report a shortage. We find beekeepers at this time of the year very often hold back the full information in order to have a bearing on the market; but would I advise all parties, having honey to sell, to dispose of it early in the season, for the prices rule higher now than later on. There have been very few arrivals. We quote fancy white extracted, 7½; light amber, 7; amber, 6 to 6½. There has been but little comb honey received in this market—not enough to fix the price. Some few sales at 14. Beeswax firm at 28. We are producers of honey, and do not handle on commission.

WM. A. SELSER,
Aug. 9. 10 Vine St., Phila., Pa.

SCHENECTADY.—There are quite a few lots of white honey arriving, but of only fair quality, and selling freely in small lots at 15. No buckwheat on our market as yet. The buckwheat crop promised to be large a few days ago; but continued dry weather is curtailing production very rapidly in this locality.

CHAS. MACCULLOCH,
Aug. 20. Schenectady, N. Y.

CHICAGO.—The demand for honey is taking receipts as fast as they arrive; that which grades choice in comb brings 16; the off grades are not wanted. We had a consignment of strictly fancy comb, in all senses of the word, which sold at 18 cts.; white extracted clover, 8. Beeswax, 32.

R. A. BURNETT & CO.,
Aug. 19. 199 So. Water St., Chicago, Ill.

ST. LOUIS.—The arrivals of both comb and extracted honey are coming in more freely, and the demand for fancy white comb honey is pretty fair. We quote fancy white comb honey, 15 to 16; No. 1, 14 to 15; light amber, 12 to 13, as this grade is a very slow seller. The trade here caters more to the extra white than to any other grade, and it commands the best price of all. Extracted light amber honey, in five-gallon cans, would bring 6½ to 7; in barrels, from 4½ to 5½; and Southern, in barrels, from 4 to 5; in 5 gallon cans, one cent higher. Beeswax, firm at 28.

R. HARTMANN PRODUCE CO.,
Aug. 21. St. Louis, Mo.

CINCINNATI.—Fancy and No. 1 comb honey finds ready sale at from 15 to 16. The present supply is about equal to the demand. The price of extracted honey is steadily advancing. We have quite a big stock on hand, and for that reason continue to quote amber in barrels at from 5½ to 6½, according to the quality. Fancy white-clover honey in 60-lb. cans, at from 8 to 9. For choice yellow beeswax, free from dirt, we are paying 30 in cash and 32 in trade, delivered here.

THE FRED W. MUTH CO.,
Aug. 22. 51 Walnut St., Cincinnati, O.

KANSAS CITY.—The demand for comb honey is good; receipts light: no new extracted in market. We quote No. 1 white comb, 24-section cases, $3.50; No. 2 white and amber, 24-section cases, $3.00; extracted white, 8; extracted amber, 7. Beeswax, 28.

C. C. CLEMONS & CO.,
Aug. 19. Kansas City, Mo.

DETROIT.—Very little honey in the market yet, and prices are not settled. Most of the commission men seem to be holding off for a little time yet, though offers are not numerous. Fancy comb honey, white, 15 to 16; No. 1 and A No. 1, 13 to 14. No dark honey in. Beeswax, 27 to 29.

M. H. HUNT & SON,
Aug. 12. Redford, Mich.

SAN FRANCISCO, Aug. 17.—Honey is in a firmer position than before, higher prices being quoted on all grades of extracted. New arrivals are very light, and all that comes in is quickly taken. Amber, extracted, 6½ to 7; new fancy white comb, 16 to 17; water white, extracted, 8.—*Pacific Rural Press.*

ZANESVILLE.—The market is still practically bare of comb honey, only small lots coming in from local producers. Demand is very brisk—far in excess of supply—and prices range from 19 to 22, according to grade. There is also a good demand for extracted in retail packages. For beeswax I offer 29 cash or 30 in exchange for bee-supplies. Wax brings, wholesale, 40 to 45, according to quantity.

EDMUND W. PEIRCE,
Aug. 20. 136 W. Main St., Zanesville, O.

INDIANAPOLIS.—New fancy white comb honey sells to the retail grocery trade in lots of one to five case lots at 19 to 20. Best grades of extracted in five-gallon cans sell for 11 to 12 Some foreign extracted offered at slightly lower prices. Beeswax plentiful, and sells at $35 per 100 pounds.

WALTER S. POUDER,
Aug. 21. Indianapolis, Ind.

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Circulation 32,000

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$1.00 per year

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Devoted to Bees, Honey, and Home Interests

Published by
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J. T. CALVERT, Business Manager

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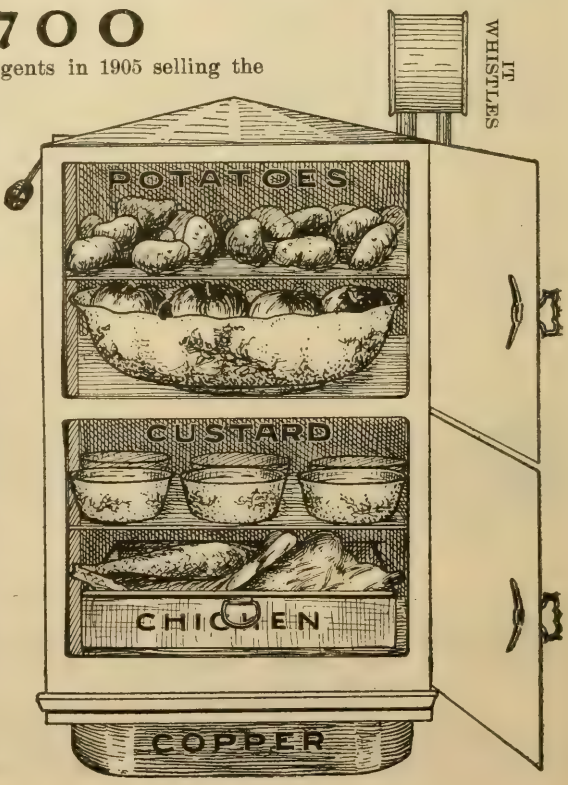

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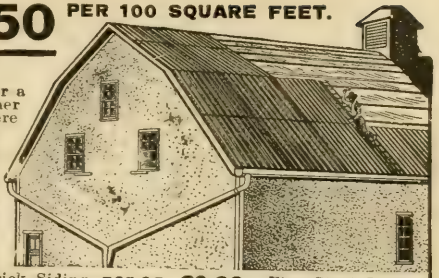

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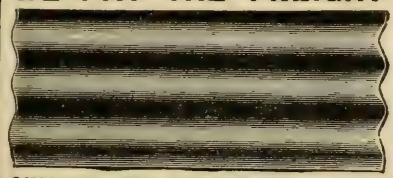

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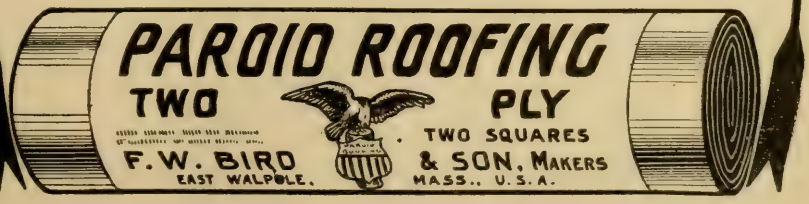

Gleanings in Bee Culture

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Since we began to send GLEANINGS in a flat wrapper there have been a good many complimentary letters from subscribers expressing their appreciation of the neat condition in which the paper reached them. There are a few instances, however, in which there appears to be some trouble yet, especially with those subscribers located on the rural routes, where the paper does not seem to have as careful handling as where delivery is made by the city carriers or at the postoffice. If subscribers continue to have their paper delivered in a soiled or mutilated condition, and will give us a brief report of the same and whether it is delivered by city carrier, rural carrier, or at the post-office, we will see if we can not have it remedied, although we can not, of course, expect to adjust every little dissatisfaction.

Some subscribers, where we have a club of two or three at one postoffice, have reported in occasional instances that they have received their own paper with two or three numbers for other parties. If this is continued, and you are handed two or three papers in a bundle, call the attention of your postmaster to the fact that it is a club, and that the papers should be distributed at his office for the several parties addressed, as he will see by examining the package. For the information of those who are interested in the manner of mailing we would explain that our address labels have the name of the subscriber only, and do not have the postoffice except where there is a single subscriber at a postoffice, in which case the address is complete. Where two or more go to the same postoffice, each paper is stamped with the subscriber's name-label, and the several copies are tied in a bundle, and the name of the postoffice is then stamped on the upper copy. The postmaster's attention is called to the fact that it is a club by a hand pointing to the postoffice name, and there should be no difficulty in the distribution at the postoffice. This explanation is made at this time in answer to several inquiries regarding our method of mailing where they have been having difficulty.

OUR ADVERTISERS.

The business man is always glad to note the same customers returning year after year, as it is a certain indication his methods of doing business are appreciated. We are moved to make this observation by the fact that some of our old advertisers have enlisted again with us for the fall and winter campaign. For example, the old-reliable Kalamazoo Stove Company is with us as usual, occupying considerable space in proclaiming the fact that they are great stove-makers. We are all aware of this fact, but they seek to remind us of it. Mr. Thompson, the presiding genius of this concern, is mayor of Kalamazoo, and one of the distinguished business men of Michigan. This company makes a business of selling its manufactures by mail instead of through dealers; and, though it costs much money to advertise, they find it pays to deal direct with the consumers.

The Rochester Radiator Co. are also again with us, soliciting a share of GLEANINGS trade. Their business is to economize heat, and in this they are very successful. The ordinary stove is a great waster of heat, and the Rochester Radiator folks claim to be able to utilize quite a percentage of what is now wasted in the shape of gas going up the chimney.

Kitselman Bros., of Muncie, Indiana, the great fence-factory folks, are also on deck again as usual. They must have a good deal of confidence in their fencing to make the offer they do. Please read it.

Again, we have with us the celebrated house of F. W. Mann Co., Box 37, Milford, Mass., whose bone-cutters have attained a world-wide celebrity. Every scientific poultry-man has heard of Mann's bone-cutters.

We also have the famous makers of steel wagon-wheels, the Empire Mfg. Co., of Quincy Ill., whose name is almost synonymous with steel wheels and low-down handy wagons for agricultural use in all countries and climates.

Another reliable firm of fence-makers is also with us this issue—the Mason Fence Co., of Leesburg, O., who advertise fencing at very low prices. If you have much fencing to do, these low prices may appeal to you.

Furthermore we have the famous G. E. Conkey Co., of Cleveland, Ohio, who again advertise their well-known poultry remedies. If you are a poultry-keeper as well as a bee-keeper (and many of our readers are) we believe it will pay you to secure a copy of the Conkey Co.'s catalog. We think well of the Conkey remedies or we would not keep them in stock at our agencies in New York, Philadelphia, Washington, Chicago, and Medina.

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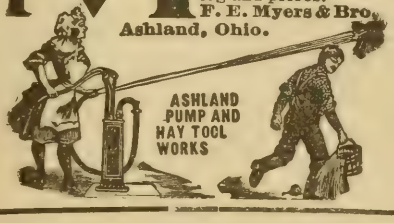

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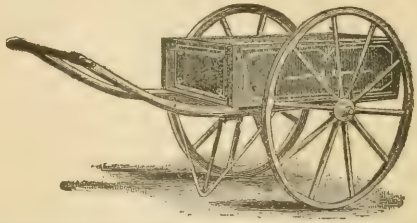

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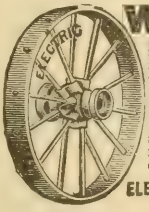

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No medical or objectionable advertising accepted.

"A Square Deal."

We believe that every advertisement in this paper is backed by a responsible person. But to make doubly sure we will make good any loss to paid subscribers sustained by trusting any deliberate swindler advertising in our display columns, and any such swindler will be publicly exposed. We protect subscribers against rogues, but we do not guarantee to adjust trifling differences between subscribers and honest responsible advertisers. With regard to the classified columns, we can not protect our readers from what they consider bad trades, where there is room for a good deal of difference of opinion. This would be impossible; but we do protect them from all deadbeats and swindlers. Of course we are not responsible for the debts of an honest bankrupt sanctioned by the courts. Notice of the complaint must be sent to us within one month of the time of the transaction, and you must have mentioned GLEANINGS IN BEE CULTURE when writing the advertiser.

CHASE, THE PAINT-MAN.

The celebrated St. Louis paint-maker has started a vigorous campaign of publicity; and his advertisement, which is to be found elsewhere in GLEANINGS, speaks in no uncertain manner of his way of doing business.

Every one who does painting knows that the chief difficulty with ready-mixed paints is that they are not always made of the best materials—pure white lead, linseed oil, and turpentine. Mr. Chase proposes to furnish in future just what people want—in fact, he makes paints to order if the Roll of Honor brand does not suit. In this respect he is unique. He also offers other grades of paint, ready mixed, so that all may be suited. He is very favorably located, as St. Louis is a splendid shipping-point for all parts of the continent, north, south, east, and west. To any of our subscribers who have it in mind to do painting this season we certainly recommend that they write to Mr. Chase and ask him for his fresh paint-book. This is a valuable little book, containing, as it does, a number of interesting facts about paints, known only to expert painters. With this Mr. Chase will send his color-card and other literature. Simply drop him a postal card addressed thus: O. L. Chase, The Paint-man, Dept. 24, St. Louis, Mo.

THE JOSEPH HORNE CO.

The advertisement of the Joseph Horne Co. is strictly appropriate to the season for it is the announcement of his annual fall catalog. This catalog we know will interest all the lady readers of GLEANINGS IN BEE CULTURE, as it contains the very latest ideas in dress-making, etc. To those of our readers who live far from the madding crowd in cities, this catalog will prove very valuable indeed. We feel sure if you have never bought goods from the Joseph Horne Co., of Pittsburg, that a trial order will please and satisfy all who purchase goods from them.

Thick, Rich, Delicious.

These are the words that describe the honey that we are offering for sale. We don't extract our honey every few days, when it is only half-ripened. It is not only left on the hives until all capped over, but for weeks after that, until it attains a smoothness, a mellowness, a richness, that can be secured in no other way. We are only now extracting honey stored in July. You may think that this is all "talk," for the purpose of selling honey, but it will cost you nothing to prove the correctness of this talk. Just send a postal, and a good big generous sample will be mailed to you, and that will settle the matter. Remember, too, that this honey is of a kind that you can't buy every day—it is from the wild red raspberry, and has a flavor all its own. It is put up in *new* 60-lb. cans, two in a case, and sold at ten cents a pound—$12.00 a case. This is a trifle above the market price, but it costs more to produce such honey—and it is worth it.

W. Z. HUTCHINSON — **FLINT, MICHIGAN**

DID YOU HAVE YOUR DISH

RIGHT SIDE UP

IF YOU DID, YOU ARE
IN NEED OF

SHIPPING-CASES

PRICES OF CASES

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10-in. 2-row "	20	15	1 20	10 50	10 00	9 50	200
16-in. 2-row "	25	18	1 50	12 00	11 50	11 00	300
8-in. 3-row "	20	15	1 30	11 50	10 75	10 00	225
6¼-in. 3-row "	20	15	1 20	11 00	10 25	9 50	200
7⅛-in. 4-row for 4x5..	30	22	1 80	16 00		14 00	300
7⅛-in. 3-row " ..	25	20	1 40	12 00		10 50	250
9¼-in. 4-row for 3⅝x5	30	22	1 80	16 00		14 00	350
6¼-in. 3-row "	25	20	1 40	11 50		10 00	200

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The A. I. ROOT COMPANY
SYRACUSE, NEW YORK

Our discounts on BEE-SUPPLIES are still in effect.

WE furnish EVERY THING needed in practical bee culture, at lowest prices. We make the DOVETAILED, LANGSTROTH, and ALTERNATING HIVES. The most practical, *up-to-date* hives are the MASSIE HIVES. We make them. Have you seen them? Have you received our new 1907 catalog? It is surely the easiest catalog to order from you ever saw. It is so easy that you can not make a mistake in your orders; a child can order from it as well as an adult. It is something new and entirely different from any you have ever seen. Write us a postal card for it to-day. It is free.

Address Kretchmer Mfg. Co., Council Bluffs, Iowa.
Muscatine Produce Co., Muscatine, Iowa. :: Trester Supply Co., 103 S. 11th St., Lincoln, Neb.
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WITH the money absolutely safe and always available is an ideal disposition of individual savings. This bank accepts deposits in any amount, and pays four per cent interest —compounded every six months.

Our booklet describes our methods and management, and explains the advantage of our simple banking-by-mail system.

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MEDINA, OHIO

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Medina Concrete Machinery Co.
22 Court Street Medina, Ohio

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and go well together

In poultry culture the main thing is health, and

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Are the World's Standard

This is the season for Roup and the sneezing, wheezing, swollen headed fowls should be quickly restored to health, usefulness and profit. You cannot afford to experiment, so use

CONKEY'S ROUP REMEDY

Just a thimbleful in the drinking water and they cure themselves. Onr absolute guarantee goes with it, and it means your money back should it disappoint you.

Conkey's Book on Poultry Free for 4c in stamps and names of two others interested. It solves the whole poultry problem and is worth dollars to any poultry raiser. **GET IT TODAY.**

THE G. E. CONKEY CO.
315 OTTAWA BLDG , CLEVELAND, O.

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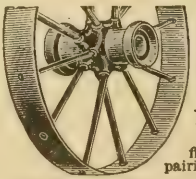

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10 days free trial. No money in advance. Send it back at our expense if you don't like it. Cat'lg free.

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Many styles and heights; Diamond or Square Mesh; prices low. **Sold direct on 30 days free trial,** freight prepaid. Catalogue free.

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48-in. stock fence per rod only
Best high carbon coiled steel spring wire. Catalog of fences, tools and supplies **FREE.** Buy direct at wholesale. Write today.

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Avoiding mistakes, learning from other bee-keepers' experiences, help to solve problems that confront you. Are you a beginner or more advanced? It matters not. **The American Bee Journal** will answer your questions, will guide you to profitable ways of getting honey. It will protect you from many errors, save you money and minutes. Active men and women who are now making money at bee-keeping answer your questions, write timely articles, explain new "wrinkles" about handling hives, getting the surplus honey easiest, fighting disease, marketing honey and beeswax, etc. These include Dr. Miller, Miss Emma M. Wilson, C. P. Dadant, Prof. Cook, F Greiner, G. M. Doolittle and others—well-known here and abroad. Dr. Miller's "Question-Box" is worth more each issue than the price for a year—25 cents.

American Bee Journal

25c. A YEAR

FREE SAMPLE COPY

Yet it isn't what we **claim** about the **American Bee Journal** that convinces. You need to see, to read a copy. Are any of your friends hungry for honey or interested in bee-keeping? Tell them how simple getting enough for the table is. Send us their names and addresses with yours. We'll send each of you a current copy of the paper.

Your Subscription Free

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The American Bee Journal is now a monthly, size 8x11, 32 pages, handsomely illustrated outside and inside. It is wide-awake, bright, up-to-date, Edited by George W. York who has been connected with it for nearly a quarter of a century. Mr. York is well-known wherever bees are kept or honey produced. He is President of the Chicago-Northwestern Bee-Keepers' Association.

For Honey and Beeswax Buyers. The market reports give late advices from the Eastern States as well as the Central and Middle West. It's safe to follow them when buying, selling, or quoting. Send the names and addresses for the sample copies to-day. Address

AMERICAN BEE JOURNAL,
118 W. Jackson, Chicago, Illinois

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If you want a stove or range of any kind for any purpose, let us send

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TRADE-MARK REGISTERED

at actual factory prices. You save from $5 to $40, because you keep in your pocket all the dealers' jobbers' and middlemen's profits. You run no risk, because we pay the freight and sell you on

360 Days Approval You not only save money but you get a stove or range of exceptionally high quality. Made of the best pig iron and steel of the highest grade, by the most skilled workmen, in one of the most modern and best equipped stove factories in the world. Every Kalamazoo is carefully inspected and we **know** it is right. If not, you get your money back without a quibble. You cannot get a better, no matter how much extra you pay. Why not save all the dealers' profit? Is it not reasonable to suppose that you can save money by buying direct from our factory?

Send Postal For Catalogue No. 416. Compare Kalamazoo Quality and Kalamazoo Prices with others—and save your money. Our line is complete, embracing stoves and ranges of all kinds for all domestic purposes,—for the home, school, church, halls, lodge rooms, etc. Hotel ranges for restaurants, boarding houses, clubs and camps, Gas stoves and ranges for cooking and heating

ALL SOLD AT ACTUAL FACTORY PRICES.

Kalamazoo Stove Company, Manufacturers,
Kalamazoo, Mich.

All Kalamazoo cook stoves and ranges are equipped with patent oven thermometer which saves fuel and makes baking and roasting easy.

ROOFING RE-MADE

5c Per Square.—We will guarantee to put any old leaky, worn-out, rusty, tin, iron, steel, paper or felt roof in perfect condition, and keep it in perfect condition for 5c per square per year.

Roof-Fix **The Perfect Roof Preserver,** makes old, worn-out roofs new. Satisfaction guaranteed or money refunded. Our **free roofing book** tells all about it. Write for it today.

The Anderson Manufacturing Co., Dept. 24, Elyria, Ohio.

SAVE HALF YOUR FUEL

BY USING THE

Rochester Radiator

Fits any Stove or Furnace.

Guaranteed to do all we claim or money refunded.

Write for booklet on heating homes.

Rochester Radiator Co.,
50 Furnace St., Rochester, N. Y.

Price from $2.00 to $12.00

For hard or soft coal, wood or gas

"If goods are wanted quick, send to Pouder."
Established 1889

Goods Should Reach You In Perfect Condition

By the Bee Crank.

If they don't, whom should you blame?

Blame the fellow who shipped them.

Sure.

Blame any one else?

Well, yes.

Might blame yourself a little.

For what?

Because you could just as easily have sent that order for supplies to Pouder, who's a crank about having goods put up right for shipment.

Pouder's supplies could be damaged in transit, of course, but they almost never are.

Does Pouder have better luck than the other fellow?

No luck. Just careful packing.

And promptness in the filling of orders.

Every order at Pouder's is a rush order, whether you call for it that way or not.

But no order is so "rush"-able that it has to be shipped without proper precautions for its safe arrival.

Here's a letter from the other end of one of Pouder's "Bee Lines."

WALTER S. POUDER, Indianapolis. Albion, Iowa.

Dear Sir:—My order of recent date for bee-supplies received, and they seem to be perfect. With this I am sending order for five more Danzenbaker hives.

Yours truly, F. E. BIVENS.

Pouder carries for immediate shipment: Metal-spaced Hoffman Frames, Danzenbaker Hives, Dovetailed Hives, Section Honey-boxes, Weed-process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and a host of other standard supplies which are told about more fully in the new catalog, that is yours for the asking. Root's goods at Root's prices, with a saving of time and freight charges.

Highest prices, cash or trade, for beeswax. Send large shipments by freight, small by express, and attach your name to pkg.

An untested Hoosier-Italian queen by return mail for 75 cents. Select untested, $1.00 each.

If you wish to purchase finest comb or extracted honey for your home trade, write for my monthly quotations of the Indianapolis honey market. No blended honey handled here.

Walter S. Pouder.

513-515 Massachusetts Avenue, Indianapolis, Ind.

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Company, Medina, Ohio

E. R. Root, Editor A. L. Boyden, Advertising Mgr.
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Vol. XXXV. SEPTEMBER 1, 1907. No. 17.

STRAY STRAWS
—by Dr. C. C. MILLER

I MEASURED worker-comb built by the bees at their own sweet will. Transversely there were from 23⅞ to 24 cells in 5 inches; diagonally there were 24½ to 25 cells in 5 inches.

COLD WATER is recommended (*Schweiz. Bztg.*, 258) as better than smoke to subdue bees. Apply in a fine spray with a large atomizer; use only in hot weather, and have the water always fresh. I tried it without great success.

SALTPETER RAGS are not so good if made too strong with saltpeter When lighted there is too nearly an explosion, and the fuel has not time to light. Don't know just what is right; perhaps half a pound of saltpeter to a gallon of water.

"DON'T TRY to winter weak colonies . . . for a weak colony in the fall is usually a dead one in the spring," says E. W. Alexander, p. 1080. I can't say it any better, but I can say it over again, for some of you young chaps need to have it thrust in your faces at every turn, and then you can't be persuaded till you lose a good many colonies for several winters.

"BEES are believed to hustle in with greater energy to fill a vacant space made between partly filled sections in which they are at work than they will do where they are allowed to have their own way of working, or continually adding from the outside," page 1075. Yet, Bro. Doolittle, I understand that you have lately come to the conclusion it is always best to add empty sections over the others. Please tell us why.

THAT HAY CURE of Bro. Scholl for robbing, p. 1078, is the favorite one in this locality, only the hay is piled to the top of the hive. [We have used a good many times this same kind of cure, only it happens to be wet grass. If robbers get to be very bad around a hive, clustering in festoons around the cracks between the cover and hive-body, we go around with a small dipper and a pail of water, and dash a little on each little cluster. A wet cloth laid over the top of the hive will do much to cool the ardor of such persistent robbers. Robber bees do not like to crawl under a wet cloth nor through wet grass. See editorial on this subject elsewhere.—ED.]

DR. OHNMAIS secured for analysis 12 samples of foundation from 12 foundation-manufacturers. Only 4 samples were of pure beeswax; 2 labeled "Guaranteed of pure beeswax" contained ceresin; and 6 contained from 40 to 75 per cent of ceresin. — *Deutsche Bzcht.* German bee-keepers better emigrate to this country, where adulteration of foundation is practically unknown. [The makers of foundation in this country have always felt that, if they desire to kill their business, the quickest way to do it is to send out adulterated wax. Our national pure-food law now in force would make it very hazardous business to put out any but a strictly pure wax.—ED]

"HAS ANY ONE ever claimed that young bees spent their whole time in brood-rearing?" quoth ye editor, page 1067. I always supposed so, that and housework in general. And I always supposed that every bee did its stunt at it up to about 16 days of age. Kramer's point is that some *never* do housework — just loaf till time for field work. [How does Kramer *know* that these identical young bees *never* do any housework? Why, he would have to sit up night and day, and watch these same bees every minute of the time — a thing practically impossible unless it were done by a relay of different people. —ED.]

THE YEAR 1907 keeps up its reputation as a freak year. The first white-clover blossom appeared June 3, but no indication of storing from it till June 28, when honey shook from brood-combs, and storing continued more or less weakly till July 21. Then bees barely

made a living till Aug. 10, when they started in on another spurt; but I don't know how much it will amount to, and I don't know how much of what is gathered comes from other sources than white clover. All this while white clover has been flourishing, and August 13 bloom appears as fresh and as plentiful as ever. Why didn't it yield during that three weeks July 21 to Aug. 10? Plenty of bloom in sight, neither too wet nor too dry, too cold nor too warm, at least not enough to account for the failure, but it just didn't yield.

"DON'T TRY to winter a queen the third winter," says E. W. Alexander, p. 1080. I wonder if there isn't a difference made by locality, strain of bees, or something. Twenty-four of my colonies this year have queens reared in 1904, and I don't see but they average fairly with others, some of them the best. I don't believe longevity in bees is appreciated as it should be. If six weeks is the average life of a worker in summer (lately the tendency is to discount that a little), and if it takes to the field at 16 days of age, then a worker that lives 48 days instead of 42 ought to gather 23 per cent more than the average. Even if it lives only a day more than the average, it ought to gather 104 pounds for every 100 pounds gathered by the average bee. If a strain of bees has queens that last three years and do good work, and another strain has queens that are good for only two years, would you not naturally expect that there would be a difference in the ages of the workers from the two queens? And how will you encourage long life in the workers any better than by favoring long life in the queens? The thing is worth thinking over.

"WHAT IS THE MATTER with sheep in a sheep-pasture when the hives are low down?" says J. E. Crane, page 1073. One year sheep were in the Hastings yard for a short time, and they shoved the hives off the stands. I congratulate you if you succeed, for sheep keep down the grass so nicely. The difference may be that in my case the yard was small and the sheep crowded; perhaps your sheep-pasture was large. This year I had experience in another direction. A sheep-pasture adjoins the Wilson apiary, and I've seen a sheep run frantically as if crazy with stings. Not many days ago, when I went to that apiary I found a sheep inside the apiary, hung in the fence, dead. I don't know whether it was stung to death, or driven by the bees to hang itself, but I don't believe it would have died if there had been no bees there. Cattle, horses, and hogs have all had a chance at my bees, and none have been so troublesome as sheep. But if the enclosure is large enough, none of them may do harm. [At our north yards sheep have access to the bees. The only trouble we ever had was when some of them lay down at night and shoved some of the baby nuclei off their stands. A neighbor having a lot of sheep was short of pasturage. Our basswood grove was growing up to weeds and underbrush. We finally effected an arrangement by which the sheep have access to this grove. So far nothing serious has happened. Sheep have the range of the Vernon Burt yards, and he finds they keep the weeds down nicely around the hives; but they appear to have learned the trick of doing the "lawn-mowing" around the hives at night.—ED.]

REFERRING to your note, p. 1068, Mr. Editor, admitting the laying of worker-eggs in Swarthmore cell cups and other places, is it not just possible that there is something about the position of the queen's legs or body when laying in a drone-cell, either complete or incomplete, that prevents the fertilization of the egg? All that, however, is aside from my point, which perhaps you did not get. It is this: If fertilization is entirely a matter of the queen's will, why does she not will to lay worker-eggs in drone-cells without the mouths of the cells being first narrowed? or does she sometimes do so? An answer to either or both those questions will be welcomed. In the several cases of worker-brood in drone-cells that I have known, the mouth of the cell was narrowed; but I've known only a few cases, and it may be that others have found drone-cells unchanged and still worker-brood in them. [We do not quite see how the conditions surrounding normal drone-cells can be any different (except to be worse) than those surrounding the Swarthmore artificial queen-cups which have no restriction of the opening, for, as a matter of fact, bees do not have time to restrict the openings, as the queen will often occupy them, so we are told, almost immediately. Some of the evidence that was submitted, unless I am very much mistaken, bore on the very point that you have called up—that the queen will lay worker eggs in drone-cells that are not restricted at the mouth.—ED.]

THIS year there will probably be offered to the market considerable off-grade comb honey. The general poorness of the season, too much rain and too much drouth, will make a good deal of the honey travel-stained and a mixed lot, and many of the cells unfinished. For that reason a strictly No. 1 and "Fancy" should bring a greater difference between off-grade price and No. 1 and "Fancy" price. If the dealer fails to get the fancy at 16 and 17, let him try offering 18 and 20.

MORE IRRIGATION PROJECTS.

DEFINITE preliminary work has commenced on the Fort Hall Indian Reservation, in Idaho, to provide an irrigation system of

60,000 acres for the use of the Indians on it. Congress appropriated $350,000 for this work at its last session. This is one of a number of irrigation projects for the benefit of the Indians, and has nothing to do with the work of the Reclamation Service, and for this reason is constructed solely at government expense. These Indian irrigation projects will probably become excellent bee-ranges, as they are primarily intended for the growing of alfalfa, and there is no likelihood of the owners cutting the hay before the blooming period. Congress has recently provided for several projects of this kind for the express benefit of the Indians.

APIARIES IN NATIONAL FORESTS; HOW UNCLE SAM PROPOSES TO PROTECT BEE-RANGES.

THE Forest Service at Washington has sent us a copy of their "Use Book," which contains in a condensed condition the rules and regulations of the national forest reserves, and also game-refuge reserves. To many of our readers this book will be of considerable value, as it supplies official information on points which interest them.

We note, for example, on page 44, provision is made for regulating the number of apiaries on forest reserves so that the bee-keeper on government land is protected against overstocking.

HONEY-CROP CONDITIONS AGAIN.

WE are of the opinion now that considerable medium and off-grade honey east of the Mississippi has been secured — perhaps as much as last season; but that is not saying very much, for that was a light year. In some sections of the West it is reported that there will be a larger and better crop of alfalfa honey this year than for several years back. But this will not affect eastern prices in any event. As we have pointed out elsewhere, the amount of fancy and No. 1 Eastern comb honey will be exceptionally small —smaller than a year ago. Dealers will have to offer better prices if they expect to get it. There is no reason why a bee-keeper should sell at as low figures as last year. Those who have honey ready for sale should let the fact be known. Do not wait until every one else is ready to unload.

There seems to be a tendency on the part of some dealers in honey to offer no better figures than last year. Such quotations will not get much honey. It is bound to command a higher price. Taking the country over, the crop has been light, and, moreover, the heavy losses of bees during the late winter and unfavorable spring have put many bee-keepers out of business, or so crippled them that they will have no honey for sale. Another thing to remember is that fruit is scarce, and this fact always favors an advance in honey; and, lastly, the national pure-food law is in operation, cutting out all spurious imitations of honey, leaving the genuine article a free swing.

HONEY FROM LOCUST.

THE black and honey locust-trees are more popular in Europe than in their own native America, and some of the bee-keepers over there get a crop of acacia (locust) honey. A bee-keeper at Bourg-Leopold, Belgium, put a hive on scales this season when locusts were in bloom, with the following results, carefully tabulated. The kilogram is 2⅕ lbs.

Date.	Weights at night.	Loss.	Increase.	Weather conditions.
May 26	Kilos. 50.500			Good.
June 4	" 49.250	1.250		Cloudy.
" 5	" 50.450		1.200	Cloudy and hot.
" 6	" 50.500		.500	Cloudy.
" 7	" 50.600		1.000	Fair.
" 8	" 52.500		1.900	Cloudy.
" 9	" 57.800		5.300	Fair and hot.
" 10	" 60.200		2.400	Fair and hot.
" 11	" 63.500		3.300	Good.
" 12	" 65.500			Overcast, rainy.
" 13	" 65.300			Overcast, rainy.
" 14	" 64.500		1.000	Overcast.
" 15	" 66.000		1.500	Overcast, stormy.
			16.750	
			1.250	
			15.500	

The 15½ kilos obtained equal about 34 lbs., or at the rate of 2 lbs. a day. The above is translated from *Le Progres Apicole*.

THE NEED OF A PURE-FOOD LAW IN FLORIDA.

THE *Florida Agriculturist* laments the want of a pure-food law, in the following words:

We had hoped that our legislature would pass a pure-food law. We saw a statement in one of our State exchanges that such a law was passed; but in all the lists of laws which we have seen no such bill appears. They did pass one amending the pure-stock food law, making it stronger. This was all right. We do not object to that, but we do say that it is a great reproach to our legislators that they thought more of their horses, mules, and cows than they did of their wives and children, to say nothing of their own stomachs. We have not the slightest doubt that there are thousands of dollars of goods stored in this State which could not be sold if a pure-food law had been passed, nor could it be shipped out under the United States law.

The friends of pure food in the South ought not to rest till the necessary legislation has been provided, which will protect the consumers against all food frauds.

GLUCOSE GETS ANOTHER SLAP.

GLUCOSE gets slaps from all directions. The latest appears in the *Louisiana Planter* as follows:

It is manifest that, under the pure-food laws, Louisiana syrups and molasses, when of fine flavor, are bound to come more into general use. The tasteless corn syrups that have been used as a foundation on which to add a little color and flavor and thus stimulate Louisiana molasses and syrup and maple molasses and syrup, can no longer be sold in the open. They must now bear the brand of Cain upon their brows and be recognized by all men.

Out in the parish of Lafayette, where considerable attention of late has been given to the manufacture of cane syrup, the industry is attracting still more attention; and from the *Lafayette Gazette* we learn that a cane syrup company has been organized with a capital of $25,000 for the purpose of manufacturing cane syrup at Youngsville in that parish. We certainly wish this new corporation success, and believe that we ought to have hundreds of such in our State, which, with the excellent produce that they can secure, and

the vast market that presents itself among the eighty millions of people in our country, ought to make such ventures quite profitable.

It is hardly possible to estimate the damage done to syrup-makers and honey-producers by glucose masquerading under assumed names. Bee-keepers will in future have to compete with real syrup; but there is no reason why we should be alarmed, as fair open competition can not hurt us. Honey stands so high above all competitors that it is likely to hold out for all time.

TREE ALFALFA, OR TAGASASTE (*Cytisus proliferus*).

THIS is quite a different plant from alfalfa, though it is as popular with bees as its namesake. Rambler mentioned it as a great bee-plant in his California rambles. It makes a good hedge, as it belongs to the broom family. A writer in the *New Zealand Farmer* gives excellent directions as to the cultivation of tagasaste for hedges, as follows:

To obtain the best results the seed should be sown in early spring; and to assist germination it should be first steeped in very hot water (not boiling), to which a little washing-soda is added. Pouring on the water and letting it stand till quite cold will suffice to soften the seed, and, after straining, the addition of a little dry sand will separate it nicely for sowing. It is important that seeds treated in this manner should be sown immediately.

The ground should be thoroughly worked (as for onions), and if, as is to be recommended, a double row is contemplated, the width of the prepared bed should not be less than 4 ft. Sow the seed three in a place at a distance of 3 ft. apart and 1 ft. from edge of bed on either side, alternating the second row with the first. This gives a distance of 2 ft. between the rows. Thin out the plants as they advance, to the strongest in each place, and during the year keep the clippers constantly at work to promote a dense base. Cutting must not be neglected if a good close hedge is required. It also tends to prolong the life of the plant by curtailing its free-flowering and seed-bearing propensities.

PARCELS POST AND THE BENEFIT IT WOULD BE TO BEE-KEEPERS.

IT looks just now as if the next great political battle would be over the passage of a law providing for the inauguration of a parcels-post service. The new Postmaster general, who must be well acquainted with European parcels-post systems, is supposed to be favorable, and no doubt President Roosevelt will aid all he can.

John Wanamaker, who was one of the best postmasters-general the United States ever had, once said there existed six great obstacles to a parcels-post, by which he meant the six express companies. This is not quite true, however, for the express companies have since that time been very busy in creating a sentiment in their own favor, and it is well known that one Senator remains in the Senate merely to see that the parcels-post idea is not carried out. This will be a farmers' battle against the railroad owners and their friends.

Of course it is said a parcels post would not pay; but that is poor a argument, for the Adams Express Company recently declared a dividend of 213 per cent, of which 200 per cent was given in new stock and 13 per cent in cash.

Bee-keepers would be greatly helped by the establishment of a parcels post, for in Europe the bee-men make a liberal use of it, sending in many cases both comb and extracted honey to retail purchasers.

LIPPIA, OR CARPET GRASS, IN CALIFORNIA.

AS GLEANINGS was probably the first journal to give lippia a write-up such as it really merited, we are glad to note that it is making so much headway in California. It is one of the best honey-plants that grow in the Golden State. The following from the *Pacific Rural Press* explains itself:

Edward F. Adams, who is a discerning amateur in the growth of ornamental plants in his garden near the Golden Gate Park, in San Francisco, makes the following contribution to knowledge of the availability of *Lippia repens* for lawn purposes:

Lippia, the new lawn plant introduced within a few years, is making great headway in the State. During the greater part of the year it looks quite as well as grass, and does not require half the water or one-tenth of the attention. The one objection which the writer has found is its persistent determination to rest during about two or three months of the year, when it is not at all pretty to look at. One or two cuttings during the summer with the lawn-mower is quite sufficient; and if it be left with a pretty good growth in the fall the plant will remain reasonably green a long time after it has stopped growing. In the end, however, it will turn brown and must be cut off, when it may remain for some little time without showing any green. It depends on the spring. This very cold spring the lippia did not start to grow in this city until about the middle of April of April; but the writer's plot is situated on a hill in one of the coldest spots in San Francisco. In warmer parts of the States the brown period is probably much shorter than in this city. To get a good lawn in the first year the plants should be set about six inches apart each way, although in places warmer than this city the plants may cover the ground the first year if set a foot apart. Lippia likes a reasonable amount of heat, and in San Francisco it is rather slow in covering the ground, and rather scanty in growth in shaded spots. It is said that it can smother most weeds and grasses, as to which we do not know, for we have pulled all weeds as they appeared. Some of the papers are calling lippia a *grass*, which, of course, it is not. It belongs to the *Verbena* family. It is claimed by some that it will "thrive" on the poorest soil and almost without water. We do not think so.

SULPHUR DIOXID IN FOOD.

As we predicted, the syrup and glucose people would be struck very hard by the new pure-food laws, both State and national. The Board of Food and Drugs Inspection has issued a ruling in which manufacturers of syrups, sugars, and other foods are informed that the amonnt of sulphur dioxid must not exceed 350 milligrams per kilo or liter (quart), or .035 of one per cent; and, furthermore, the presence of sulphur dioxid must be stated on the label. This ruling will hit the syrup-makers very hard, and it is problematic if they can continue to do business. It is needless to say they are excited about this new move. This ruling also affects the dried-fruit men very much, as they hardly know how to do business without the fumes of burning sulphur. We believe, however, the Department of Agriculture is actuated by the highest motives in making this decision, for it is unquestionably true that it takes but a very small portion of the powerful chemicals produced by sulphur to affect adversely the human system, especially those whose constitution may be weak, such as children and invalids. The desire to produce and sell "cheap" foods is responsible for the death of an enormous number

of people annually; besides, it is unfair to the producers of purely natural foods to allow these imitations to sell freely. When compelled to do so we will find a way of producing excellent syrups without using chemicals. The United States can produce a vast deal more honey if the price is slightly raised. There will not only be more of it but it will be better in quality; but the beekeepers of this country must not be compelled to compete with artifiicial products that are far inferior to honey. The words "sulphur dioxid" on the label will cause educated mothers to pause before offering the contents to their children. "Doctored" foods have had their day, and we hope the decision will be allowed to stand.

THE VALUE OF THE ROBBER-TRAP; HOW IT CAN BE USED TO OBVIATE THE ROBBING NUISANCE.

At this time of the year it often happens, even in a well-regulated apiary, that a weak colony may be suddenly overcome by robbers. In some cases it is, perhaps, best to let the rascals finish up the job; for to take away the hive or to close the entrance will only have the effect of causing an attack of every other weak colony in the yard. Many bees will be killed, resulting in a general disturbance throughout the apiary. For several days thereafter the apiarist will be compelled to work with extreme caution. Experience has shown us that in some cases, at least, when a colony has been nearly overpowered, or quite so, it is best to let the robbers finish up the job, when they will be inclined to go home, although they will be more or less annoying for several days afterward.

Very lately we have found a remedy that does away with the whole trouble, and that, too, within a very few hours. This consists simply of the use of a robber-trap. This is nothing more nor less than an ordinary hive having a contracted entrance and a bee-escape on the inside, so placed that bees can pass in readily but not out. A long wire cloth with a gradual taper is better than any other form of escape, for this purpose at least.

We will assume that a bad case of robbing has suddenly developed in which the colony or nucleus is nearly overpowered if not entirely so. If the attack is confined to the one colony, the problem is much simpler. In that case we remove the attacked hive immediately, and put it down cellar with the windows all darkened but one, so that the bees that do not belong in the hive can escape and go back. On the stand of the hive of the colony removed we put the hive with the bee-escape on the inside of the entrance, or what we will call our trap, when, presto! all the robbers will rush into this hive and be imprisoned. It is only a matter of an hour or so before they are all caught; and what was once a perfect uproar in the yard will now be as quiet as though nothing had ever happened. When this condition prevails, or toward nightfall, the attacked colony that was put in the cellar is put back on its own stand, but with its entrance contracted down to a space so that only one bee can pass at a time. A frame of young bees is shaken into the hive, and nearly all the honey is taken away, if any is left, and in its stead will be given a cake of hard dry candy. The robber-trap, with its gang of mischief-makers, is now put down cellar where it will be cool, and where there will not be much danger of suffocation. Strips of broken sections, or any pieces of wood not more than one-eighth inch thick, are now carefully slid between the cover and hive-body containing the confined bees. One of these is placed at each of the four corners. This will make a gap of one-eighth inch between the cover and the hive, or a crack just too narrow for the bees to pass through. This is to give the bees ventilation; and a cellar is just the place to put a lot of confined bees. After being confined for two days they may require to be fed. We would advise keeping them shut up for a week, or, better, take them to an out-yard or some location about two miles away from the scene of their recent powwows. Give them a queen or queen-cell, and let them start housekeeping.

It is bad practice to allow a lot of robbers that have once had a taste of stolen sweets to remain in the yard. For days and weeks afterward, they will follow around, hectoring other colonies and the apiarist as well. If any hive be opened they are ready to pounce upon it. Instead of letting them have their liberty again it will be actual economy to brimstone them; but, of course, it is better to take them to an out-yard or some spot away off by themselves. This robber-trap idea was originally suggested by J. F. McIntyre, of California, and it is a wonder beekeepers have not made use of the device more than they have. Queen-breeders especially will do well to have a trap handy.

Of course, if robbing in the yard should be general, involving nearly every colony, the trap plan will not be effective.

MOST OF THE ROBBERS FROM ONE OR TWO COLONIES.

In this connection it will be well to remember that a great proportion of the robbers, if the robbing has only just commenced, will come from only one or two of the colonies. Track them back to their homes by sprinkling flour on them; and if they belong to one or two hives only, shut the entrance at night and tote them off to some isolated spot. In that case it may be well to unite the two of them so they can not rob from each other.

The colony that has a tendency to rob is often one that has bees that are good workers. We found this to be true of the bees of our red-clover mother 25 years ago. They would gather honey and keep their hives full when other bees were starving, and, what was more, they were the worst robbers we ever saw. Their mania for getting sweets caused them to make no discrimination between that acquired by honest toil and that actually stolen outright.

THE QUESTION OF HONEY-LABELS AGAIN, AND THE POSITION OF THE BOARD OF FOOD AND DRUG INSPECTION.

IN our issue for Aug. 1, page 1009, we published a letter from Secretary Wilson and two government officials on the subject of the proper wording to be used on honey-labels when the honey was bottled by some one other than the producer. It will be recalled that we presented some arguments in favor of the phrase "put up by" as against the other phrase, "distributed by," which latter seemed to have the approval of Secretary Wilson and his colleagues. We sent a copy of that editorial to Frederick L. Dunlap, acting chairman of the Board of Food and Drug Inspection, asking whether or not, in view of the further evidence presented, the Board would not sanction the wording "put up by" for all cases where honey was bottled by some one other than the producer. We received a letter from Mr. Dunlap, but it came a little too late for insertion in our Aug. 15th issue, and therefore we present it at this time.

U. S. DEPARTMENT OF AGRICULTURE,
BOARD OF FOOD AND DRUG INSPECTION.
Washington, D. C., Aug. 7.

Mr. E. R. Root:—I have noted with interest what you say about the labels which have already been printed containing the phrase "put up by," and that this expression has always been understood by the bee-keeping trade, producers, and bottlers generally, as meaning "packed by" in the sense that the honey was bought of some one other than the packer, and prepared for market. While this interpretation of the phrase "put up by" is understood by the trade, bottlers, and producers, in the sense that you suggest, yet the Food and Drugs Act requires that the label shall bear no statement that is misleading in any particular. Of course, this means misleading to the purchaser or consumer, so that it reduces itself down to the question whether or not the phrase "put up by" is understood by the consumer to mean the same as you state it is understood to mean by the bee-keepers, bottlers, and producers. This is, it seems to me, the kernel of the whole question. In order to differentiate between the actual producer and the one who is not the actual producer, but yet desires his name on the package, suggestions have been made that in the latter case the words "prepared for," "manufactured for," "distributed by," etc., be used.

I do not see on what grounds it would be possible for the bee-keepers who bottle their own honey, sell it under their own label with their own names attached, and then later, when their own supply of honey is exhausted, buy from other producers and bottle the product thus obtained, to sell it under the identical label that they used in the first case where they were the actual producers of the honey. In other words, the phrase "put up by" is not sufficiently explicit to be of much significance to the ordinary consumer. It does not differentiate between the actual producer and the one who is not, which differentiation is necessary.

I do not see that it is possible to get a phrase which would be satisfactory, and cover alike the honey produced by the bottler and that which he buys of some one else. Any such phrase that would be satisfactory to the bottler would be misleading to the public because it would leave them absolutely in the dark as to whether the bottler were the actual producer or bottled the product of the apiary of somebody else.

Respectfully,
F. L. DUNLAP. *Acting Chairman.*

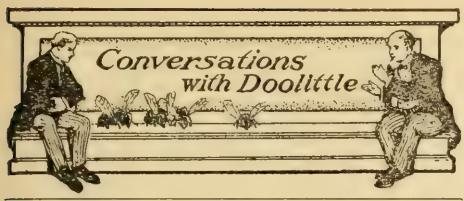
Mr. Dunlap draws attention to the fact that the national pure-food law, among other things, will not allow a statement on the label that is in any sense misleading to the consumer. It is possible that the latter would be misled by the phrase "put up by;" but it is our opinion that he would not; but in this we may be mistaken.

As a matter of fact, three wordings have been used on honey-labels. When the bottler is the producer he uses the phrase "produced by" or "from the apiary of." But when the honey does not come from his bees he uses the phrase "put up by," providing he is honest; and under the new law it will not be safe for him to be otherwise. Moreover, it has long been customary to use the words "put up by" on labels covering honey both produced by and purchased by the undersigned on the label. The question, as Mr. Dunlap now says, hinges on whether or not the consumer does understand and has understood these distinctions. We are of the opinion he does.

In relation to the question whether it is practical to use one label on a honey which one may take from his own bees and that which he might buy, it would seem to us that the words "distributed by," if officially sanctioned by the Board, might be used without defrauding or misleading. If one were a producer, and used the words "distributed by" on his honey, the language would not convey to the consumer the impression that he was buying a better article when he was not; for it should always be understood that, when one knows the honey comes from his own bees, he has direct knowledge that the same is not adulterated. Therefore, if he does not claim more than he has a right to, he is not deceiving his customer into buying an inferior article. Nay, rather, he is giving him a better one.

It had not previously occurred to us that the words "distributed by," however objectionable, could not be used on the two kinds of honey. If it be necessary for the average bee-keeper to have two sets of labels, one to use on honey of his own production and another on a product that he buys, it would entail an extra expense and no little inconvenience. To be compelled to use two different labels on a honey that is identical in quality and flavor to any other honey would at once convey to the consumer the impression that one lot was not as good as the other, or at least different. All the consumer wants to know is that he is getting a honey that is identical in quality and flavor to that which he had before. He does not care whether it is produced by the bottler or some one else equally competent to produce the same article.

However much some rulings may inconvenience some honest people, it is a matter of gratification that the authorities are overstrenuous rather than too lax in the interpretation of a law that is doing and will do more for the bee-keeping industry than any other piece of legislation that has ever been enacted. A little laxness at the start might practically nullify the law entirely. If we can not get just what we want we will take what we can get and be very thankful. In the mean time we shall not despair of a ruling favorable to the phrase "put up by" in the sense indicated.



BEES SWELLING, ETC.

"Good morning, Mr. Doolittle. Basswood now in full bloom this the 27th day of July. How is that for a late season?"

"Latest I ever knew. Are the trees yielding any nectar in your locality?"

"Basswood has yielded finely for us during the last three days; and if this hot muggy weather continues it looks as if we might get a good yield of white honey in spite of the drawbacks heretofore. But, say—did you ever notice how a colony of bees seems to swell when a good basswood flow comes on? how a colony that seemed comfortable in the hive, just before this, now can not find room to work, so they pile out of the hive, especially toward night on warm days?"

"Yes, I have noticed this scores of times."

"I put on the supers at once; but I want to know why the bees swell so, as soon as a good flow of nectar is on."

"You did the proper thing in putting on the sections or supers; but why the bees swelled is something which very many fail to think any thing about."

"What makes you think that way?"

"Because many of our ablest bee-keepers have told us, during the past, that the workers which come in loaded from the fields deposit their nectar immediately in the cells of the comb, arguing that, for this reason, there should be a direct passage from the outside of the hive to the suplus arrangement, so the field bees may be saved the trouble of crowding up through the massed bees in the brood-chamber to get at the empty cells in the supers in order to unload."

"I have such direct passageways to my supers; don't you?"

"No."

"Why not?"

"The answer to that comes with the answer to why the bees swell when a flow of nectar comes on. The reason for the bees swelling lies in this fact: Before the honey-flow there was no nectar in the honey-sacs of any of the bees in the hive, hence the segments of the abdomen telescoped over each other, thus contracting the abdomen to the smallest possible space, thus allowing thousands of bees to mass themselves in the smallest possible space. When the honey-flow comes on, the field bees give their loads of nectar to the hive bees, which causes their abdomens to be drawn out, as it were, the same as a telescope is drawn out, in order that the now filled honey-sacs may find room for the necessary expansion. And thus it comes about that two bees now occupy the place of that occupied by three or four before the flow of nectar was on, and only as room is given can they be kept from crowding out on the outside of the hive, providing the hive was filled with bees before the nectar yield came on."

"Then you claim that the field bees give their loads of nectar to other bees instead of depositing it in the cells."

"Yes."

"What do these other bees do with it?"

"They hold it till it is properly evaporated, when it is deposited in the cells, more taken from the field bees again, and so on till the honey season closes, when all is deposited in the cells, and the abdomen telescopes back together again, and the colony assumes the same massed condition as at first."

"Well, if this is so then that entrance to the supers is surely unnecessary. But does not this swelling of the bees bring on swarming?"

"Has much to do with it, in all probability."

"Then why does not the giving of room at just the right time, when this expansion or swelling begins, stop swarming?"

"It will."

"But it does not. No matter how much section room I give my colonies they will insist on swarming."

"But you are simply giving the bees *empty* space. Just fill that space with empty comb and you will find that the bees will not swarm. Listen to what that veteran bee keeper, Moses Quinby, wrote: A large amount of room filled with empty comb will entirely prevent swarming; and years of experience and experimenting has proven that Mr. Quinby was right. Let me illustrate this thing for you a little further: Let a strong colony occupy a drygoods box, the same being four feet square on the inside, they having a space of only about 2000 cubic inches occupied with comb, and that colony will swarm, notwithstanding all the room there is in the box. But if the whole box is filled with comb, no swarm will issue under the conditions described. Later on in the season, should there ever come a time, through a continuous honey-flow, for months, when the combs in the whole box are fully occupied with bees, brood, and honey, there might be a possibility of a swarm issuing, but not a probability."

"That is something I had never thought about, and something I have never tried. But there is one other thing I wish to talk about before I go home. It is this: When trying to stop all after swarming I open the hive and cut off all the queen-cells, but one, saving the best-looking one. Is that a good way?"

"Such a course will do, but I do not like the plan. In the first place, it prohibits the shaking of the bees off the comb that has the cell on which is to be saved; for should you shake the frame, the inmate of the cell will too often be injured to make it safe for you to do so. If she is thus injured you will not have a good queen to head that colony, no

matter if you have picked out the best cell."

"But suppose I do not shake the bees off any of the frames."

"If you do not shake the bees off their combs, then you must brush them off, which is a job I do not care to undertake at a time they are the most prone to resent such treatment."

"Why shake or brush at all?"

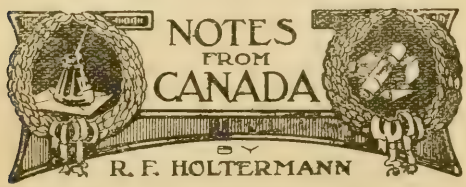
"Because if you do not there is a reasonable possibility that some cell will be overlooked by being under some cluster of bees, or hidden away in some out-of-the-way place which the bees help to make obscure. If you miss a single cell besides the one you intend to save, the thing you are wishing to avoid (after-swarming) will as surely result as though you did not try to cut the cells at all."

"I see. Have you any other objection?"

"Yes, we are not always blessed, as a rule, with apiaries in which *every* colony in the same is the best of stock; hence if we adopt this selection-of-cell plan we will be continuing inferior stock in our apiary."

"That is right. Strange I had not thought of that. How do you work?"

"Under such conditions as we have been talking about I much prefer to rear queens from my *best* stock, planning so the cells from which these queens will emerge will be about ripe when the cutting of cells will be likely to occur, when after all the cells are off, before closing the hive, I insert one of these cells with an assurance of a really *good* queen, not given by any other plan from queen-cells with which I am acquainted. Besides, if we have planned rightly the queen from the inserted cell will be laying a day or two earlier than would be the one from a selected cell, which will make a little gain in this matter."



NORMAL HONEY FREE FROM GERMS.

Lately Edinger has discovered that *potassium rhodanate* is the active principle in saliva which destroys germs in food when well masticated, but it is harmless to the individual. The germicidal properties of saliva as exhibited during recent experiments were remarkable, for in a solution of three parts to the thousand the bacilli of cholera morbus were destroyed in a minute, while the diphtheria bacillus was destroyed in the same time by a solution of three times that strength. This strongly upholds my theory that the head secretion added to nectar by the bee is a germ-destroyer and a preventive of germ development in honey.

We also learn more than ever the importance of eating and drinking slowly, and the more so when we are in strange places, where neither food nor water may be free from germs injurious to health.

RED OR BLIND LOUSE PARASITE.

"Has any one noticed how very prevalent has been the red or blind louse parasite on queens this year? I have noticed some queens only three weeks old covered with these vermin.—AMATEUR, Cheltenham," in *British Bee Journal*, Sept. 6, 1906. I remember these parasites on queens some 27 years ago when I was with D. A. Jones. They, no doubt, were imported with queens from the island of Cypress and from Palestine. Since that time I have never seen such a parasite. The creature having been imported, and not spread, there must surely be something in our climate which does not agree with them.

SIDE-OPENING VS. TOP-OPENING HIVES.

In L. Stachelhausen's article on page 1009, GLEANINGS, 1906, he states many good things. He has sent for many samples of self-spacers for frames. I, too, have sent for the samples. The one I prefer is not there illustrated. It is a brass-headed nail which drives to the head, the latter being broad at the base, and sloping toward the crown to prevent the nail-heads from catching on neighboring top-bars. I prefer this to a staple. He states, "In a top opening hive, or one which is operated from one of the ends, the correct place for the spacer is on the hive." I could not be induced to use such a spacer at all.

WHAT IS INSTINCT?

To me instinct in animals, including bees, simply means that these naturally follow a law implanted in them when created, as recounted in Genesis; so seen, all is to me easy to comprehend. Scripture (Heb. 11:3) speaks of "science falsely so called," and states, "Through faith we understand that the worlds were framed by the word of God, so that things which are seen were not made of things which do appear." Science will never master the question; but through faith, those which have become as little children may.

PROPOLIS.

On page 484 J. L. Byers gently raps me over the knuckles for advising rubbing a little propolis on the fingers before touching a queen. He states, "Dear me! the problem with a number of us has been how to keep the propolis *off* our fingers." I can largely solve this for our friend. Scrape every part of the hive in the spring. If Mrs. Byers did not clean house occasionally—but, enough said. That has more to do with the matter than locality; 'fess now, Byers (and others), if propolis is so very troublesome you do not do this in the spring.

CARNIOLAN BEES.

Friend Byers in the same article gives his experience with Italian and Carniolan bees

for building up. He gives bees with Carniolan blood a long preference for building up this spring. I never saw as conspicuous a difference as this spring, and all in favor of Carniolan blood for building up; and yet last week I had a letter from a good bee-keeper who states that they are all right for building up, but no good for honey-gathering. The explanation must be that the hive was too small or the super room insufficient. Carniolans can not be run in this way; and if they break to pieces swarming, the honey will not be obtained. Again, if they are kept from swarming when they have the impulse, they resent such treatment more than other varieties.

WHITE-HONEY FLOW.

The white-honey flow is over, and the crop will be from very little in some localities to excellent. There is this, however, to remember: The market was absolutely bare of old honey. The heavy winter loss two years ago wiped two-thirds of the bees out. A year ago swarming and increase were very moderate. Last winter, and the spring, again, wiped out half or more of the remaining bees; the crop, therefore, will not be large. The United States is, perhaps, much like ourselves as to loss of bees. The flow there has generally been poor, and all the honey it has produced will sell at a high price. The duty on honey into Canada is 3 cents per lb. Fruit is high, and the price of honey will be higher than in many years.

Gleanings from Foreign Fields.

BY W. K. MORRISON.

In connection with the show of the Confectionery trades in the Royal Agricultural Hall, London, England, there will be a bee and honey show, Sept. 7—14. The cash prizes amount to nearly $480 00. Silver and bronze medals are also offered.

Dr. Miller thinks the Swiss favor the blacks altogether; but M. Ruffy, some time ago, obtained the votes of 204 bee-keepers as follows: 95 for crosses (hybrids); 90 for blacks, 12 for Italians, and 7 for Carniolans. It ought to be remembered that the leather-colored Italian is a natural cross or hybrid between the yellow bee of the plains and the black of the mountains, and, like all crosses, has greater size and more stamina than the originals. It has more Italian blood than black, and reverts back in this country to the original yellow stock.

A NEW BEE JOURNAL.

Australia has a new bee-journal bearing the significant title, *The Commonwealth Bee-keeper*. It has hitherto formed a part of the *Fruit World*, but now feels able to walk alone. And by the looks of the first number it can do it, as the subject matter is original, and well printed on good paper. It has the true Australian flavor about it too. The editor and publisher is W. L. Davey, of Melbourne, who is thoroughly posted on the bee-keeping industry of the antipodes, and who is likely to make a distinct success of his new enterprise if any one can.

The Australians have their troubles as well as we, in that land of the kangaroo. According to *The Commonwealth Bee-keeper* there is some danger of legislation being enacted which will allow the valuable native forests to be destroyed by "ring-barking." This practice is about as disastrous as a forest fire is with us. It has been the practice of the Australian government to parcel out the land in vast ranches to capitalists who forthwith destroy all trees by a process known as "ring-barking." It is needless to say there is a class who want this plan continued till all the land is taken up. The bee-keepers want this stopped, as the principal forest trees of the Australian continent are honey-bearing. It is to be hoped they will succeed.

Owing to the death of its owner, *El Colmenero Espanol* (The Spanish Bee-keeper) was discontinued some time ago. A new paper, the *Gazeta Apistica*, published at the same address, has just appeared to take its place, and Spain again joins the ranks of modern apiculture.

Almost simultaneously with the foregoing has appeared *La Apicultura Espanola*, also published at Barcelona, Spain, Gerona, 181. M. Pous Fabreques is editor.

We learn from *Corrispondenza Apistica* that a new bee-journal has recently been started in Rome, Italy. It is styled *L'Avvenire Apicolo*, and it is edited by Prof. G. Bonafede, of Rome. The address of the new aspirant for apicultural honors is 168 Via Principe Amedeo, Rome.

BEE-JOURNALS IN THE GERMAN LANGUAGE.

"Allgemeine Zeitung für Bienenzucht," Konstance, Germany.

"Bayerische Bienen- und Obst-bauzeitung," Neumarkt, Germany.

"Bienenvater," Vienna, Austria.

"Das Bienenwirtschaftliches Centralblatt," Hannover, Germany.

"Bienenzeitung," Limpertsberg bei Luxemburg, Luxemburg.

"Bienenzeitung für Schleswig-Holstein," Husum, Germany.

"Der deutsche Imker aus Böhmen," Prag, Bohemia, Austria.

"Deutsche illustrierte Bienenzeitung," Leipzig, Germany.

"Die Biene," Uschaffenburg, Germany.

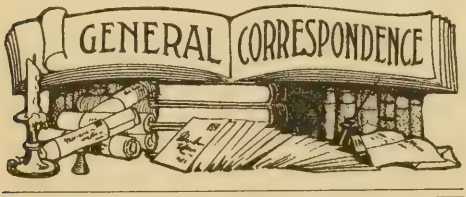
"Die Biene," Hirzenhain, Hesse, Germany.

"Die Bienenplege," Hustingen, Wurtemberg.

"Die Bie und ihre Zucht," Durlach, Baden, Germany.

"Die Deutsche Bienenzucht," Ostmannstedt, Thüringen, Germany.

"Die Europaische Bienenzucht," Scherzingen bei Konstance, Germany.
"Elsass-Lothringscher Bienenzüchter," Strassburg, Germany.
"Illustrierte Monatsblätter für Bienenzucht," Klosterneuburg, bei Vienna, Austria.
"Leipziger Bienenzeitung, Leipzig, Germany.
"Mitteilungen über Bienenzucht," Linz, Austria.
"Münchener Bienenzeitung," Munich, Bavaria, Germany.
"Neue Bienenzeitung," Marburg, Germany
"Neue Schlesisches Imkerblatt," Breslau, Germany.
"Oesterreichisch-ungarisch Bienenzeitung," Vienna, Austria.
"Palzer Bienenzeitung," Rehborn (Palz), Germany.
"Pommerscher Ratgerber," Stettin, Germany.
"Prastischer Wegweiser für Bienenzucht," Oranienburg, Germany.
"Preussische Bienenzeitung," Heilsberg, Prussia, Germany.
"Rheinische Bienenzeitung," M — Gladbach, Germany.
"Schweizerische Bienenzeitung," Ultstatten, Switzerland.
"Steierischer Bienenvater," Gratz, Styria, Austria.
"Ungarische Biene," Budapest, Hungary.



A PLURALITY OF QUEENS IN A COLONY, WITHOUT PERFORATED ZINC.

How the Queens are Introduced; the Advantage of the Plural-queen System.

BY E. W. ALEXANDER.

[This is the long-expected article for which many of our readers have been anxiously waiting. Now that it has come, some of the statements are so startling that, had they come from any less authority than our correspondent, we should feel inclined to lay it aside to think it over, if not pigeon-hole it altogether. But instead of saying, "No, it won't work," our readers are requested to try it and report. The immense possibilities that might accrue from the use of two or more queens in one brood-nest are too great to be lightly dismissed.—ED.]

Some time ago I wrote of our experience along this line, saying we had been partly successful; but we wanted to test it still more thoroughly before giving it to the public. And I here wish to thank especially my friends E. E. Pressler, Dr. C. C. Miller, the editor of GLEANINGS, and some others who have given me much encouragement in trying to solve this, one of the hardest problems that I have ever tried to solve in bee-keeping. I certainly have good reason to feel grateful for the support that often comes from these men.

It is with much satisfaction that I can say that success has at last crowned our efforts. We can now safely introduce any number of queens to a colony that has a laying queen and is in a normal condition. Waiving all other preliminary remarks I will now describe this new method of introducing several laying queens without the use of queen-excluders to keep the queens separate.

First, prepare a small box, about five or six inches square, by boring a one-half-inch hole in one end. This you will for the present close, then remove a part of its two sides and cover with wire cloth so as to ventilate it well. This we call our introducing-box. Take this box and a common queen-cage to the colony to which you wish to introduce your choice queen, or several of them, in fact; remove its combs and put its queen, without any bees, into the queen-cage you have. While doing this shake about a pint of bees of the colony into the introducing-box. Close it and take all their combs from the colony. These can be placed on top of almost any hive until next day. The hive now made broodless, fill about half full of combs containing some honey *but no brood.* Leave the colony alone until about sundown, after which it will show distress over the loss of its queen and brood. Now take the box of bees to the honey-house, and at the same time the queen, but don't set them near each other. The bees in the little box will soon miss their queen and have lots of trouble.

After they have been confined about five hours prepare some warm thin honey, placing it in a dish so that, by laying the box on one side, the bees can easily reach the honey through the wire cloth, but can not daub themselves with it. Leave them this way until you are sure that every bee in the box is as full of honey as it can be, then give them a little shake and remove the cover from the hole in the end of the box (remember it is about five hours since they were confined in the box), and let run in any number of queens you wish, including their own mother. Now return them to their dish of honey so they can help themselves to all they can eat until about sundown; then take this introducing-box with its bees and queens to the hive from which you took the bees and their queen in the morning; set them to one side and feed the colony all you can induce it to eat. Remove some of its combs and pour in some of the honey you have been feeding to the bees in the box. Shake some of this honey out of its combs on these bees, so every one will soon be full. Now remove the cover of the introducing-box and set the box in the hive alongside the combs. Close up the top of the hive, and in the morning all the bees and queens will be clustered on the combs, and some of the queens will have commenced to lay. You can now give them the brood you took away from them the day before, or let them fill

their combs with eggs, which five queens will do in three or four days. That is all there is of it.

You now have the colony all together with their brood and their mother-queen, and as many other queens as you care to have in one colony. There has not been a queen balled or injured in any way.

We all know that many things along the line of introducing queens can be done with weak colonies during a good flow of nectar that can not be done with a strong colony in a honey-dearth; and for that reason we tried nearly all our experiments on the strongest colonies we had during a scant flow of nectar, and usually with colonies that had stung several queens during our experiments. There seems to have been almost no end to the number of queens we sacrificed in perfecting this undertaking—more so because we picked out the crossest and worst-dispositioned bees we had, to experiment on. But as these queens died to save the rest, their lives were not lost in vain.

Now why is this method a success? First, because the bees have been a few hours without their queen and brood; next, a small part of their colony was confined in a box and filled with honey for several hours before the strange queens were given them; then those bees and these queens were shut up long enough together to become all of the same odor before they were given to the colony.

There are some things in this method that must not be overlooked. You first confine enough bees in the introducing-box to give to the queens you introduce the same scent as the colony is, to which you intend to put them; then the whole colony has been queenless and broodless for a few hours, and you have fed them in the box all they could hold before giving them these queens, and you have also fed the colony all they could eat before they received the queens and their bees. I find bees, like men, are better-natured when their stomachs are full.

If these instructions are carried out carefully you will never lose a queen in introducing, and the colony will be queenless less than twelve hours. Certainly this is a quicker and safer way than the candy method, which takes three or four days, and is often followed with a loss of ten per cent or more.

When we take queens from our nuclei or full colonies to introduce in this way we put several into a large cage, and have never had one stung by another. We are careful not to put any worker bees in with them. You may think that, to remove the plug from the hole in the box and let the bees leave it during the night would be better than to remove the top of the box; but don't do it. Some of the bees and queens will stay in the box until the next day; then when they come out and join the colony the bees are all empty of the honey you fed them, and they have some queens that joined them at first, and these additional queens might make trouble.

Be careful in following these instructions, and you will not lose one queen in a hundred; but it will not do to omit any part.

Now as to the advantages derived from this plurality of queens in a hive. First, we soon have a hive packed with brood; next, we have never had a colony with two or more laying queens prepare to swarm. Then it is the nicest way imaginable to supersede inferior queens. You can have the choice queen you wish to keep in the colony some time before removing the old queen, and both will be laying in harmony together. Sometimes we find a colony that has lost its queen, and its combs are so full of pollen that they appear almost worthless. When this is the case, just run in at the top of the hive, after a few puffs of smoke, two or three laying queens and you will be surprised to see how soon these combs will be filled with larvæ and capped brood; and shortly after its brood begins to hatch, these colonies will be the strongest in the apiary, and I can not see any reason why you could not winter a large number of queens that were reared late in the fall, and have them ready for your early increase; or for sale much earlier than they could possibly be reared in the spring. If surplus queens can be kept in full colonies during the winter season as safely as during the summer, then certainly another great forward step will have been taken in modern bee-keeping.

I expect to try wintering some surplus queens in full colonies this coming winter. In fact, I can already see many advantages that this new departure from the old methods will give us. We should naturally think that, with several queens in a colony, they would separate to different parts of the hive, and start a brood-nest alone by themselves; but, not so. They all seem to act together, commencing in the central part of the hive, and spread their eggs naturally toward the outside. A short time ago I opened a hive containing five queens. Four were on one comb, three on one side, and two in the act of laying. Again, I opened another hive containing four queens, the fourth day after they were introduced, and 7 of the 9 combs in the hive were filled with eggs as full as I ever saw combs filled.

I have explained this subject as plainly as I can, even repeating some parts; so please don't flood me with letters for further particulars, as I have no time to answer them at present.

Delanson, N. Y.

[The reader should not lose sight of the fact that Mr. Alexander is presenting a plan for introducing one queen to a colony, as well as a plurality of them, at one operation. While it may seem impossible, one should remember that his bees are a leather-colored *gentle* stock of Italians. Possibly it would not work with some strains, especially hybrids or bees of the Eastern persuasion.

Without having had the opportunity to try this plan we would suppose that, after the honey-flow had stopped, and there was a strong disposition on the part of the bees to

rob, one or more of the queens would disappear, until only one was left. We base this supposition on an experience we have had where mother and daughter have lived in peace for months, and both doing duty. After the honey season one of them (the older one) will be gone, and this can hardly be explained on the ground that she died of old age; for why should she not die in the height of the season when she is laying at her best? It is significant that the one queen always "comes up missing" during the time there is a dearth of honey, when both are taking a vacation. Why is this?

With no thought of discrediting Mr. Alexander's work, we should like to have him tell us in his next how long he has been able to keep a bunch of queens like this in one hive, and whether there is a tendency for one or more of them to disappear after the honey-flow, and when bees are simply "horrid," to put it mildly.

We sincerely hope he can keep the whole thing going, year in and year out. The possibilities would be great. In the mean time, if any one else has any thing to offer we should like to hear from him.—ED.]

COMPARATIVE WEIGHTS OF HONEY AND COMB.

Shallow Brood-sections.

BY ERNEST C. BLODGETT.

1. When sections weigh 16 oz., including the wax, honey, and wood, what is the average weight of the honey?

2. How much honey is consumed in building comb to hold 100 pounds of honey? How many pounds of honey will a pound of new comb hold?

3. Suppose the brood of a colony is in shallow frames. If there were plenty of room above, would the colony be more apt to swarm if a queen-excluder were placed over the brood?

4. Is it ever best to kill old bees after the honey-flow?

5. Will bees winter as well in a hive made of two shallow extracting-supers as in a regular Langstroth hive?

Putney, Vt.

[It is pretty hard to answer these questions definitely, as so much depends upon various conditions. For instance, the amount of wax in combs depends upon whether full sheets of foundation are used, and also the grade used. The answers, therefore, are only approximately correct.

1. A section that weighs 16 ounces, including the comb and the section, holds about 14 ounces of honey. We selected a section of a known weight, and pressed the honey out very carefully, saving both the honey and the wax. We found that there was about ½ ounce of wax, a little over 14 ounces of honey, and one ounce of wood in the section. The illustration shows the empty section, the honey obtained, and the wax from the comb and cappings.

2. Estimates vary considerably as to the amount of honey consumed to produce one pound of wax; but as you will see in the A B C of Bee Culture it takes anywhere from 7 to 15 pounds to produce one pound of wax. About four pounds of wax in comb would be necessary to hold 100 pounds of honey. You will see, then, that a pound of new comb would hold about 25 pounds of honey.

HONEY PRESSED FROM A SECTION; RESULT—OVER 14 OZ. HONEY, ½ OZ. WAX, 1 OZ. OF WOOD.

3. The bees are not apt to swarm with plenty of room above the brood in shallow frames, even though a queen-excluding honey-board is placed above the brood. As a rule, however, a colony is a little more likely to swarm when the honey-board is used.

4. You would not need to bother about killing the oldest bees after the honey-flow, for these will soon die any way, and you would only weaken the colony by trying to kill some of the bees.

5. There is no reason why they shouldn't winter just as well and probably a little better because of the horizontal bee-space through which the bees could pass from one comb to the other.—ED.]

THOUSANDS OF COLONIES FAILED TO RENEW THEIR QUEEN.

BY WM. McEVOY.

The past spring was the worst ever known in the Province of Ontario for "spring dwindling;" and from the reports I read in the bee-journals I believe the dwindling was almost as bad in Uncle Sam's domain. Nearly every one of these colonies which took so long to build up have their old queens still on hand. Now, this is a serious state of affairs, and one that requires prompt attention, because the most of these queens will be too old to be of much value for the next honey harvest. I would requeen all of these and every colony that has an old queen. I raise and buy queens, and requeen every year. The queens that I buy don't cost me any thing, because they more than pay for themselves in one year in the extra amount of honey.

I don't raise any queens for sale. About 90 per cent of the queens in use should be wiped out for better ones.

Woodburn, Ont., Aug. 5.

SHAKING BEES OFF COMBS.

Two Ways of Doing It.

BY DR. C. C. MILLER.

[Some months ago Dr. Miller in one of his Straws referred to a method of his for jarring bees off a comb by a sort of pendulum act. As we did not clearly understand the process we sent him a kodak and asked him to get a member of his family to snap it on him while he was doing the stunt. He did so, and the result is before you. The plan is a good one, and so also is the other one, the pounding-fist act for dislodging bees in the hive. These are all shown in the next edition of our A B C of Bee Culture, now in process of revision.

By the way, there is a lot of little "tricks of the trade" that are worth showing; and if others of our subscribers have discovered some new and useful "kinks" we shall be glad to have them tell us what they are; and, if of sufficient merit, we will send on one of our kodaks with instructions how to use. We pick up in this way a good many pictures, some of which have already been published.—ED.]

Although I seldom use the plan nowadays, I shall always hold Mr. G. M. Doolittle in grateful remembrance for giving us his plan of shaking bees off combs. Hold the frame supported at each end by the ends of the fingers, with the thumbs some distance above the top-bars. Suddenly drop hands and frame, striking hard upon the top-bars with the thumbs, and then catch the frame with the fingers. Do this rapidly two or more times in succession, and you will find the comb well rid of bees. I think Mr. Doolittle now strikes with the ball of the thumb instead of the thumb itself. Before learning that plan I had shaken bees off the comb by simply holding tight to each end of the top-bar all the time and shaking. It was harder work, and not nearly so effective, for it is the sudden jar of the Doolittle plan, and the quick change, first jarring one way and then the other, that makes the bees lose their hold.

FIG. 1.—ONE WAY OF JARRING BEES OFF A COMB.

FIG. 2.—FIRST POSITION IN DR. MILLER'S WAY OF BUMPING A COMB ON THE GROUND TO SHAKE OFF THE BEES.

Either by this last way or by the Doolittle way it was difficult to shake bees down into a space between the combs in the hive. Unless quite a number of frames were out of the hive, I couldn't let the frame I was shaking go down between the frames without the danger of striking on one side or the other; and it was not safe to let the frame come down too close, even to the surface of the top-bars, for fear of striking.

So I fell into what might be called the fist plan, as shown in illustration, Fig. 1. You will see that the frame may be held down within two or three inches of the bottom-board with no danger of striking a frame at either side; and then when the left hand which holds the frame is pounded by the right fist the bees are jarred off in somewhat the same way as by the Doolittle plan. Unless you are on your guard in using this plan you may hold the frame rather loosely with the left hand, leaving a space between the end of the top-bar and the palm of the hand: then when you strike with the right fist the end of the top-bar will strike the palm of the hand; and, oh how it hurts! After being hurt in that way two or three times, I learned to hold firmly with the left hand, the palm pressing closely all the time against the wood.

I found, too, that, with a very light frame, I could do good work shaking bees off combs

in front of the hives; so after that I used the fist plan for shaking bees into the hive and also for shaking bees off light combs on to the ground, using the Doolittle plan with heavy frames when shaking bees on to the ground.

One day with a frame that had little more than foundation in it I struck the end of the top-bar on the ground, as I had no fear of breaking out such a light comb, and was surprised to see what clean work it made at taking off the bees. Gradually I tried it with a little heavier and a little heavier combs until I found that, by rightly handling the frames, I could thus shake bees off any combs, light or heavy. So, nowadays, I use the fist plan for shaking bees into the hive, and what Editor Root has been pleased to dub the pendulum plan for shaking off bees on the ground at the hive-entrance.

When striking a *very* light frame on the ground, there's no pendulum business about it. But if you take a heavy one, raise it, and with a straight-down motion let it strike the ground, it will severely rack the comb, if, indeed, it does not throw the end-bars out of being perpendicular to the top-bars. But if the force comes directly against the top-bar, or even in a diagonal direction, the comb will easily stand the shock.

So you will first swing the frame back till it is in the position shown in Fig. 2, and then swing it in the other direction till it is as shown in Fig. 3; then as it swings back again let the end of the top-bar strike the

FIG. 3.—SECOND POSITION.

FIG. 4.—LAST POSITION; BEES ALL ON THE GROUND.

ground as at Fig. 4. You will see in Fig. 4 that the diagonally opposite corner is nearly vertically above the corner that strikes the ground. If the frame came straight down in that way it would stand quite a shock. But the pendulum motion—the swing back—makes it somewhat as if the frame struck the ground directly on the top-bar, which fact you will see illustrated by the position of the bees on the ground. Compare the ground in Fig. 4 with that in the other numbers, and see where the bees are in Fig. 4. If they fell from the comb vertically, the bulk of the bees would be right where the end of the top-bar rests on the ground. But you will note that they are back of that, thrown there by the backward motion of the comb.

In a Straw I said I had never injured a comb by the pendulum plan. Within perhaps two days after that I cracked two combs. They were freshly built combs, and very heavy with honey. So with such combs one must not strike the ground too hard. Better, perhaps, use the Doolittle plan or the brush.

ONTARIO FOUL-BROOD INSPECTORS.

BY R. F. HOLTERMANN.

The engravings show various foul-brood inspectors for Ontario, mentioned on page 889 of the July 1st issue. All of them have been more or less before the bee-keeping

public, and require no further introduction by me. There has been a great deal of active work done by the inspectors, and much more foul-brood found than was expected by any one. However, Ontario bee-keepers expect to have a very much improved condition by autumn. Ontario is the only province in the Dominion having a foul-brood act. It is time for a change in this respect.

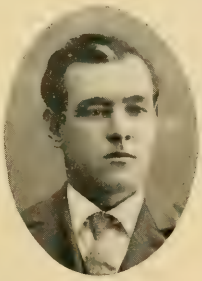
WILLIAM McEVOY, WOODLAWN.

J. ALPAUGH, DOBBINTON.

H. G. SIBBALLS, CLAUDE.

JAMES ARMSTRONG, CHEAPSIDE.

M. B. HOLMES, ATHENS.



J. L. BYER, MOUNT JOY.

This is all free government inspection; and as the field to be covered is large, the bee-keeper desiring inspection of his own or his neighbor's apiary must send the request to the inspector in charge, or to P. W. Hodgetts, of the Department of Agriculture, Parliament Buildings, Toronto.

Brantford, Ont.

QUEEN-CELLS IN UPPER STORIES OVER EXCLUDERS.

Hundreds of Large Cells Produced, and None Torn Down by the Bees; Under-sized Cells Likely to be Destroyed.

BY BENJ. A. FORD.

When I read that Jay's article in the April 15th issue I was very much puzzled to learn how his bees destroy queen-cells. I must say I do not understand why the bees should tear them down. I have been rearing queens for nearly 20 years, and always put cells anywhere I choose so long as the queen can not get at them, and I very seldom have any torn down by the bees. Last August I had about 100 cells on several different frames in an upper story above the excluder, with the laying queen below. I kept this colony for that purpose; and as fast as a batch of cells were finished they were removed from the colony that had built them and placed in the upper story of this hive, to be cared for until the day before time for them to hatch, or when they had been capped for seven days: then they are cut out or separated, and given to nuclei. Many are given as soon as the laying queen is removed, and I seldom have any torn down or the queen killed. In nearly all cases the young queen will be found laying ten days after the old queen was removed if the nuclei have been properly stimulated by feeding, and the weather suitable for the young queens to take flight.

My experience has been that every inferior or poorly fed cell will be destroyed unless the bees have been queenless for a day or two; but a large well-developed cell that will produce a queen equal to the best natural-reared queens will always be accepted by the bees in any colony if it is nearly ready to hatch.

INTRODUCING NEWLY HATCHED QUEENS WITHOUT REMOVING THE OLD ONES.

Some time last year I read something in some paper about superseding old queens by letting a newly hatched queen run down between the frames without removing the old queen. I have tried that with good success, and think that, where the old queen is nearly worthless, it will work all right, and the same thing can be done with a cell that is nearly ready to hatch or where the young queen is just beginning to gnaw out; but I would advise putting the cell between the side of the hive and the first frame.

QUEENS FROM UPPER STORIES FERTILIZED.

I have had many queens fertilized from upper stories above the excluder, and it works to perfection. All that is necessary is to have an entrance for each story. I have a neighbor bee-keeper who had four queens in four bodies, with excluders between, last summer; and as fast as his colony became strong enough he would add another story and give them a cell, and in due time the queen would be found laying.

Whitman, Mass.

PROTECTION OF COMBS AND WAX FROM THE WAX-WORM.

BY BURTON N. GATES.

There are frequently times when one wishes to put away in the summer either some old combs or some burr-combs and clippings for the extractor, and to feel sure that, when he goes to look for them, he will find other than a mass of web and cocoons. The question frequently arises, "What is the best way to protect such from the ravages of the moth?"

A similar problem confronted the writer last June when I was called away on short notice to be absent for ten weeks. I therefore decided to fumigate the combs and to seal them so tight that no caterpillar could enter.

I took two hive-bodies, one above the other, and toenailed them together. Over the box thus formed I folded several thicknesses of newspaper, brought it up over the sides of the box, and cleated it securely with strips of wood, as shown in the picture. The box was then set upon a bottom-board for convenience in handling.

Several thicknesses of newspaper were similarly fitted over the top of the box, but not secured until I had filled the hive-bodies with frames upon which a few teaspoonfuls of carbon bisulphide were poured. The paper top was then quickly fastened down with cleats, as was the bottom paper, a hive-cover put on top of all, in order to insure against puncturing the paper, and all was left until fall.

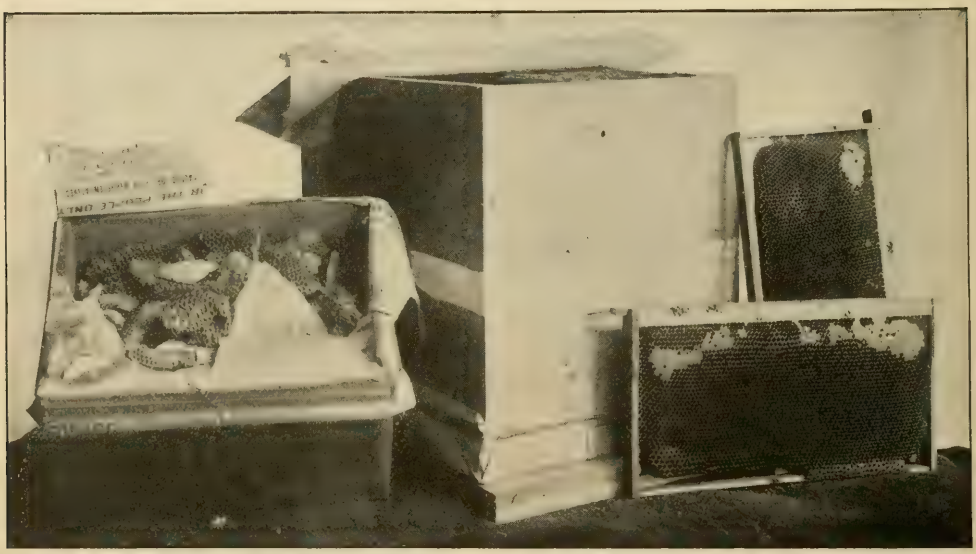
A word of caution must here be introduced against having any fire or flame anywhere near where carbon bisulphide is liberated. The fumes spread in the atmosphere very rapidly; and if they come in contact with fire they explode violently. Never have any form of fire—not even a smouldering smoker—near where you are using this substance.

The smaller box, in which there is a lot of scrap comb, was similarly prepared, save that it was not necessary to cover the bottom with paper.

Now, I knew these combs to contain some larval moths, and, doubtless, eggs. When I opened the cases in the early winter I was glad to find my measures had been totally successful. The results were as you see them in the picture. The bisulphide had checked all life. I left some combs in a tightly closed hive, unfumigated, as a check. The results were very obvious—they were a total loss.

Doubtless comb thus prepared and sealed could be left year in and out; for so long as the case remained tight, the paper intact, and the boards unchecked, no caterpillar could gain entrance. I believe the method to be positive, and I know it is simple and quick.

Worcester, Mass.



GATES' METHOD OF PRESERVING COMBS AND WAX FROM THE WAX-WORMS.

Bisulphide of carbon is placed above the combs, and the box is quickly covered. Combs so arranged may be kept indefinitely.

[While the plan here given is good, yet it answers almost as well with far less work to space combs two inches apart on racks in a tight room and then give it a fumigation. In most cases it will not be necessary even to fumigate if the combs are taken directly from the hives and spaced two inches apart in the aforesaid room. If one comb should be infested with worms the two-inch spacing would prevent the webs from spreading.

Another good way is to set the combs over a hive where Italian bees or common hybrids can get at them. Or, again, if put in hives

outdoors into which spiders can and do enter, they will be protected. But all scraps of combs should be thrown into a solar wax-extractor as fast as they accumulate, and melted up.

It is not wise to keep such pieces lying around. The sooner they are converted into wax in the cake form the better, and a small solar extractor that any one can make out of a shallow box, a tin pan, and a sheet of glass will do the work.—ED.]

A HOME-MADE SOLAR WAX-EXTRACTOR.

"Melt the Old Wax Combs; the Wax Cake will Take Care of Itself."

BY W. A. PRYAL.

What a handy thing a solar wax-extractor is in an apiary! No matter what the size of the apiary may be, one of these helps should be at hand to convert into wax the comb that might otherwise be allowed to remain about the yard and be the nursery for innumerable broods of the wax-moth and its destroying progeny of worms. Any pieces of comb that are not of sufficient value to use in comb-grafting, and all cappings and scrapings from combs and hives, should be thrown at once into the wax-extractor so that the heat of the sun may destroy any eggs or larvæ of the moth that may be in the accumulation. Then, besides, the wax is worth saving. If Poor Richard had been up in bee-lore and the care of the bee he would have written an adage something like this, in all probability: "Melt the old wax combs; the wax cake will take care of itself." Any way, his saw of "Take care of the pence, and the pounds will take care of themselves," comes pretty near the mark; for every little piece of comb may be said to be a penny's worth, and, if saved, is really a penny earned.

Few have any idea how easy it is to have one of these extractors. They need not be costly, neither need they be made of choice material. Any kind of wood will do, or they may be made of metal. The large one here shown was made of a piece of one-inch rough redwood board for the sides and ends. The bottom is of half-inch stuff so as to make it as light as possible. The box was made to fit the glass sash, which in turn was made to accommodate three good-sized panes of glass, butted in without cross-ribs in the sash, which would rather obstruct the sun's rays. Another reason for having three lights of glass was that, in case of an accident, the probabilities are that not all the glass would be broken at once. A large piece of sheet-iron was set inside with the concavity nearest the bottom, and upon which wire netting with meshes about the size usually found in window-screens was placed in such a position as to prevent the melting mass from slipping to the bottom, which was reserved for the clear wax that filtered through the screen. The cost of this extractor was nominal—in fact, nothing, if I figure that the inch board was picked up on the place; that the iron came from a discarded chimney, that was neither rusty or sooty; that the bottom was of some pieces of pine boxes, and the glass was taken from the hot-bed sash, the putty coming loose and thereby allowing the glass to be easily removed. Provision was made that the glass could be returned to the sash at any time when there needed. This was done by tacking narrow strips of wood to hold the glass in place, as is so often done nowadays, instead of putty, which is a nuisance when reglazing has to be done.

To any one who is not handy with tools, and who can not contrive to rig up "something out of nothing," I would advise him to purchase one of the solar wax-extractors made by a manufacturer of apiarian supplies. Where there is much comb and cappings in an apiary, I would recommend a wax-press in addition to the solar extractor. Get the old comb into the solar extractor as soon as possible, and let old Sol roast the life out of the moth-eggs and moth-larvæ that may have gotten into it.

PRYAL'S SOLAR WAX-EXTRACTOR.

Oakland, Cal.

[A small solar wax-extractor will save many a piece of burr-comb that might otherwise be lost. It should be located in the center of the yard, and, instead of letting these little pieces of wax accumulate, becoming a breeding-place for the moth-miller, these scraps of wax should be thrown in at once and immediately rendered, or as soon as the sun shines.

The solar wax-extractor has its place; but it is not adapted for handling large quanti-

ties of old comb. For these a good press should be used in connection with hot water.—ED.]

A THREE-YEAR-OLD BEE-KEEPER.

I send to GLEANINGS the photo of the youngest queen-hunter (perhaps) in the United States — little Harold Shultz. He was three years old the 25th of February last. He goes in front of his grandpa, the writer, and removes the block from the Alexander feeder. Who can beat this?

Huntington, W. Va. J. E. STARKS.

HAROLD SHULTZ, THREE YEARS OLD, LOOKING FOR A QUEEN.

ARTIFICIAL PASTURAGE.

Giving Away Alsike Seed to the Farmers within a Mile of a Bee-yard; How a Poor Bee-range may be Improved.

BY E. R. ROOT.

We have already referred to the fact that we have been giving away alsike seed within a mile of our out-apiaries. The result was we disposed of a considerable quantity of it last year to the farmers in the vicinity of our north yard, believing that the plan would be productive of good results. We pursued the same policy of free seed given this season in the region of the other yards, including the one at home. Of course this last seed-giving has not been able thus far to show any results except to show a thrifty growth of young plants; but at the north yard, where the seed was sown a year ago, we have found that the flow of nectar was materially increased. When the other yards were almost on the verge of starvation the north yard was abundantly supplied with honey from the alsike which was growing in the tall timothy, and the peavine clovers, for the farmers seem to prefer to mix the seed, averring that they get a larger and better crop by mixing alsike with timothy or with peavine clover. When alsike is sown by itself it has, they say, a comparatively small growth; but when sown with some other hay of taller growth the stalks, in the effort to get toward the sunshine, stretch out.

In a recent trip through Southern Michigan we saw that the farmers were universal-

ly using alsike in their timothy. In view of the fact that Michigan has been a large supplier of clover honey within the last years or so it would rather seem as if alsike were one of the prominent if not the principal source of this honey. From considerable observation we are of the opinion that, if a bee-keeper has a poor locality, he can greatly increase the honey-yield by giving out for the first two years free alsike seed to the farmers. When it once gets a foothold in the soil it will stay year after year.

One of our neighboring farmers told us yesterday that some seed that A. I. Root had furnished him twenty years ago was still showing a very heavy sprinkling of alsike over his pasture and meadow lots, although he had not sown any seed during all that time, for it self-sows, like the old white clover, to a great extent, for necessarily some of the earlier blossoms go to seed and the seed rattles out at the same time the hay is cut. The seed that falls goes into the ground, and, no matter what cultivation may take place afterward, it will spring up at the first favorable opportunity.

One other farmer told us he had sown considerable alsike with his timothy; that, during the process of rotation of crops, it came about that he did not use the land for the growing of hay for a number of years, but grew such crops as corn, that kept down any growth of hay or clover of any sort. Ten years after the first sowing he sowed clear timothy, and was surprised to see a heavy sprinkling of alsike all through the hay.

There are hundreds of other cases that might be produced to show that alsike is a stayer; that any bee-keeper who has a field that does not yield him honey as it should will do well to get the farmers to take hold of the alsike; for once they come to know of its value they will continue to use it, especially if the bee-keeper will furnish the seed at half price within a mile or a mile and a half of any one of his yards.

This is one of the most profitable fields of artificial pasturage that a bee-keeper may go into. He benefits the farmer by giving him a better hay, more and better milk, and himself more and better honey. A word to the wise will be sufficient. He who makes two blades of grass (or clover) grow where one grew before is a benefactor.

BEE-KEEPING IN CONNECTION WITH FARMING.

Good Returns for the Amount of Capital and Labor Invested.

BY JEROME BARNELL.

This photograph of my apiary was taken just as the trees began to leave out in the spring. The hives are in their winter dress on their summer stands. Late in the fall I opened the hives and placed two corn-cobs across the brood-frames about four inches apart, then spread over all a thin piece of muslin cloth, put on a super, fill it with dry chaff or leaves from the trees that have fallen off at the time and are very dry, and that is the winter packing.

JEROME BARNELL'S APIARY IN THE SPRING; WINTER PACKING STILL ON.

The cobs placed on the frames make a space over the brood-nest for the bees to pass when they like.

I work for comb honey only, and never take any honey from the brood-chamber; and I find that every good colony so packed for the winter commenced strong in the spring. Some that have cast swarms late in the season, and have failed to rear a new queen, will, of course, die before spring. I put the first swarms that issue the next season into all such hives.

I have been keeping bees for more than 25 years on this farm, commencing with one colony of pure Italians. From that one colony I have sold and given away many swarms, and now have 55 colonies in fine condition from that one queen. I have never tried to change queens. My own were always fine. I have made my apiary pay me

from $100 to $250 per annum, and my bees are still fine three-band Italians. I have not given my bees half the attention they should have had, yet they have paid me good interest for time and money invested from start to present time.

The hives are of the eight-frame Dovetailed pattern. When I got them in the flat I nailed them and gave them two coats of paint, some of them lead-colored, and some of them red, and they have never been painted from that time to this. Most of them are in good condition to-day.

The covers are made of single pieces of board with end cleats. These I painted on both sides, and can reverse them. They are the best covers ever made, for, although very old, and in constant use, being left out of doors summer and winter, they are good to-day.

Wahoo, Neb., March 14.

A COMB-CARRYING CART.

BY T. P. ANDREWS.

Mr. Editor:—I send you a photo of my cart and fixtures for conveying combs of honey from hives to the table in the extracting-room. The raised removable platform in the cart on which the two boxes of combs stand has a shelf or bridge projecting on the further side between the cart-wheel and handle, making connection with a low table in the extracting-room, so that the boxes of combs standing on boards with casters under the corners are easily pushed through the opening on to the table near the uncapping-can. This table, as well as a part of the cart-platform, has a raised edge to keep the casters from running off. A pin, seen in front of the comb-boxes, holds them securely on the cart.

ANDREWS' COMB-CARRYING CART.

The table-top should be large enough to allow the two boxes of empty combs to be run out on to the cart after receiving the full ones. A light sliding door on the inside of the room is easily handled from either side. The hinged door seen is fastened on the inside.

Farina, Ill.

TWO OR MORE LAYING QUEENS IN ONE HIVE.

The Plan Not a Success in the Hands of the Average Bee-keeper.

BY J. E. CHAMBERS.

I have read with much interest the article of Mr. Alexander, on the practicability of keeping a plurality of queens in one hive, page 473 in the April 1st issue, also the letter from Mr. Pressler, page 617, in the May 1st issue, and J. A. Green's note on the following page.

While I do not wish to say that Mr. Alexander is entirely wrong about this matter, I will go to the extent of saying that, with most bee-keepers, it would be impractical if not impossible; for, just as Mr. Green says, some colonies will unite without the least trouble, while others will fight to the end, notwithstanding the employment of heroic means to subdue them. Like Mr. Green I am not the least in doubt about laying queens killing each other, though they do not always do so. I know that it is entirely practical to use two queens in each hive in order to get colonies strong enough for a given honey-flow, when otherwise it would not be possible to bring them up to the desired strength; but I have so far found it impossible to do so without the use of means to keep them separate. If there is any thing of which I am certain, it is this: That a plurality of queens in any hive except under certain well-known conditions is not in accord with the known instinct of bees; and as I do not consider that the bee is possessed of any intelligent capacity for improvement, I do not feel very sure that they will ever be brought to act in accord with man's desires when their own instinct goes counter to such desires. I am aware of the fact that, under certain conditions, bees accept a plurality of

queens; but even under these very unusual conditions the vast majority of colonies refuse to have more than one queen; and if it were at all natural for them to have all of these queens, I am positive that, during the many years bees have been handled by intelligent men, there would have been many colonies found having a plurality of queens, thus indicating that such was a primary instinct of bee nature. No one need come forward telling me that such has been the case when queens were failing, for I am perfectly aware of the fact; but I am speaking of perfectly normal conditions.

I have been using two queens to build colonies up faster than was possible with one, especially when a flow was near at hand and the time not sufficiently long for the best success under the old practice; but as I said before, I have had no success in the way Mr. Alexander mentions. Some colonies operated in this way last year gave 180 lbs. of honey during fourteen days of sumac bloom, while the ones not handled in this way gave an average of only 50 lbs. I am not trying to take away any of the credit that belongs to Mr. Alexander; but, while a very great bee-keeper, he is fallible just as common men, and it is no more a mistake for him to be mistaken than for any other man. All but fools make mistakes; and while entirely successful in his own locality and practice, I think Mr. Alexander is away off for most of us, and I am basing my conclusions on several years' experiments on or along this very line. I am no novice in such experiments, I can assure you.

Vigo, Texas.

[Mr. Chambers finds it "entirely practicable to use two queens in each hive in order to get colonies strong enough for a given honey-flow when otherwise it would not be possible to bring them up to the desired strength; but so far I have found it impossible to do so *without the use of means to keep them separate*"—italics ours. Keep what separate—queens or bees? "Means to keep them separate." Does the word "means" refer to perforated zinc or wire cloth? Even if we have to use perforated zinc between the two queens, both in one colony, if we can thereby get colonies stronger for the harvest we have gained much. What we desire to know is, can two queens be used under *some* conditions? and, if so, what are those conditions? See article by Mr. Alexander in this issue.—Ed.]

A SEASON'S WORK WITH SECTIONAL HIVES.

Swarm Control and Comb-honey Production; Disposing of the Honey Crop.

BY J. E. HAND.

Having secured a nice crop of fancy honey, the next thing to be considered is how to turn it into cash to the best advantage. This is the business end of honey-production, and our success will depend in a great measure upon our ability to dispose of our product to good advantage.

WHEN TO SELL HONEY.

It is said that the best time to set a hen is when she wants to sit; so the time to sell honey is just as soon as you have some to sell. Many bee-keepers make a mistake in holding their honey too long. As a rule it is far better for the honey-producer of the Middle and Eastern States to market their honey early before the heavy carload shipments of Western honey arrive to glut the Eastern markets. After the close of the berry season there is always a good demand for comb honey at a good price; and this is the time that we rush our honey to market.

HOW SHALL WE DISPOSE OF OUR CROP?

There are several ways of disposing of the honey crop. One way is to send it to a reliable commission house to be sold on commission, and this is, perhaps, the easiest way of all, providing you are in no hurry for your money, for some of the commission houses have a habit of holding on to the money as long as possible, and very often the returns from such sales are far from satisfactory to the bee-keeper.

Another way of disposing of the honey crop is to develop the home market by placing our product in the groceries in near-by towns and villages instead of sending it to the cities to come into competition with the carload shipments of Western honey.

We strongly favor selling outright instead of consigning our hard-earned honey crop to the tender mercies of the commission man; but whether or not it will pay us to develop the home market will depend in a great measure upon how much our time is worth. If we have to neglect our business to go out and drum up a trade or build up a market, and in so doing spend five dollars' worth of time for every ten or fifteen dollars' worth of honey we sell, we should prefer sending our product to a market that is already developed, and let the other fellow, whose time is not so fully taken up, have the glory of developing the home market.

We have tried this idea of developing the home market, and it has been a losing game with us; hence our fancy honey usually goes to the cities, and is sold outright to a responsible firm that handles large quantities of honey. We do not come into competition with the heavy shipments of Western honey, for the reason that, by selling early, before the Western honey arrives, and at a time when there is usually a lively demand for a fancy article, we have found, as a rule, that we get better prices for our honey than by selling later in the season. We have found some difficulty in placing honey as late in the season as December, and this past season our honey was cleaned up in August.

HOW CAN WE REACH THE LARGE BUYERS OF HONEY?

There are different ways of reaching the large buyers in the cities. One way is by personal correspondence through the mails,

and another way is to take a sample case of fancy honey and go on the road as a salesman. We have had good success in making sales by both these methods. Honey is not a staple article, and we learned years ago that a honey-producer, in order to be successful, must necessarily be a good salesman, as it is just as essential to know how to dispose of your product to good advantage as it is to know how to produce it.

When we receive an inquiry through the mails from a prospective purchaser we make it our business to answer such by return mail, fully describing our honey, telling just how it is graded and in what kind of cases it is packed, and just how it is crated for shipment, so that, when he gets our answer to his inquiry, he knows just what he is going to get if he buys our honey. As a rule these large buyers will drive a close bargain. We have found, however, that they are usually willing to pay a good price for a really fancy article; and if they insist that our price is too high we usually beg the privilege of sending them a sample crate, and this usually fixes them; and the next season very early we usually receive a letter from them something like the following: "How much honey have you got like that we bought of you last year, and what is your price?"

Not long ago we wanted to buy some fancy comb honey to supply one of our old customers after our crop was all sold, so we wrote to a bee-keeper who had advertised honey for sale, asking him how his honey was graded and packed, and the price. His reply was that he could grade and pack it almost any way to suit us. Well, that was all right so far as it went; but we knew no more about his honey after we received his answer to our inquiry than we did before; and as we did not want honey that was graded "almost any way" we did not buy.

FUMIGATING COMB HONEY.

Having found a cash buyer for our honey, the next thing to do is to grade and pack it for shipment. However, before our honey is removed from the supers it must be thoroughly fumigated with sulphur; for, although we do not expect to hold it ourselves, some one else may, and we can't afford to lose a good customer by allowing our honey to become infested with wax-worms. Not long ago, while in Cleveland we noticed a commission man opening a consignment of comb honey from a bee-keeper in an adjoining State; and if that bee-keeper could have been at that end of the route he would have had an object-lesson of how *not* to prepare honey for shipment, for the honey was not only not properly graded and packed, but the evidence of wax-worms was plainly visible on the cappings to many of the sections; and we promised ourselves then and there that none of our honey should leave our apiary without being thoroughly fumigated.

When our honey is removed from the hives, and tiered up in the honey-room as high as we can reach, with an inch-square strip between the supers at each end, we are ready to fumigate it. Perhaps the best way to fumigate honey is by means of sulphur fumigating candles such as poultrymen use to disinfect their poultry-houses. All we have to do is to light the candles and close the door, and the job is soon done.

As it has been our chief aim to produce a strictly fancy article of comb honey, so now having produced it we should endeavor to grade it so that it will be uniform; and perhaps the only way we can do this is to have a rule for each grade, and perhaps the grading-rules as adopted by the North American Bee-keepers' Association at its Washington meeting are as nearly correct as it is possible to get them. If any thing, we would place the standard of the fancy grade higher; for the higher the grade the higher price it will bring, and there is no surer way of lowering the price of honey than by lowering the standard of our grading-rules. By our improved methods of filling the sections with foundation, together with our system of finishing our sections over a feeder, we get a more uniform and perfect filling of the sections than it is possible to get in any other way. Indeed, all our sections are perfectly filled and practically free from pop-holes in the corners, and our No. 2 sections are as perfectly filled as our fancy ones, the only difference being that the No. 2 are slightly travel-stained, and some of the cells are not capped, hence we make only two grades, which we call "fancy" and "No. 2." As the outside of our sections is protected by wide frames we have only to scrape the edges of our sections, for the tops are as clean and white as when we put them into the supers. We can't understand why bee-keepers will continue to use the T super and the section-holder, thus exposing the tops of the sections for the bees to travel over and daub with propolis. Such sections can't be made white again, and always look soiled and dirty in spite of the scraping and sandpapering.

Having our honey graded, and making the fancy grade strictly fancy in every respect, we will inclose each section in a neat paper carton, after which the sections are weighed before they are put into the case, as is also the case, and the weight of the honey and of the case is plainly marked on the top of each case.

Having our honey graded and cased we will next turn our attention to getting it to its destination in as good condition as possible, for a pleased customer is our best advertisement. For shipping comb honey we use a crate holding eight 24-lb. cases, made deep enough to allow of six inches of straw in the bottom of the crate when packed down. We use a follower on top of the straw; and by getting on the follower with our feet we press the straw down solid far enough so that the top cases will be about an inch above the top of the crate when first put in. The idea of having a follower for the cases to rest on is a good one, and prevents the straw from bulging up the bottom of the lower cases and breaking the honey out of the sections. Each case should be wrapped with paper before

it is put into the crate to protect the outside against dust and coal smoke.

If some of the bee-keepers could see their honey when it arrives at its destination they would be more careful in preparing it for shipment.

Having our honey crated as above described, the next thing is to put on the top of the crate our "caution label," which is a large colored label having on it the picture of a hand with the words, "Comb honey, handle with extra care, and load with finger pointing to end of car." The label is put on so that the bumping of the car will bring the concussion against the wood of the section instead of sidewise of the combs.

Having our honey put up in this condition it will, barring accidents, arrive at its destination in perfect condition, and we shall have a pleased customer and one who will stay with us year after year. We have customers on our list that have been with us for the past ten years. The way to hold your customers is to stand back of your goods with a reputation for square and honest grading; and in case of any misunderstanding, show a disposition to come more than half way. While we aim to have every section of our fancy grade come under our direct observation, yet sometimes, in employing help to grade our honey, a few sections may get into the fancy grade that really do not belong there; and whenever we receive complaint of off-grade honey in our fancy grade we ask our customer to present his bill, and kindly thank him for calling our attention to the matter, assuring him that we are as anxious to make good any mistake on our part as he can possibly be to have us do so. We have had just one case of this kind in ten years, and it is needless for us to say that *that* party is still a valued customer. Our motto is, when you get a good customer stick to him. In shipping honey we always guarantee safe arrival of our honey by freight, and we have never yet been asked to make good any loss from breakage, nor have we ever received notice of any breakage or leakage of our honey since we adopted the above method of packing. The report has always been, "Honey arrived in perfect condition." Dealers like to buy from shippers who are not afraid to guarantee safe delivery of their honey, since there is a great risk in shipping comb honey unless properly packed and crated.

To be continued.

APROPOS of derricks for lifting and weighing hives, the rather celebrated Kidder, in his book published in 1868, shows an arrangement almost precisely similar to Mr. Hand's device. He recommended it for weighing hives Similar devices were used before Kidder's time. The July number of *L'Apiculteur* (Paris) contains a tripod device very similar to Mr. Hand's, but arranged with a very ingenious steelyard for purposes of weighing.

IF I WERE TO START ANEW, WHAT STYLE OF FRAME, SUPERS, AND OTHER APPLIANCES WOULD I ADOPT?

The Simplest Arrangements the Best; Avoid Complicated Fixtures; the Value of Protection for Comb-honey Supers.

BY WM. M. WHITNEY.

[Our correspondent explained in a letter that he had been unable to find time to write this article sooner—hence the delay.—ED.]

This question, I suppose, is intended to include hives as well. If this supposition is correct it greatly extends the scope of the inquiry and intensifies the interest of bee-keepers in the investigation of the subject. When we stop to reflect on what this question includes, taken in its broadest sense, the difference in climatic conditions, whether indoor or outdoor wintering is practiced, whether the apiary is run for extracted or for comb honey or both, etc., we are confronted with a problem, which, to solve intelligently, requires an experience possessed by few, if any, in all this broad land.

My bee-keeping, while having been in different localities between the 41st and 43d parallels, has been under much the same climatic conditions; hence, so far as personal experience goes, it has been substantially the same from the beginning, and has been confined to outdoor wintering. Wanting something to occupy my mind and take my attention while convalescing from sickness about eleven years ago I got a couple of colonies of bees, subscribed for GLEANINGS and the *American Bee Journal;* got the A B C, and Langstroth by Dadant, to which authors I have added from time to time, and commenced studying the bee. It was my purpose to do whatever I had in hand to do, as well as I could under existing circumstances. While following general directions given in books and journals, like many others I have tried to do some experimenting on my own account.

As a general proposition, were I to commence bee-keeping anew, what kind of hive would I use? One might be inclined to say, as Dr. Miller sometimes does when an unpleasant question is presented, "Yes," and dismiss the subject. "Many men of many minds;" and many hives of many kinds. You pay your money, take your choice. A colony of bees will do just as good work in a log gum as in the best hive on the market if they have room enough; but, not being easily manipulated, or, in other words, it being impossible to produce desirable results with primitive appliances, all sorts of devices —good, bad, and indifferent—have been offered to the bee-keeping public.

From my experience, observation, and from what I have read, I have a choice among the hives offered to the public. It is my belief that, on general principles, and for all ordinary work, the eight to ten frame Langstroth hive-body, according to locality, and whether comb honey or extracted is produced, is the best hive on the market. It meets

the needs of the ordinary farmer—yes, and the specialist, working for honey only, in my judgment, better than any other.

I have had some experience with single-walled hives; but as my practice has been confined to outdoor wintering I have adopted a double-walled hive to the top of the first story, continuing the outside case to make a two-story hive of it. I have made a compromise between the eight and ten frame, thus making a nine-frame hive—to be singular, perhaps, and please nobody. This, however, it seems to me, is a desirable size of body for most localities, especially for comb-honey production. This hive admits of putting three 4¼-section cases under the cover at a time. It also gives a two-inch space between the section-case and the outside, which I regard as very important in the production of comb honey, as the outside sections are protected from the chilly winds that are so common in most northern localities at night during the early summer, and some seasons all summer. This protection enables the bees to work the outside section just as freely as the inside ones, thus bringing the work of capping the sections to a close at the same time, leaving fewer unfinished sections, and less travel-stained, which must be the case where left on the hive for completion in case the work is not carried on simultaneously. Also, this method enables the bee-keeper to produce straight comb without separators.

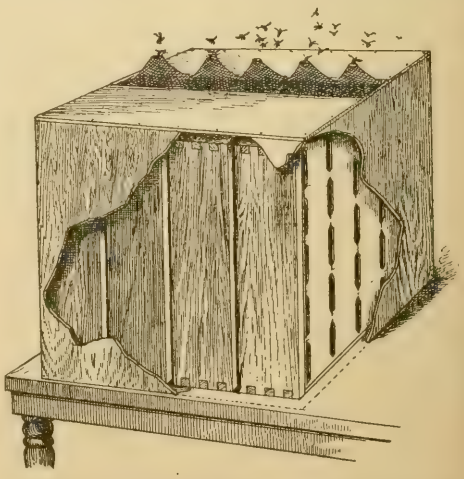
Those who think that this idea of protection of outside sections a mere notion, and adhere to the single-walled hive for comb honey, I would request to take a look at the cases some chilly night. I feel sure they will find the outside sections vacated, and that they will not be occupied till late in the forenoon of the next day. Thus we see that the work is unevenly done, and the delay in finishing the outside causes the inside sections to be injured by travel-stains; but if taken off to save this injury it leaves a lot of imperfect sections to be rearranged and put back, which never are finished as perfectly as if left on the hive. It seems to me that the idea of protection to outside sections as here indicated can not be too strongly emphasized.

Again, the double-walled hive may be placed in the yard without shading, which is hardly the thing to do with a single-board hive. The double-walled hive breeds up more rapidly in the spring; keeps a more even temperature during the season; is not so likely to suffer from chilled brood nor from robbers, as is the single-walled hive. This hive may be used with the brood-chamber in the second story, if desired, the same as any other. To conclude my talk about the hive, as I have said before, section honey can be produced with this style of hive without separators, which can not be done in a single-board hive. It is true, however, that more care is necessary than with separators. There must be a strong colony, a plumb hive, good honey-flow, and no swarming allowed. I have secured a fair amount of surplus, in seasons when my neighbors with single-board hives got none. I attribute the difference to the hive used. I only wish that I'd made my hives with loose bottoms to be fastened with hooks. I think I'd like them better.

As to frames, I know of nothing better than the long-end top-bar Hoffman frame. I cut the corners of the end that projects over the rabbet, so as to make a sharp perpendicular edge, which meets the upward projection of the rabbet, and spaces the frame endwise, thus obviating the necessity of using the staples for spacing. You will see, by trying this method, that there will be no sticking the frames with propolis, as some complain of the bees doing when this frame is used. In fact, there is nothing like the trouble with such an arrangement as I have had with the short-end top-bar. Then, again, the short end is liable to drop off the rabbet at one end or the other, even in the machine-made hive.

As to section-cases, I have used the "T," also the section-holder cases, and like them both. I think I'll let Dr. Miller and the editor of GLEANINGS fight this matter out to their hearts' content. As I feel now, I don't care which whips.

In regard to sections, I have had experience only with beeway sections; but from the knowledge I have from reading and experience I am partial to the seven-to-the-foot two-beeway. I have used the 4¼ *with*, also *without*, separators. I have used seven-to-the-foot 5⅜×3⅞ in section-holder cases that came with bees purchased when I came here, and having fence separators nailed to the



THE WHITNEY BEE-ESCAPE CASE FOR CLEARING THE BEES FROM COMB-HONEY SUPERS.

ends of the holders, which have worked well, and have given me beautiful sections of honey weighing as near 16 ounces each as it is possible for the bees to guess. I think, from what I have read of the Crane separator, that I'd like to try it. It seems to me that it contains a principle worth testing.

I use a stand six inches high, similar to those advertised in the catalogs, for hives to

stand on, having an alighting-board of easy incline for the bees; a sled the same height as the stand, on to which can be pulled the hive for moving to any other part of the yard, or is convenient for many other uses in the yard; also a box, with convenient handle for carrying, containing smoker fuel and compartment for tools, such as a strong tack-puller for separating and lifting the ends of frames—the best instrument for that purpose as well as for many others that I have ever seen. The screwdriver so many people use and recommend bears no comparison for convenience; a long wide thin-bladed spatula, with one edge and end ground sharp for cutting deep between combs if necessary, and to remove burr-comb from top-bars. It is so limber that it can be bent and pressed flat on the top of frames, and will remove comb from two frames at a time, and to me it seems almost indispensable; a pair of surgeon's scissors with curved blades, for clipping queens' wings; a good pocket-knife and a box of matches. A smoker I carry in my hand or hang on the side of the box as may seem convenient; also a scythe, lawn-mower, and grass-sickle for keeping the grass cut short.

Now I want to describe one method (among others) I have of getting bees out of section-cases when removed from the hive, and which I like very much. There is a table on which may be placed several cases set on edge or side; then a box made of thin stuff, having a slit for an exit cut through the center of the top covered with a row of wire-cloth bee-escapes telescoped over the whole. It is amusing to watch the bees hustle to get out. This bee-escape as a queen-cell protector is the best thing to use to introduce a queen-cell to a colony of bees that I have ever tried or heard of, and they are comparatively inexpensive. I never have had a mishap in their use for this purpose. It is possible there are those who do not know how these are made. Take a piece of wire cloth 2½ to 3 inches square, and with a plug that fits loosely a hole in a plank or board 1¼ to 1½ inches in diameter push the cloth through the hole. It will come out in a cone form; then push a nail through the apex from the inside and work it till the head of the nail slips through and you have it complete.

For putting foundation into sections, have both the Parker and Daisy fasteners. With sections thoroughly dry, and the atmosphere right for working wax, give me the Parker by all odds.

For cutting foundation I use something like a miter-box with a carriage that slides so that it may be cut any width desired, and the spatula above described is used for the purpose, often cutting 32 sheets at a time.

For putting up frames I use a form very similar to one described in GLEANINGS a short time ago; and while some may think such an arrangement quite unnecessary I like it very much, as every frame is true, when nailed, as it's possible to be, and will hang true in any properly constructed hive, which is not always the case when otherwise made. Then, again, while in the form the brads are driven, from which hooks are made for wiring, with a pair of small round pliers, at points designated on the form, so that all are alike. The work is rapidly done, and the completed work presents the evidence of care and neatness that is pleasing to me.

Horizontal wiring of frames is so unsatisfactory that I've never used it. The method I have adopted I've never seen described, but was given me by a very worthy farmer bee-keeper in Ohio, and to me it seems the best I know of. No more wire—if as much—is used as in horizontal wiring, and there is absolutely no sagging of the foundation. I think, if Dr. Miller were to try this method, he'd use no more wood splints. If I am permitted to attend the next meeting of the Chicago and Northwestern Association I shall be pleased to take a frame of comb built on foundation, thus wired, for exhibition.

Nearly every person with 20 to 50 colonies of bees does more or less extracting. From my present experience I'd have an extractor, even with not more than five colonies. I think the Cowan reversible is considered as good as any—if not the best. Mine is the two-basket machine, and serves my purpose well. For rendering the cappings and refuse comb into wax the solar wax-extractor works for nothing and boards itself. This pleases me very much, for it seems coming nearer to getting something for nothing than does any other legitimate business that I know of. There are many other appliances, such as frame boxes for use in examining colonies; swarming-boxes, of which I have three; drone-traps, etc., all of which are used in most if not all bee-yards, but which it seems unnecessary to describe in detail.

Now, it may be said, "You have talked a good deal but said little." I feel myself that this is true; but one must remember that this is an exhaustless subject, and one about which hardly any two agree; and in talking we are apt to skip along here and there, and, to some, seem to miss many important points. Before I close, however, I wish to say a word to beginners in bee-keeping. *Do not buy complicated hives and other appliances;* do not use different-sized hives, taking different sizes of frames, if you can avoid it; do not buy cheap material of any kind because it is low in price. Buy standard goods of the best quality for every thing needed in your work, and do what you do in the very best manner possible. This presupposes that you have subscribed for at least two of the *best* periodicals on bee-keeping, and that you are the owner of as many works on the subject by the best authors as you can afford. With such a beginning, if you like the work you will succeed whether you get rich or remain poor, for you will become an enthusiast and possibly a *crank.* Come to one of our conventions and listen. It will pay.

In conclusion with much hesitation I wish to refer to one other matter (though it may seem far-fetched) as an appliance to further the interests of special bee-keeping, and which

is considered by some important; and that is, a statutory provision giving bee-keepers under certain conditions a monoply of prescribed territory. I would not have referred to this subject had not my attention been called to it by reading a recent article in GLEANINGS on the subject which we are now considering. If we could only secure such special privilege for the specialist, wouldn't we have a bee-keepers' Utopia for such as are fortunate enough to have control of the territory? How we could surround each village and city with members of a big trust that would have a "dead sure" thing on prices! We could even give pointers to Standard Oil. How we could enjoy nectar "fit for the gods to sip," to the exclusion of the right of the farmer to supply his table, that his wife, his children, and friends might taste the sweets extracted from the flowers produced by the sweat of his brow! With what Pecksniffian exultation we could rejoice and be glad that our neighbors were not permitted to indulge in the luxuries in which we, by our special privilege, were reveling! Surely this would discount all the other appliances for the bee-keepers' use that I can think of.

A government owning the soil can lease it for any legitimate purpose, even for bee-keeping, and no one should complain. An individual should have the right to lease his premises for any legitimate purpose, even for keeping bees, without being obliged to ask his neighbors' permission. But in a country like ours, where the land is held in fee simple by the individual, who is guaranteed all the right, title, interest, claim, or demand, in law or equity, and all the rents, issues, and profits thereof, I think it very improbable that any law-making power, State or national, will ever grant a special privilege such as that mentioned above, for any business whatever. With all due respect for the opinions of others, let us dismiss this proposition as being too ridiculous to waste more time in discussing.

Lake Geneva, Wis.

SYSTEM.

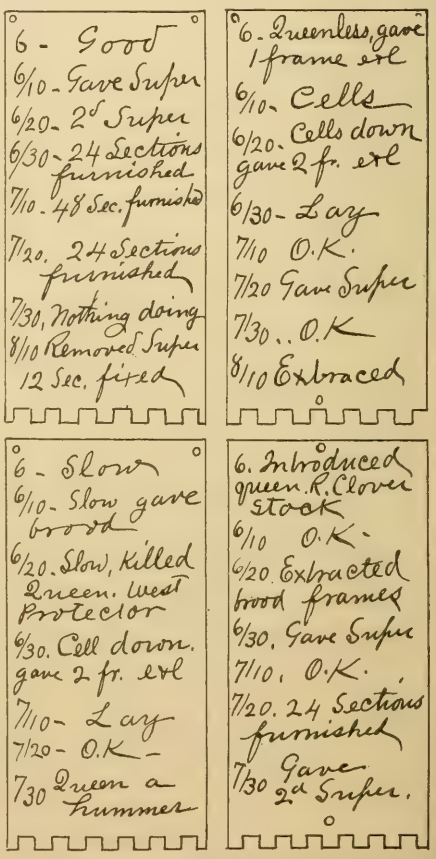
The General Lack of it Among Bee-keepers; Faulty Arrangement of Hives; Keeping Hive Records on Pieces of Section Stuff.

BY LESLIE BURR.

I left the "Pearl of the Antilles" in January, 1906, and since then have traversed this United States of ours from south to north and from east to west and back again. This time I wish to speak of the "faults" of bee-keepers and system, and the "lack of system."

Down on the island of Cuba there is a pretty good bunch of real bee-men. Most of them have knocked around the world for several years, and have picked up a lot of knowledge. The one great trouble down there is, they get lazy. It is too much trouble to go over the apiaries as often as they should during the summer months, and, as a result, the colonies are not as strong as they should be in the fall. Then during the honey-flow it is easier to let the bees plug the breeding-combs full of honey than to keep them open, and the result is that, by the time the flow is over, the working force of most of the colonies has dwindled down to a corporal's guard of bees. The real trouble there is not so much the working system as it is the *human* system.

In California the trouble is on the other hand. There it is the working system. The first thing noticed by a man from the tropics is the lack of shade. The Californian seems to have a horror of natural shade; and as they also have some very hot weather they have to protect the hives to keep the combs from being melted by the sun. The most common kind of protection met with is a



HIVE RECORDS KEPT ON PIECES OF SECTIONS.

stone-weighted double-cover combination that takes up as much time to take off and put on again as is necessary to work the colony.

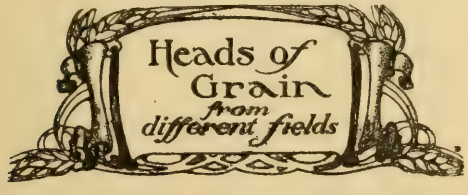
When it comes to arrangement of the hives in the apiaries, inconvenience is generally carried to the limit. The system generally practiced is to place the hives in squares 10

feet apart each way, the entrances all facing the one direction, with the result that the operator is always working in the flight of the bees. Few of the bee-keepers there seem to realize that, by placing the hives in double rows, back to back, it would be more convenient, and they would not begin to anger the bees as much while working them. The honey-houses also are generally of the inconvenient type. Very few of them are so that the wheelbarrow can be run into the extracting-room and unloaded. Most of the buildings are so constructed that the supers of honey had to be carried in one at a time by hand or poked through a hole in the side of the building.

But where the greatest lack of system is shown is in the working of the bees themselves. The hit-and-miss method was much in evidence. Very few are the apiaries where the apiarist can walk with you down a row of hives and tell you the exact condition of each colony. But in this I do not know that California bee keepers are any further behind than those in other parts of the world. The general idea among bee-men is that, to keep records of the colonies, it must be done in a book; and for the benefit of those I will give some of the records as I keep them, which were kept on pieces of sections tacked on the covers of the hives.

For queenless colonies it is generally a good idea also to use stone signs. A small stone on the front of the cover means absolute queenlessness in the center cells; and at the back end, for a virgin queen. The stone makes such colonies easily found, and attended to when you do not care to work the entire apiary.

Shreveport, La.



MASSACHUSETTS AS A HONEY STATE, A FREE COURSE IN BEE CULTURE AT THE AGRICULTURAL COLLEGE

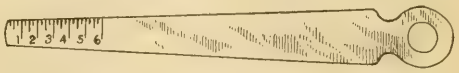
Massachusetts is not what would be called a honey State, for, while its consumption of honey is very large, its production of it is very scant. Nor should it be so; for, climate aside, Massachusetts ought to be as good as many of our Northern States, and certainly as good as Canada for the prudent bee-keeper. That the State is doing something to arouse an interest in bee-keeping is demonstrated by the free course in "Bee Culture" which has just closed at the Massachusetts Agricultural College at Amherst. The course occupied two weeks; but of all the students only two were men, aside from such of the seniors of the college who attended the lectures when there was nothing else to do. But the women were earnest in their attention, and no doubt the knowledge imparted will be exemplified in the future.

The course included lectures on "Honey Crops," by Prof. Brooks; "Practical Bee-keeping," by Prof. Paige; "Botany," by Prof. Stone; "The Entomology of the Bee," by Prof. Fernald; and "Practical Demonstration," by Prof. Gates, of Clark University, Worcester. Dr. Phillips, of the Bureau of Apiculture at Washington, gave two lectures, one on "Queen-rearing" and the other on the "Diseases of Bees." JAS. BAYLES.

Lowell, Mass.

A GAUGE FOR MEASURING THE SLOTS IN QUEEN-EXCLUDING ZINC.

As the name implies, the above drawing represents a little tool to measure or compare one space with another, such as the slots in queen-excluding zinc. This tool is not used very often; but when we do want it, it is very convenient to have. It does not



give dimensions to the thousandth of an inch, for this would require expensive tools, but it is very accurate in comparing. A piece of galvanized iron is better for this purpose than tin. On account of the bright glistening surface of the latter it does not show marks and figures as plainly as the former. G. C. GREINER.

La Salle, N. Y.

[We use something similar for measuring our zinc; in fact, we have used it ever since we made perforated zinc.—ED.]

DRONE COMB IN SUPERS; SIZE OF EXTRCTING-COMBS; HOW TO TELL PREPARATIONS FOR SWARMING FROM THOSE FOR SUPERSEDING.

Please help me out with the following questions:

1. What is the effect of clean drone comb in upper stories on the working and swarming impulse?

2. I am using a nine-frame hive, combs 10×12¾. I find it too small for extracting. Would you advise me to enlarge to a 12-frame or adopt the Langstroth or some other 10 or 12 frame for making my increase? This nine-frame hive is used almost entirely in this locality.

3 Is there any way of telling preparations for swarming from preparations for superseding? This nine-frame hive is not made as exact as it should be, and I am considering changing to a factory-made hive at about twice the cost. G. H. EVANS.

Napanee, Canada, April 3.

[1. The effect of drone comb in the upper story is bad unless you use queen-excluders.

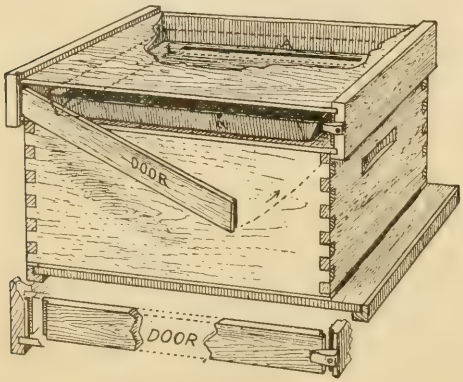
2. In any event your brood-chamber is too small. It would be very safe for you to select

a 10 or 12 frame Langstroth. The hive you now use is awkward, and requires a special system of management. It is better to go with the crowd, and watch how they do.

3. The swarming season is not the time bees do their supersedure. It is done mostly later. Your country is all right for bees. Get a standard hive and be in line.—ED.]

A COVER FEEDER.

The cut partly describes a feeder I have adopted. It is excellent for feeding at any time of the year, but particularly in cool weather, as it is always very close to the bees. Other feeders may be just as good *after they*



SMITH'S COVER FEEDER.

are adjusted; but as long as the cover is used on a hive, this feeder is always adjusted. There is no heat lost by having to open the hive to add a story to accommodate a feeder, or in any other way by which most feeders are used.

To feed, it is simply necessary to open the little door on one side of the cover (the other side of the cover is permanently closed), and shove in a suitable dripping-pan of feed. A pan which nearly fills the chamber will hold about 10 lbs. of feed. The crack shown in the lower wall of the cover allows the bees access to feed; and when the feeder is not in use the pan may be shoved a little further over, and the crack is closed.

Palermo, Ont., Can. H. A. SMITH.

[In cold weather the pan could be taken out and a thin cushion substituted, thus making a warm cover. One objection to this is that such a cover would necessarily be rather expensive.—ED.]

WHY THE BEES WERE FIGHTING.

Last summer, and early in the fall, bees in this (Cass) county fought among themselves a good deal. There was no robbing, yet they would be strung out a foot or two from the entrance of the hive, engaged in a rough-and-tumble sort of affair. There was plenty of nectar and flowers for them to work on. Now, what was the cause of all this performance? There was no noticeable harm done by the action of the bees, but I can not account for it. There are others in this locality who would like an explanation of this subject as well as myself.

Beardstown, Ill. H. W. DOERR.

[In spite of what you say to the contrary, it seems clear to us that what you describe was nothing more nor less than robbing. There might be plenty of flowers in blossom and still be robbing just the same, for nectar is not secreted under all conditions. Sometimes robbing will be very bad with acres and acres of white clover in full bloom. That condition existed early this summer in many parts of the United States.—ED.]

QUEEN-CELLS BUILT WITHOUT BROOD.

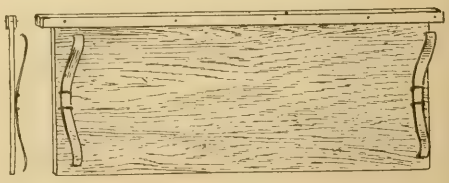
I have one hive of bees with no queen or brood, yet the bees built five queen-cells and capped them. Please advise in this matter.

Phillips, Wis., June 3. JOSEPH BAUER.

[You probably have laying workers in the hive. Bees under such conditions will often try to build cells over drone larvæ. Cut out all these "bogus" cells and give them a couple of good ones.—ED.]

SUPER SPRINGS ATTACHED TO THE FOLLOWER.

While looking over GLEANINGS for 1905 I read an article about super-springs in the Jan. 1st issue. I have springs for my frames that are made of old clock-springs, 1 inch wide by 8½ long. They are fastened to the dummy or division-board as per cut. This is for closed-end frames. The ends of the springs slide down the end-bars.



By having the springs fast to the board the bee-keeper is sure of putting them back, and he can put in board and springs together quicker than when they are not attached. I have used these springs for three years, and they are far ahead of any other device I have ever tried. H. MANSPERGER.

Lewistown, Mo., Feb. 4.

TWO QUEENS IN A HIVE.

I believe I have solved the two-queens-in-a-hive trick. I have had them *loose* together for two weeks in an eight-frame hive, and they were both as lively as crickets this morning. J. K. WILSON.

Lancaster, O., June 4.

[When the robbing season comes on, please report what you find.—ED.]

OUR HOMES

by A. I. ROOT

Dearly beloved, avenge not yourselves, but rather give place unto wrath; for it is written, Vengeance is mine, I will repay, saith the Lord.—ROMANS 12 : 19.

On page 914, July 1, I expressed my belief that the terrible calamity that overtook San Francisco last year was a part of God's plan to teach us some useful lessons; and, dear friends, God is constantly striving to teach us useful lessons every day of our lives. When we are dull, or, worse still, contrary and disobedient, we are sooner or later punished for this stupidity, stiffneckedness, and disobedience. As in olden times, when we continually persist in breaking God's holy law the punishment finally comes with a terrible jolt, and a jolt that usually brings people to their senses. The earthquake was one of these jolts. The whole wide world looks on and reads the lesson God would teach us.

Recognizing what I have been trying to tell, apparently, they shut down the saloons in San Francisco for a few months; but the brewers, with their reckless disregard of consequences and contempt for every thing sacred and holy, brought such pressure to bear that the saloons were opened up again; and to the shame, not only of San Francisco, but to the whole of the United States as well, they are still running wide open, or at least to a great extent wide open.

When the State of Georgia just recently arose in her might, and with a mighty voice broke loose from the thralldom of the liquor-traffic, people looked on and wondered. Why did Georgia push ahead and outstrip every other State in the Union in her zeal for temperance? The answer has come from many different directions. I thought of quoting some of the statements, but our space will not permit. The disgraceful affair in *Atlanta* a short time ago opened up the way. Perhaps it was one of the *jolts* I have been telling you about. It was God's warning; and we are told on *good authority* that the terrible outrages on women and little girls throughout that region had roused the people as they had never been roused before. This nameless crime was laid at the feet of the negroes; but it soon turned out that it was not so much the *color of the skin* of the demon in human shape as it was his mental condition; and the general conviction seemed to settle down on people that the *saloons* and the *saloon business* were not only the prime cause of drunken *negroes* but of drunken parents and drunken men in every nation. To put it short, Georgia has banished the saloons because her people have made a declaration of independence, saying that their women and little girls shall be protected in their liberty, and freedom to go about in the open air, and to go at least a reasonable distance from their home unattended, *no matter what it costs.* *

I told you in these Home papers some two or three years ago about a drunken colored man in our neighboring city of Akron, 20 miles from here. This man carried a little girl out into the bushes, but was compelled to let her go on account of her screams. He was well acquainted with the little child, and would have been her friend and defender had he not been crazed with liquor. Let me explain that Akron has a population of about 60,000, and, as a matter of course, there is a hoodlum element there that thought lynching would be the right thing They would be "right in the swim," and up with the times by hanging this man up, or by burning him at the stake as they do in other places. The saloon-keepers of the city, over 100 in number, entered heartily into the undertaking because they knew that at such a time they could sell an *enormous amount* of liquor. They were right about it; and when they got the crowd, "gloriously drunk," as they called it, because this crazy mob was not permitted to get hold of that particular colored man somebody yelled out, "If they can not get that 'nigger,' give us 'any nigger.'" The police were soon overpowered. The mob held the city in a state of terror for one whole night. They burned up the city hall, costing many thousands of dollars. While it was burning, and the fire company was trying to extinguish the flames, they cut the hose. It is true that the police did in time succeed in quelling the riot, and eventually something like forty of the ringleaders in the affair were punished by a term in the penitentiary.

The above is a terrible indictment of the saloons, but we can rejoice in this case to know that the mob did *not* get its victim, and the law was finally permitted to take its course. One would naturally think that with the lynching, burning at the stake, and the terrible punishment by law when it has been permitted to take its course, not only every tramp but even every man while he is drunk would remember that swift death would speedily follow by giving way to his low and depraved passions in this direction. I have been watching this thing ever since it started up, and I am inclined to think that every case of lynching we have makes the matter *worse.* The crimes *caused*

* We are told in holy writ that God, at least sometimes, "maketh the wrath of man to praise him." Now, is it too much for our imagination to conceive that God has permitted drunken negroes, and other fiends in human shape, to assault our innocent little girls just because he finds that no lesson less *terrible* rouses us as a people to the fearful consequences of permitting these dens of iniquity to run wide open, not only every hour in the day and night, but all hours on Sunday? By the way, in several localities they are taking measures to banish tramps entirely; and our great railway companies have abundant reason for coming ahead with alacrity to help get rid of the tramp nuisance. I shall rejoice to see a law passed that will arrest every man who attempts to go from house to house, refusing continually the offers on almost every hand nowadays to set him at work. The man who absolutely *refuses* to work should go to the workhouse. If he is entirely unable to work, send him to the infirmary.

by the saloon evil can never be corrected by *saloon work* or by mobs of *crazy drunken men*. In fact, I am led to believe that the memory of such crazy work stirs up a frenzy in the mind of a drunken man, especially an ignorant one, so that he will go and do the very thing he has heard of. You have all heard of the mother who, when she went away from home, warned her children to be *very sure* not to poke peas into their ears. When she returned home, every last child had poked a pea into one or both ears, and a doctor had to be summoned. A wiser plan for that mother would evidently have been to put all the peas out of the children's reach and say nothing.

Well, this mob law and lynching, especially where the lynching is done by men crazed with drink, has quite an opposite effect from the punishment inflicted by law, where the criminal has a comparatively slow, deliberate, and impartial trial. Punishment by law does not seem to have the craze and contagion about it that the lynching business does. Unless we respect and reverence the laws of our land, our land is doomed.

Well, friends, our own quiet, orderly, God-fearing locality in Northern Ohio is just having a jolt or two along the line about which I have been talking I wish to confess to you, however, before making the following extract from the Cleveland *Leader*, that I hesitated a good while before doing so; but I reasoned that not only the *mothers* but the little girls need to be cautioned; in fact, they *must* be cautioned as well as watched. Now read the following:

GREENVILLE, PA., AUGUST 18.—ASSAILANT OF MISS WHITEHEAD REPORTED STRUNG UP AT WAYNE, O. BY POSSE.

The entire section between Buffalo, Newcastle, Pa., and this city has been aroused since 7 o'clock yesterday morning over one of the most brutal crimes ever committed in this part of the country.

At midnight a posse of fifty farmers, intent upon lynching, was closing in on the Ben Jones swamp, near Wick, O., twenty-eight miles north of Warren.

They believe they have surrounded the tramp who outraged fourteen-year-old Alma Whitehead, of Turnersville, Pa., Saturday night and Sunday morning, keeping her tied hand and foot to a tree in the woods all night.

The posse has traced the man to the swamp by means of Warren bloodhounds. Every man is armed heavily with a shotgun. Although Sheriff Williams, of Meadville, Pa., and Chief of Police Frank Flowers, of Warren, are with the posse, it is believed that nothing can avert a lynching should the criminal be captured.

The crime of which the little Whitehead girl was the victim was undoubtedly premeditated. She is the daughter of Rev. J.M. Whitehead, of Turnersville, head of the most respected and looked-up-to family in the town. She is extremely pretty, with a dark complexion, and known for her beauty through the entire countryside. She is one of the most popular girls of her school.

Saturday afternoon Alma was playing with girl friends. They noticed a heavy, thick-set tramp, with sandy, bushy hair and mustache, one eye gone, watching her. She thought nothing of the affair at the time, however.

Shortly before 7 o'clock Saturday evening her mother sent her to the home of a neighbor for some butter. That was the last seen of her until 7 o'clock yesterday morning, when she came running into her home and fell sobbing and fainting on the floor in front of her distracted mother, telling her story, mingled with tears of shame.

Shortly after she had left the house, she told her mother, the tramp met her. She tried to run away, but he seized her before she could escape. He carried a big coat which he threw over her head until it nearly smothered her. Running swiftly out of the town in the evening dusk, he carried her to the woods near the house. There he bound her hand and foot to a tree.

All night long the tramp kept her in the woods. At 7 o'clock yesterday morning, when she had become so weak that she could scarcely stand, he released her, telling her to go home, but threatening to kill her should she ever breathe a word of what had taken place in the woods. He then ran away, leaving her limp on the ground.

After a few minutes her courage returned, and with it a little of her strength. She staggered to her feet, and started for home.

In the *Leader* for August 20, one day later, we have the sequel as follows:

MEADVILLE, PA , August 19.—Cringing and quaking in momentary expectation of being torn from the hands of a deputy sheriff by the crowd which formed a gantlet from the jail to Magistrate Powers' office late to-day, Henry W. Wagner, the assailant of Alma Whitehead, improved the first opportunity to plead guilty, anxious to get back to the security of the jail.

He admits everything, offering in palliation, "I don't know why I did it."

Wagner is a German, twenty-seven years old. He is a typical tramp in dress and general appearance. He says he recently worked in a foundry at Lorain O

The maximum penalty for his crime is $1000 fine and fifteen years' imprisonment. The report from Turnersville is that Miss Whitehead will recover.

Now, friends, this is not all of it. Only a few days before this, and not much more than a dozen miles from where I sit dictating, a young woman who was employed in Akron got off an electric car and proceeded to make a short cut to her home in a path through the woods. As soon as she was out of sight of everybody a tramp grabbed her, and in the terrible struggle that ensued he tore nearly all the clothing from her body. After pounding her into insensibility he tied her hands and feet to four stakes which he had previously driven into the ground for that purpose; and then, remembering that her torn clothing might lead people to follow him, he went back and gathered the bits up. While he was absent she revived and worked herself loose by pulling a stake from the ground, and then ran to some neighbors and gave the alarm. An officer of the law was informed, but he stupidly neglected to rouse the neighborhood until sufficient time had elapsed to enable the fellow to jump on to a freight-train and get away.

These two events have occurred right here near my home, in a thickly settled community. Now, then, what does it mean? and why has God seen fit to *permit* such terrible outrages to go unpunished—outrages against helpless women and children? The fourteen-year-old girl was a minister's daughter, educated and refined—one of God's jewels. You may remember that, in a recent Sunday-school lesson, they tried again and again to teach Pharaoh to have some respect for God's chosen flock of people, and to permit them to depart by themselves that they might be a nation after God's chosen plan. When all else failed, and Pharaoh continued to harden his heart, the first-born in Egypt was stricken down. The blow fell on comparatively innocent children.

We sometimes ask the question, "Why has God permitted such demons in human form to prowl about the country, seeking to lay

their filthy hands on our bright, pure, harmless, innocent little girls?" Well, the opinion of your old friend A. I. R. is that God has *not* permitted such men to roam at large. It is men in office who do it. It is you and I who have failed to raise our voices and make a protest against open saloons in our land, or, worse still, our immediate neighborhood.* We have not waked up as Georgia did. From the accounts in the papers it would seem that women and children did more rejoicing when the breweries and whisky-shops were banished from that State than the voters themselves.

Here is another clipping from that same Cleveland *Leader;* but I am ashamed to be obliged to note that neither the editor nor any one else saw fit to make any footnote against the publication of such a statement. Read it and see what you think of it:

RECORDS OF ARMY PLEA FOR CANTEEN; JUDGE ADVOCATE'S REPORT ARGUES ABOLITION A MISTAKE.

WASHINGTON, August 18.—The annual report of General Porter, acting Judge Advocate General of the Army, presents a strong plea for the restoration of the army canteen, and backs up its conclusions with figures.

The report dwells upon the evil results following the passage of the anti-canteen act, which, it is said, undoubtedly has caused the location near military reservations of resorts for the sale of intoxicating liquor which pander to the appetites and passion of those enlisted men who, largely by reason of the prohibition in question, frequent the same. These resorts are beyond the control of the military authorities, and their presence is highly detrimental to military discipline. If the men were permitted, as under the canteen system, to procure a reasonable amount of drinks in barracks and under the supervision of their officers, the effect undoubtedly would be conducive to military discipline and reduce the number of court-martial trials for offense due to drunkenness.

I shall have to confess, friends, that I do not know any thing about General Porter who is quoted; but even if he is acting Judge Advocate General of the Army, there is something queer about this man. This whole thing is gotten out by the brewers, because they are grabbing at the last straw to save—I was going to say themselves, but I mean their business, from destruction. The destruction comes the other way. When these things are sifted down we find every time that it comes from some *intemperate official.*

Let me quote again: "These results are *beyond the control* of the military authorities." What does it mean in this United States of America to have a great general make such a statement? Are they *unable* to prevent the establishment of low dives, and gambling and drinking places, close by where our armies are located?† What a confession! While I have the other two clippings in hand, here is still another one that was just handed me, clipped from the Baltimore *News* of Aug. 16; but I have space to quote only the head-line:

"All North Carolina may soon be 'dry.'"

May God be praised for such things that are coming now thick and fast; and may we each and all rejoice that it is our privilege here in the United States to hasten the day when the open saloon shall be no more.

MY DUCK STORY.

Yes, friends, and it is a good one too. It is going to be a five-pointed story, and each point, I think, is something not only of value but not generally known. The first point I got from a neighbor, Mr. Philip Bolei, who lives two miles out of town. Last winter he had four ducks, mostly Pekins, but with a dash of Indian Runner blood. A bee-keeper who was here for supplies sold him a Pekin drake for $1.50. He began in February setting the duck's eggs under a hen; and last evening Mrs. Root and I went over to see his family of ducks, all from the four he wintered over. He has raised over 200, big and little. Those hatched in February sold for 60 cents each; and a brighter, happier family of ducks I never saw. The above (from *four ducks* to *200* in one summer and the summer not nearly over—only August 10th) is point No. 1.

Point No. 2 comes in here. He proposes to sell all but four of his best before winter comes, so he has no expense of wintering a large flock. Of course, he has to winter enough of the common fowls so as to have sitting hens for business in the spring. He owns two incubators; but either they are not first-class or else he has not got the "hang" of them. He says that a great part of the time 12 eggs under a hen brought forth 12 ducks. Now, with this way of managing he is at no expense for buildings, such as chicken-coops, fixtures, or any thing of the sort. His ducks have the range of the farm, and are out of doors, when it gets to be warm weather, day and night—*no expense for buildings, structures, nor appliances*—that is the second point.

I caught on to my third point a few days ago when I went over to pay a visit to Mr. Vernon Burt, the champion bee-keeper, not only of Medina Co., but I might almost say of Ohio. Well, friends, Mr. Burt's *mother* is in the duck business, and I was alive with astonishment and enthusiasm when she informed me that her young ducks, just hatched, did not have any mother nor any brooder, and *did not need any.* I remonstrated.

"Why, Mrs. Burt, these baby ducklings certainly need a mother till they get old enough to eat—say 48 hours."

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* Since clipping the above from the *Leader* I discover the *Plaindealer* of the same date contains substantially the same thing as that of the *Leader;* but they give the following additional, in quotation-marks, indicating that they got it from another source.

"If legislation prohibiting saloons within one and one-eighth miles of a military post were followed in all States the effect would undoubtedly be conducive to military discipline, and reduce the number of court-martial trials for offenses due to drunkenness."

† When the Anti-saloon League of Ohio was first started it was my privilege to contribute the first $500 through Mr. Metcalf, of Elyria, who gave a like sum. Brother Metcalf explained to me that the reason of his opposition to the open saloon was a lot of picture cards he took out of his pocketbook, spreading them out. They were obscene pictures calculated with hellish ingenuity to inflame the passions of youth or those already inflamed by drink. He said he had himself gone into saloons and picked these cards up from off the counters in various cities; and he said that that alone was a sufficient reason for his fighthing the saloon as long as God gave him breath.

"Mr. Root, my ducklings are always old enough to eat. I never saw a duck that would not eat if it had a chance. They will eat, and take care of themselves almost as soon as they are out of the shell—that is, in any decent kind of summer weather."

I saw them when only a few hours old at their home, contented, without any mother or brooder. Of course, they had a nice warm little box just right for the number of ducks to get into at night. Well, Mr. Bolei said the same thing. He soon found that, instead of the ducks following the hen, the hen would just follow the ducks; and so they took the hen away from them, and the ducks got along all right, and the hen soon commenced laying again.

Now, if I did not see this thing going on, at two different "duck-farms," I should be incredulous. No mother or brooder is point No. 3.

I suppose there needs to be, of course, a sufficient number of ducks—say a dozen or more—together to keep up the animal heat during very cool nights. Of course, you will have to protect them from rats and other enemies; but any up-to-date farmer ought to be ashamed of *having* rats on his premises.

I do not believe anybody ever saw healthier ducks. In fattening his ducks for market Mr. Bolei gives them all they will eat; and he has a novel scheme for giving them corn without the chickens being able to get it. A tight box that will hold water, say four or five inches deep, contains their corn. The ducks can, of course, reach down in the water and get the soaked corn, which is just to their taste. The chickens can see the corn, but they can not stand the water. This is point No. 4.*

Now, point No. 5 *I* have not quite worked out; but it does work out over in China, and the Chinese are ahead of us in at least one industry—the duck business. The following letters explain themselves:

Mr. A. I. Root:—As you are interested in ducks and incubators I send you a letter received from my cousin in China, describing their method of hatching ducks.
Ellwood City, Pa. J. A. EVANS.

DUCKS AND DUCK INCUBATORS IN CHINA.

The duck-hatching establishments here turn the little chaps out by the thousand during the season. The process of artificial incubators is so old that the duck has long since lost the nesting instinct The eggs are put into bushel baskets which are placed on a revolving platform in a small oven with a fireplace at one side. After two weeks the eggs are transferred to larger beds and well covered with pads. The only theremometer used is the eye. The eggs are touched to the eyelid to know whether they are warm enough. After the third day all eggs are candled, and the non-fertile ones put on the market.
Yü-yiuo, China, Jan. 25. J. E. SHOEMAKER.

Now, friends, do you catch on to point No. 5? I told you about seeing ducks, after they were hatched, getting along right in summer weather without any mother or brooder. Well, these friends of ours, the Chinamen, have gone further if I am correct. They have discovered that the animal heat from strong fertile eggs, a sufficient number of them, will *hatch out* ducks in a warm climate, without any artificial heat in the way of mother or incubator. The friend in China who writes the letter does not give us the full particulars; but my impression is that the duck eggs, after the second week, are so well insulated in beds with "pads," as he expresses it, that they hold the animal heat until hatching time. The principle must be the same as that of the fireless stove for cooking, that is now making such advances. We have one already installed in our home, and I expect to tell you more about these later. It was purchased of the Caloric Fireless Cook-stove Co., Grand Rapids, Mich. Now can any of our readers tell us more about the way they hatch ducks in China without any artificial heat after the fifteenth or twentieth day?

YELLOW SWEET CLOVER, AND ITS WONDERFUL PROPERTIES AS A NITROGEN-GATHERER FROM THE AIR.

We clip the following from a late issue of the *Scientific American*. Of course they do not call it sweet clover; but a reference to page 1036 of this journal settles the question.

The possibilities of certain grasses being utilized for the purpose of fertilizing, and thereby reclaiming for cultivation, waste stretches such as sand dunes, has been strikingly demonstrated upon King Island, which is situated between the coasts of Tasmania and the Australian mainland. This island has always been an arid waste of sand and other non-arable soil. Some few years ago, however, a vessel was wrecked off the island, and when broken up under the force of the waves, a number of the sailors' mattresses, which were stuffed with the yellow-flowered clover, a kind of grass, were washed ashore. A certain quantity of seed was contained among the stuffing, and in due course these took root, and, owing to their prolific growth, in the space of a few years covered the sandy stretches with rich verdure. It is a long-established fact that clover and other leguminous plants have the peculiar capacity of fertilizing a waste soil, owing principally to the action of bacteria, thereby enabling the plants to draw nitrogen directly from the atmosphere. In the case of King Island, owing to the properties of this yellow-flowered clover, what was previously a waste stretch of sand is now one of the richest grazing districts in the Australian continent. The growth of the plant completely changes the character and color of the soil from a dirty white to a rich dark brown or black loamy nature.

When I get back to Florida again during the coming winter I am going to try very hard to get yellow sweet clover to flourish in some of the sandy waste places in that region.

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*The above method of having corn or other grain right before the ducks, where they can get it whenever they want it, and yet have it secure from other prowlers, even rats and mice, is of more moment than you may think at first. I am now feeding my six Indian Runner ducks in this way; and I can put corn enough in their water-tank to last them a week, and it is securely locked up from any other vermin that I know of. We often hear about automatic feeders for poultry; but can you imagine any thing more automatic than this? The corn keeps perfectly good and sweet for possibly a week or more for *ducks*, and it seems to be just to their notion. You may remember that, last winter, I wrote about my Leghorn chickens just beginning to fly, and I called them my "Florida flying-machines;" but my Indian Runner ducks are now just about ten weeks old, and they are operating with their new-found wings every day, especially toward evening; and I do not know but I find about as much enjoyment in seeing them learn to fly as I shall have, if I live long enough, in seeing *people* learn to fly. May be, through a kind Providence, I may have an opportunity to do a little flying myself. May God be praised for the unexplored opportunities that still open up right before us in so many different directions.

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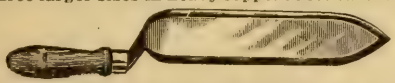

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1905, '06 Queen-breeder in Apiary of Dept. of Agriculture, Washington, D. C.

Both Races.	1	6	12	
UNTESTED,	$ .60	$3.35	$6.50	TESTED $1.25
SELECT "	.75	4.00	7.50	SELECT TESTED, 1.50

Satisfaction Guaranteed. Descriptive Cir. free.

LESLIE MARTIN,
Birdcroft Apiaries, Lebanon, Tenn.

Queens from 65 Cents Up!

Bred from Root's Imported Italians. Write for prices, stating wants. . .

C. M. Church, Arnold, Pa.

MINNESOTA QUEENS

Nothing Better. Try Them.

Three-band and Golden Italians.

We warrant our bees free from disease of any kind, and guarantee safe arrival of all queens. We want your orders and will fill them promptly on and after June 1st, at 75 cts. untested, and $1.25 for tested of either strain. A postal will bring you a circular. Send your orders to

MENNIE & FENTON,
Pine Island, . . Minnesota.

Taylor's Strain of Italians is the Best

Long tongues and goldens are the best of honey-gatherers; 18 years a specialty, breeding for the best honey-gatherers. Untested, 75 cts. each, or $8.00 a dozen; tested, $1.00 each, or $10.00 a dozen; select tested, $1.50 each. Breeders, the very best, from $3.00 to $5.00 each. Carniolans same price as Italians. Try them. We sell nuclei and full colonies. Bees in separate yards. Safe arrival guaranteed. Send all orders to

J. W. TAYLOR & SON, Beeville, Bee Co., Texas.

Italian Queens

Fine young prolific three and five banded Italian queens by return mail. Untested, only 60 cts., or $6.00 a dozen; tested, 75 cts., or $8.00 a dozen; extra fine queen, $1.00. Directions for introducing go with every queen.

J. L. FAJEN, ALMA, MO.

3-BANDED ITALIAN BEES.

The best all-round bees on earth. My stock is composed of selections from my own strain of 3-banded Italians that were awarded diploma at the Pan-American Exposition, and The A. I. Root Co. clover stock.

Tested queens, $1.50; select tested queens, $2.00; fair breeding queens, $3.00; extra select breeders, $5.00—ready to go promptly. Untested 1907 queens, $1.00; select untested queens, $1.25—ready early in March. Yours for a prosperous 1907.

W. O. VICTOR,

Queen Specialist, HONDO, TEXAS.

W. H. Laws says, If there is a queen-breeder who can boast of better stock let him trot out the proof. Testimonials enough to fill this book. Will give you only one. Mr. J. C. King, Washington, D. C., writes, "For two years I have had one of your queens in my apiary. Each season she has given me over 200 lbs. comb honey; last season she actually stored while other colonies starved. I have over twenty strains in my three apiaries, but yours is the best."

Now is the time to get a fine breeding queen; stock up this fall and double your crop of honey the coming season. Single queen, $1.00; 6 for $5.00. Extra select breeders, $5.00. Safe arrival and satisfaction guaranteed.

W. H. LAWS, Beeville, Bee Co. Texas.

BREEDING-QUEENS

AT THIS SEASON OF THE YEAR better queens are bred than at any other. This is natural, as the conditions are most favorable to a high organic development of the queen. For this reason this is the time of times to look around for a breeding-queen of high quality. By watching the performance of a queen now, we are in a good position to judge what she can do. Those who intend to get a new breeder for next season's operation ought to bear this in mind and get in their order for what they will need in ample time. Even if they do not require the queen at once it would be safer and better in every way to order now what is needed.

Spring compared with summer is a poor time to order select breeding-queens by mail for several reasons, and we advise parties desiring an extra-fine breeder to send their orders now. If desired we will retain the queen till next spring, sending it at the first favorable opportunity. We desire to impress on our customers that it takes careful observation during the height of the breeding season to determine just what a queen is worth as a breeder for producing fancy stock. Prices are as follows:

Breeding-queen	$5.00
Select Breeding-queen	7.50
Extra-select Breeding-queen	10.00

Special breeding-queens at $25.00 and up a matter of correspondence.

THE A. I. ROOT CO., MEDINA, O.

NONE BUT THE BEST

QUEENS

are sent out by our firm; should any prove unsatisfactory, we promptly replace them. Try our strain of three-band Italians; they will not disappoint you. Tested queens, $1 each; untested, 75 cts., $8 per doz.

J. W. K. SHAW & CO., LOREAUVILLE, IBERIA PA., LA.

Moore's Long Tongue and Golden

Fine select untested queens, $1; 6, $5; 12, $9. Tested, $1.50; 6, $8. Breeders, $3.50. Safe arrival gar'd.

Queens

W. H. RAILS, - ORANGE, CAL.

IMPORTED

Caucasians, Carniolans, Cyprians, and **Banats** (Hungarians). Largest stock in America. Choice breeding-queens by return mail. $4.00 each.

FRANK BENTON, WASHINGTON, D. C.

QUEENS of MOORE'S STRAIN OF ITALIANS

Produce workers that fill the supers, and are not inclined to swarm. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Mr. W. Z. Hutchinson, editor of the *Bee-keepers' Review*, Flint, Mich., says: "As workers, I have never seen them equaled. They seem possessed of a steady, quiet determination that enables them to lay up surplus ahead of others. Easier bees to handle I have never seen."

My queens are all bred from my best long-tongued three-banded red-clover stock (no other race bred in my apiaries), and the cells are built in strong colonies well supplied with young bees.

PRICES: Untested queens, 75c each; six, $4; doz., $7 50. Select, untested, $1.00 each; six, $5; doz., $9.00.

Safe arrival and satisfaction guaranteed.

Descriptive circular free. Address

J. P. Moore, Queen-breeder, Rt. 1, Morgan, Ky.

QUEENS

GOLDEN ALL OVER and THREE-BANDERS.

Untested, 60 cts. each; 6 for $3.50; tested, 85 cts. each, 6 for $4.90. We can send queens by return mail. Our queens are extra fine this year. Make money-orders payable on West Fork, Arkansas.

DANIEL WURTH & GRANT, Pitkin, Ark.

Yellow from Tip to Tip!

My Adel bees and queens are very handsome. Every queen a breeder, and guaranteed to produce golden queens and beautiful bees; non-swarmers, very gentle, and hustlers for honey. Each queen, $1.00. Catalog ready. **H. ALLEY, Wenham, Mass.**

Try the Robey strain of three-banded Italians that have become so famous all over the country as honey-gatherers. W. L. Coggshall and E. W. Alexander have both said in their writings to GLEANINGS that in extracting they always found better filled combs when they came to colonies containing the Robey queens. Many of the largest honey-producers of this and other countries use the Robey queens and pronounce their bees high-rollers for honey. Warranted queens, 75 cts. each, $4.25 for six. Safe arrival and satisfaction guaranteed, or money refunded.

QUEENS

L. H. Robey, Worthington, W. Va.

Special Offer.

For the next ninety days I will sell my choice Italian red-clover honey-queens at the following prices: untested, each 75 cts.; half doz., $4; tested, $1 each; six, $5. Every queen guaranteed to give entire satisfaction.

Fred Leininger, Ft. Jennings, O.

500 YOUNG RED-CLOVER AND CAUCASIAN QUEENS

Ready now at 75 cts. each; tested, $1.00.

G. ROUTZAHN :: BIGLERVILLE, PA.

The A B C of Bee Culture

(and the X Y Z as well).

IT is only two years since we undertook to revise a new edition of our A B C, numbering 15,000 copies; yet the general advance along all the lines of bee-keeping, and the demand for the A B C, have been so great that we have been compelled to go completely over our work again and issue another edition, larger and better than the last.

A COMPLETE REVISION.

When we started on the work of revising the A B C book we had no intention of submitting it to any great changes, more particularly as we were in a hurry to get it out, as the old edition was nearly exhausted. But as the work of revision progressed, we found it necessary to make extensive alterations and additions—so much so that the book itself will be considerably larger. To meet the demand for better illustrations we had to provide a higher and more expensive grade of paper. These two factors compelled us to raise the price of the new edition, for, as most bee-keepers are aware, the A B C is sold on a very small margin of profit.

PRACTICALLY A NEW WORK ON BEES.

In addition to our regular staff of Root experts we have been assisted by W. K. Morrison, who has entirely rewritten many of the articles having to do with the scientific side of bee-keeping, besides reading and editing much of the other work as it went along. Mr. Morrison has traveled over all sections of the United States, almost every island in the West Indies, a large portion of South America, and also in Mexico, Central America, and Europe, so that the new A B C will be world-wide in its application, and sectional ideas largely eliminated. While the new book is American in its make-up from start to finish, in no sense can it be termed local to this country, and we believe it will be found as useful to a bee-keeper in Mexico, Cuba, West Indies, Argentina, Brazil, Canada, Europe, South Africa, Australia, New Zealand, and other countries, as it has been found to the bee-keepers of the United States.

VERY PRACTICAL.

In doing this the practical side of bee-keeping has not been slighted; on the contrary we have kept the dollar and cents side of the bee-business constantly in view, for we recognize the fact that bee-keeping must be made to pay or it ceases to exist.

LARGER THAN BEFORE.

While the new edition is larger than its predecessors, it is in no sense padded with useless material; on the contrary much of the work is necessarily condensed after the manner of an encyclopedia. We recognize the fact that the average bee-keeper has not a superabundance of time on his hands, and we have tried to meet his views of the matter.

THE NEW PURE-FOOD LAW.

In conformity with the changes now going on, new articles on sugar, honey, glucose, and nectar have been provided; also others on the law of bees, and foul-brood laws. These features alone are valuable.

HONEY-PLANTS.

The question of honey-plants is very important in estimating the value of a locality for bees, and this has been carefully rewritten, in many cases, so that the beginner in most parts can get a fair conception of the value of his locality for bee-keeping. In every case the scientific name accompanies all common names of honey-plants, so that the information conveyed will be found useful in all parts of the world.

QUEEN-BREEDING.

As the readers of GLEANINGS are fully aware, rapid strides are being made all along the line in scientific queen-breeding, and the usual article on this subject has been recast to suit the times.

MAKING AND RENDERING WAX.

As most of our readers know, improvements have been recently effected in this department, necessitating an entire change in this subject. Mr. H. H. Root has written this after much study and many experiments.

POWER-DRIVEN EXTRACTORS.

These have been dealt with under the subject of "Extracted Honey," so that the owner of such an outfit, or the bee-keeper who desires to get one, will have the necessary information at his elbow at all times.

DISEASES OF BEES.

So much has been learned about the inner workings and origin of bee-diseases that this is absolutely new in this edition. While the article under this head is necessarily brief, it covers the whole subject as it now stands. E. R. Root, the editor-in-chief, has gone to a great deal of trouble to get this so that the average bee-keeper can thoroughly understand it.

ILLUSTRATIONS.

The A B C of Bee Culture has always been famous for its illustrations, which are calculated to arouse the enthusiasm of the average bee-keeper, making him more determined than before to excel in his chosen pursuit or avocation. Price $1.50 postpaid; $1.25 by freight or express, not prepaid. For sale by all booksellers and supply dealers.

THE A. I. ROOT COMPANY, MEDINA, OHIO.

Classified Advertisements.

Notices will be inserted in these classified columns at 20 cents per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Help Wanted.

WANTED.—Six salesmen wanted to introduce our new State surveys. An absolute new idea and a splendid opportunity for energetic men.
RAND, MCNALLY & COMPANY, Chicago, Ill.

For Sale.

PRINTING.—100 envelopes, 100 letterheads, 70 cents postpaid. Samples free.
J. B. UNDERWOOD, Deerlick, Ky.

FOR SALE.—New patent on bee-hive. For particulars write
CHAS. SPIERLING, Dolton Station, Ill.

FOR SALE.—20-light acetylene generator, first-class condition. G. A. WATT, Bellevue, Ohio.

FOR SALE.—Opaline honey-jars, all kinds; send for price list. HAROLD E. SHORE, Germantown, Pa.

FOR SALE.—Fine job-printing outfit.
C. A. STEBBINS, Broad Creek, Va.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1907 send your name and address to FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE.—Best Wisconsin sections, per 1000, $4.00; No. 2, $3.40; plain, 25 cts. less. Discounts on Danz. hives and other Root's goods; also berry-boxes. Italian bees for sale. H. S. DUBY, St. Anne, Ill.

KODAK and Camera users, send us your developing and finishing. Send for price list. A full line of Kodaks, films, and all Photo Supplies.
FURNAS & MADDOX, 552 A, Louisville, Ky.

FOR SALE.—Homestead farm crops in their season, consisting of honey, grapes, pears, apples, etc.
C. J. BALDRIDGE, Kendaia, Seneca County, N. Y.

FOR SALE.—1000 Hoffman metal-spaced frames, brand-new, $11.90; 10 Root queen-mating nucleus hives, nailed and painted. HARRY C. KLAFFENBACH,
Muscatine, Iowa.

FOR SALE.—Beautiful long-haired Angora and Persian kittens, some white and other colors. Prices low. Stamp for description.
MRS. J. F. SKEES, Marion, Ohio.

FOR SALE.—The following foundation-mills. Wish to dispose of them at once. Write for sample if interested, and fuller information will be given about any mill.
Mill No. 1—14-in., old-style high frame, in perfect order, price $15.00.
Mill No. 2—6-in., old-style high frame; has had a pin run through the rolls, otherwise is in good order; price $8.00.
Mill No. 3—12-in. new style, large rolls, used but very little, in perfect order; price $25.00.
Mill No 4—12-in. blank rolls, used but little, in perfect order; price $20.00.
Mill No. 5—6-in. mill, new style, in perfect order, used but little; price $12.00.
W W BLISS, Duarte, Cal.

Real Estate for Bee-keepers.

FOR SALE.—Furnished home and up-to-date apiary. Fine honey location, on trolley line; $5400.
D. R. KEYES, Rt. 4, Montgomery, Ala.

FOR SALE.—320 acres, stock, tools, and bees, at $16.00 per acre. Plenty of wood and running water; eight miles back from the Pacific coast.
MRS. J. KAETS, Vista, San Diego Co., Cal.

FOR SALE.—Apiary of 125 colonies in Central Wisconsin. Good location, some surplus every season. For further particulars address
ERNEST EGGEMAN, Rt. 2, Neillsville, Wis.

FOR SALE.—Bees, 250 colonies, 10-frame hives with fixtures: 4 yards; 22 acres land, 12 under fence, the rest timber; first-class buildings; part cash, balance time.
Z. H ZEINER, Bard, Ark.

FOR SALE.—The oldest and best bee-supply business in the South. Two-story brick factory, fully equipped, two large apiaries, and a good trade in queens and bees. Reason for selling, approaching old age, and other interests. Full particulars by mail. Address
BEE-SUPPLIES, Box 474, Montgomery, Ala.

FOR SALE.—230 colonies of bees and 50 acres of land—an ideal mountain health home; first-class white and black sage honey range; young orchard; many varieties of berries; pure water; hot mineral springs near; ½ mile to telephone and postoffice. Price $2800; $1000 down, balance in 3 years at 6 per cent.
J. E. GREEN, Matilija, Ventura Co., Cal.

FOR SALE.—652 acres of choice land in the prairie-belt of east Mississippi, situated 12 miles east of Macon, Miss. Telephone and R. F. D.; 100 acres in young hard-wood timber; 400 acres in pasture; Bermuda, melilotus, lespedesa, white clover, and blue grass predominating; about half this land will grow alfalfa, which can be cut six or seven times each year. Also 700 stands of Italian bees in three yards; my average for 15 years has been about $8.00 per stand—no disease, no failure in 15 years; 75 head of high-grade Jersey cows; butter sells for 20 cts. in summer and 25 cts. in winter, and the demand has never been filled. Improvements—7-room house, barn accommodating 52 cows; barn for horses; 10 cabins, 400 acres fenced in four pastures, best of water in abundance. Fine and healthful climate. Write for further particulars.
GEO. A. HUMMER, Prairie Point, Miss.

Bees and Queens.

QUEENS—Red-clover strain; imported mothers, leather color, $1. A. W. YATES, 3 Chapman St., Hartford, Ct.

FOR SALE.—Fine golden Italian queens by return mail, 50 cents. J. F. MICHAEL, Winchester, Ind.

FOR SALE.—Bees, 35 colonies in 10 frame L. hives. All in splendid condition. C. E. PHILLIPS,
R. Route 5, Springfield, Mo.

FOR SALE.—400 colonies of bees; 2 apiaries in Delta, Colorado; 2 apiaries in New York, in the buckwheat location. W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—Untested Italian and Carniolan queens at 75 cts. each; virgins at 30 cts.
EDW. REDDOUT, Box 62, Baldwinsville, N. Y.

FOR SALE.—Tested Italian queens, $1.00 each; untested, 55 cts. each, or 6 for $3 00. Make money order on Canton, Mo. W. SIMPSON, Meyer, Ill.

FOR SALE.—Mismated Italian queens now, at 30 cts. each; 50 more about Sept. 15. No more untested for sale this season.
B. F. AVERILL, Howardsville, Va.

FOR SALE.—By return mail or money refunded. Italian queens, each, 75c; 6 for $4. Caucasian queens, each $1; 6 for $5. Warranted purely mated.
D. J. BLOCHER, Pearl City, Ill.

FOR SALE.—Fine untested Carniolan queens; bred from pure Carniolan mothers 50 cents each
F. M. MAYBERRY, Lederachsville, Pa.

FOR SALE.—300 colonies pure Italian bees with tested queen in one-story eight-frame Dovetailed hive with Hoffman frames, at $3.50 each.
F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—100 select tested Italian red-clover queens at 80 cts. each; ½ doz., $4.00; untested, each, 60 cts.; ½ doz., $3.25. I guarantee every queen.
FRED LEININGER, Ft. Jennings, O.

FOR SALE.—On account of the death of my husband I will sell at a bargain fifteen colonies of bees with supers, drone and queen traps; also about ten empty hives, nearly all standard size.
SUSAN KUSTABORDER, Lutcher, La.

FOR SALE.—My experience with red-clover bees and circular of queen-bees for the asking. Queens reared by the most improved methods to get good long-lived queens. Root red-clover stock, the best that money can buy.
A. H. KANAGY, Milroy, Pa.

Wants and Exchange.

WANTED.—500 colonies of bees in Texas, Arizona, or California. N. E. MILLER, Box 373, Logan, Utah.

WANTED.—Physician wishing to engage in bee culture as a side-line. Good locality. Write to
BEE-MAN, Filion, Mich.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—To exchange new double-barrel shotgun and new reversible-back camera and outfit for a Barnes saw, bees, or any thing I can use in the apiary.
M. W. SHEPHERD, Wakeman, O.

WANTED. — ROOTS and HERBS. We need all kinds. We have advanced our price for Red Clover tops on account of special need, and will pay $7.00 per 100 lbs. for several tons. It is necessary to write promptly if you wish to collect them. The work is simple and profitable. Blood roots, May-apple, Wild Ginger, Poke, Golden Seal, and others are needed in large lots. A *revised* book giving full information will be sent on receipt of 8 cts. postage. In writing mention this ad. Address
J. L. HOPKINS & CO., 100 William St., New York.

Honey and Wax Wanted.

WANTED.—To buy comb and extracted honey for cash; car lots or less. E. R. PAHL & Co.,
Broadway and Detroit Sts., Milwaukee, Wis.

WANTED.—Fancy clover honey, both comb and extracted. Send average sample of extracted honey, and give lowest price.
J. E. CRANE & SON, Middlebury, Vt.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.
R. A. BURNETT, 199 S. Water St., Chicago, Ill.

WANTED.—Comb and extracted honey in any quantity; state quality, quantity, and price f. o. b.
THE WAXELBAUM-HEARD PRODUCE CO., Macon, Ga.

WANTED.—To buy for cash, comb and extracted honey, also beeswax. ROBT. A. HOLEKAMP & SON,
4263 Virginia Av., St. Louis, Mo.

WANTED.—Well-ripened extracted basswood and clover honey. Prompt payment on receipt; 8 cts. per lb., F. O. B. West Bend.
H. C. AHLERS, West Bend, Wis.

WANTED.—A ton of basswood extracted honey. State lowest price.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

WANTED.—No. 1 and fancy comb honey; 4x5x1⅜ section preferred. Also light extracted. Must be guaranteed pure. Write, stating grade and how put up, and lowest cash price.
C. M. CHURCH, Arnold, Pa.

Honey and Wax For Sale.

FOR SALE.—20,000 lbs. light extracted honey, well ripened and of fine quality, in new 60-lb. cans. Sample, 10 cts. JAMES MCNEILL, Hudson, N. Y.

FOR SALE.—800 pounds of pure beeswax for sale. Refuse from wax-extractors wanted. Will pay cash.
W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—Basswood and buckwheat extracted honey in 60-lb. cans and 200-lb. kegs.
W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—Alfalfa and sweet-clover honey, mostly 4¼x4¼ plain sections, put up in 24-section glass front single-tier cases. Solicit offers on car lots or less.
J. E. PRYOR, Plateau City, Colorado.

FOR SALE.—Extracted honey from clover and alfalfa, produced by the Emery Co. Bee-keepers' Asso'n. Car lots a specialty. Sample and prices free
PETER NIELSON, Sec., Huntington, Utah.

FOR SALE.—21 tons California sage honey; 12 tons water-white at 7 cts.; 9 tons light amber at 6½ cts. F. O. B. Piru, California; 10c for sample.
E. F. MCDONALD, Piru, Cal.

FOR SALE.—Alfalfa honey. If you want nice honey for the table try a can of Colorado alfalfa honey, $5 a can of 60 lbs., F. O. B.
A. A. LYONS, Ft. Collins, Col. R. F. D. No. 2.

FOR SALE.—9 cases of A No. 1 and 6 cases of No. 1 white honey, in 4x5 plain sections; 20 section no-drip cases at $3.20 and $3.00 per case. On cars at Lebanon. Very fine article. R. D. WILSON, Oakland, Mo.

FOR SALE.—1500 lbs. of extra-fine clover honey. This honey was extracted August 1st from new combs. Since extracting it has been kept at a temperature ranging from 80 to 120°. It is light in color, and of a *very heavy body*. In fact, I am so proud of this honey that it will be a pleasure to mail you a sample. I shall put this honey up in clean new 60-lb. cans, and ask only 10 cts. per lb. for it. JAY NORTH,
North Adams, Mich.

FOR SALE.—We have a small quantity of honey on the hive, *curing*, that will be extracted about August 1st. This left-on-the-hive-all-summer honey will be put in new 60-lb. cans, and will be the finest article that skill and pains can produce; of course, it costs more to produce this superior honey than the ordinary, and it is worth more. It is from white clover and wild red raspberry. Ask for free sample. The price in any quantity is 10 cts. a pound f. o. b. shipping-point. E. D. TOWNSEND, Remus, Mich.

Bee-keepers' Directory.

QUEENS.—Clover stock. Experience and methods count. Write me. H. G. LARUE, LaRue, Ohio.

ITALIAN queens bred for honey, untested, 75c each.
GEO. H. PLACE, 816 No. 49th St., Omaha, Neb.

Extra honey queens and choice mountain honey.
Francis J. Colahan, Bernardo, San Diego Co., Cal.

QUEENS.—Pure Gold, Red-clover, Caucasian, Banat.
ROSE LAWN APIARIES, College View, Lincoln, Neb.

ITALIAN QUEENS.—Golden and leather, 60c each; worth $1.00. G. W. BARNES, Box 340, Norwalk, O.

Bee-keepers' supplies, Italian queens. Send for a free catalog. ARTHUR RATTRAY, Almont, Mich.

ITALIAN BEES and queens—Red-clover strain imp'd mothers. A. W. YATES, 3 Chapman St., Hartford, Ct.

ITALIAN BEES, queens, and Root's bee supplies. E. SCOGGIN, Carlsbad, N. M.

I club a high-grade Italian queen with GLEANINGS, new or renewal. W. T. CRAWFORD, Hineston, La.

ITALIAN BEES and queens—red-clover and golden strains. E. A. SIMMONS, Greenville, Ala.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York City.

ITALIAN bees and queens bred for honey; price list free. B. F. YANCEY & SON, Angleton, Tex.

FINEST Golden and red-clover queens, Caucasian and Carniolan. DANIEL WURTH & GRANT, Pitkin, Ark.

ITALIAN AND CAUCASIAN bees and queens of best quality; price list free. A. E. TITOFF, Ioamosa, Cal.

MAPLEWOOD APIARY.—Choice comb honey, Italian bees and queens. GEO. H. REA, Reynoldsville, Pa. R. 2.

ROOT'S SUPPLIES at factory prices; wholesale and retail. ANTON G. ANDERSON, Holden, Mo.

ITALIAN BEES, queens, and bee supplies. H. H. JEPSON, 182 Friend St., Boston, Mass.

ITALIAN BEES, queens, comb and extracted honey. A. T. DOCKHAM, Rt. 1, Box 95, Eagle Bend, Minn.

ITALIAN BEES, queens, beeswax, honey, and bee-keepers' supplies. M. E. TRIBBLE, Marshall, Mo.

FOR SALE.—Bee-keepers' supplies. Write for catalog. Lengst & Koenig, 127 S. 13th St., Saginaw, Mich.

FOR SALE.—Golden and red-clover Italian queens. WM. A. SHUFF, 4426 Osage Ave., Philadelphia, Pa.

ITALIAN BEES and queens—red-clover and golden strains. E. E. MOTT, Glenwood, Cass Co., Mich.

SWARTHMORE Golden-all-over, Caucasian, Banat, Carniolan, Cyprian queens. E. L. Pratt, Swarthmore, Pa.

GOLDEN yellow Italian queens—my specialty. Price list free. E. E. LAWRENCE, Doniphan, Mo.

ITALIAN BEES, queens, honey, and ROOT'S bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

FOR SALE.—Bees, queens, and bee-keepers' supplies (Root's goods), at factory prices. F. W. VAN DEMARK, Mehan, Okla.

FOR SALE.—Root's bee-supplies, wholesale and retail; factory prices; catalog free. Beeswax wanted. W. E. TRIBBETT, Staunton, Va.

I must say to my friends, please do not send me any more orders for queens this season, as my health is so poor I find it impossible to continue queen-rearing. Thanks to all my friends for their very liberal patronage. W. W. CRIM, Pekin, Ind.

GOLDEN-ALL-OVER Caucasian Banat bees and queens. We book orders for early queens from our best imported breeding stock for honey, with 600 twin mating-boxes. THE SNYDER APIARIES, Lebanon, Pa.

QUEENS.—Improved Red-clover Italians bred for business; June 1 to Nov. 15, untested queens, 60c; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

IMPROVED ITALIAN QUEENS now ready; nuclei and colonies about May 10, Danzenbaker or L. frames; 20 years a queen-breeder; 500 colonies to draw from. Circular and testimonials free. QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

ANGEL'S GOLDEN BEAUTIES and his bright three-banded Italian Queens have but few equals and no superiors. A fine large queen of either strain for $1.00; an extra select breeder for $2.50. I have had 12 years' experience at queen-breeding. Address SAMUEL M. ANGEL, Route 1, Evansville, Ind.

Special Notices by A. I. Root.

A JUST PENALTY.

We learn from the papers that the tramp mentioned on page 1156 is to be punished to the full extent of the law, and will be sent to the penitentiary for 45 years. This is none too severe. I have been hoping that we might soon have laws that would make the penalty for such an offense the same as that for murder; and I am told that such is already the case in some States.

OUR FARMING, BY T. B. TERRY.

The above book, which has had such a large sale for many years, and sold for $1.50, is now offered for $1.00 bound in cloth, or only 50 cents in paper. It contains a full account of T. B. Terry's successful fight in commencing farming in a locality that was not considered at all favorable. The book ought to be worth many dollars to any farmer, especially young farmers, who will read it and plan their work accordingly. If ordered at the same time you order GLEANINGS you can have both for $1.25 in paper covers, or $1 50 in cloth.

SAMPLE COPIES OF GLEANINGS.

Our readers probably noticed that in a recent issue we spoke of being out of two numbers for 1906 and two more already for this year. We print 2000 extra copies of each issue over and above our subscription list. A large part of these are sent for sample copies to those who have never seen a copy of GLEANINGS. Another part is for those who failed to get their regular number or gave one of their journals to a neighbor bee-keeper, etc. For various reasons there are always more or less calls for a certain issue. Where any subscriber gives any neighbor bee-keeper one of his journals for a sample copy we are always glad to replace it free of charge; or if any particular issue fails to reach a subscriber we are glad to be told of it and replace it. But where a person is not a subscriber of GLEANINGS, and wants a copy of some special number that he has seen or heard of, we shall have to tell him the price is 5 cents. Of course, we always furnish a sample copy to any one who wishes to see what GLEANINGS is like; but we reserve the privilege of giving you whatever number we happen to have a surplus of. Some years ago I became suspicious that certain persons were repeatedly asking for sample copies without having any idea of subscribing. I saved up the postal cards and reminded one person that I had them on file, and advised him to send us pay for what he had gotten by "sponging," and he sent the pay. Of course, there is only a very small number of such men in the world, who want something for nothing. Our policy is to be liberal, and we will do almost any thing for those who become interested in bee culture; and we always expect to furnish copies of our journal free of charge to any one who is interested in bees and thinks he may subscribe for our journal. This one sample copy ought to be sufficient, and therefore we ask those who wish a second copy or one of a *particular* issue to send along 5 cents for it.

THE ARMY CANTEEN—SHALL IT BE RESTORED?

On page 1157 I quoted from the Cleveland *Plain Dealer* concerning this matter. Right here I wish to submit a quotation from the *Woman's National Daily*, the concluding part of which is right to the point—don't you think so?

"The Judge Advocate of the army explains that there is a great deal of liquor-drinking by the enlisted men where low doggeries are allowed in the vicinity of military posts. He points out that Nebraska prohibits drinking-resorts within two miles of military posts, and two other States have laws prohibiting the

sale of liquor within a mile of such posts. That shows the good work the temperance people are doing. They are meeting the contention that the abolishment of the canteen has worked injury by affording vile resorts for the soldiers to spend their money and obtain drink. It makes no difference how much may be said in advocacy of the canteens, they are gone for ever."

MRS. LEONORA M. LAKE.

In my report of the Anti-saloon League convention I have several times spoken of the distinguished speaker, Mrs. Lake, of the Catholic Church; and I take pleasure in clipping the following from the *Catholic Universe* of August 9 in regard to this good lady's work:

Mrs. Leonora M. Lake, of St. Louis, an enthusiastic and convincing speaker, emphasized chiefly the place of woman in the total-abstinence movement. It is her instinct, she said, to preserve at every cost the life she has brought into the world by so much travail and pain, and nothing else so menaces this life, so makes for degeneracy and misery and death, as the curse of drink. She touched on the terrible effects of intemperance, its cost in money, its responsibility for the filling of almshouses, insane asylums, hospitals, and prisons, and spoke strongly of the terrible effects of parents' addiction to drink on their unborn children for generation after generation. Mrs. Lake holds that it is political cowardice that prevents more interest in the total-abstinence movement. "Look at Cleveland," she said, "with its large and powerful Catholic population. Where are the influential Catholics to-night? Afraid—afraid of the liquor element, afraid of identifying themselves with an unpopular movement."

To those of our readers who are not well acquainted with the work Mrs. Lake has done throughout our land, I might say that she by her talk has succeeded in banishing the saloons from more than one locality where the effort would probably have failed without her assistance.

SUFFERERS FROM RHEUMATISM; WHERE THEY CAN BEST GET RELIEF.

Mr. Root:—Can you or any readers of GLEANINGS give me some information in regard to what section of the country is best for "rheumatics" to spend the winter? I have been afflicted for eight years with chronic articular rheumatism, and each spring I am more crippled, until now it is with difficulty I can walk at all. I have tried all kinds of treatment, including the baths at different places, but was only temporarily benefited. How about the island where Mr. A. I. Root spends his winters? Any information will be gratefully received.

Holliday's Cove, W. Va. MRS. L. BUCHANAN.

We gladly give place to the above; but I think I shall have to caution our afflicted friend against placing too much confidence in statements from parties who are financially interested—those having hotels, boarding-houses, sanitariums, or having real estate to sell. I think we may say that, as a rule, a warm climate is better for rheumatic patients than a colder one—especially places where the air is comparatively dry. On our island, with water on all sides of us, there is, very much of the time, a brisk sea-breeze. While this seems to suit me exceedingly well, the old residents are frequently afflicted with rheumatism, grip, and other things that we have here in the North. My opinion is that a *change* of climate, especially together with a change of drinking-water, also a change of habits and pursuits, oftentimes gives relief to many of our infirmities.

DOING MORE THAN YOU ARE PAID TO DO.

On page 913, July 1, I tried to make some small boys understand that the way to get a raise in wages is to do a little more than one is paid to do. The *Sunday School Times* has such an excellent editorial right along this line, that, after reading it over and over again to myself, I have concluded to give it here:

"No man can be 'kept down' who always does a little better than any one has a right to expect of him. And no man ever 'gets to the top' in any walk of life unless he does just this. It is such a simple recipe for sure success, and is so often called attention to, that the wonder is that we are all so slow to adopt it. The man who only fills his place, and no more, is likely to remain a fixture in that place, while others, who are more than filling their places, crowd themselves out into bigger, better positions. Indeed, the man who no more than fills his place is likely to lose even that place to one who gives evidence of being able to make still more of it. Christ himself struck unmistakably at the failure of stopping with our own work when he said, 'when ye shall have done all the things that are commanded you, say, We are unprofitable servants; we have done that which it was our duty to do.' We begin to make ourselves profitable only when we do more than our simple duty."

KIND WORDS.

GLEANINGS IN "BOY" CULTURE.

I take this occasion to add my word to the many expressions of appreciation of the efforts you are making for the safe-guarding of our homes and making this country of ours a better one. Your replies to the two letters you have received from the fellows who hate righteousness were valuable, not so much because they were a good defense, for Christianity needs no defense, but as showing a *temperance in your expression* of views that was in strong contrast to the heated style of our misguided friends on the other side.

I don't have time to raise bees, but am raising boys, and shall continue to read your paper as long as I get such good "Gleanings in Boy Culture." When the boys get large enough I shall let them raise bees.

Richmond, Va. ASA JOHNSON.

Friend J., please accept my thanks for the very high compliment you pay me in regard to my department in this journal; and, come to think of it, I do not know but *boy* culture is of fully as much consequence to our nation as *bee* culture is to the readers of our journal. What do the friends think about it—especially those who have had experience in both lines?

I like the little periodical very much, and Mrs. Simpson wishes me to say that your religious articles are helpful and good, although she thinks you *are* just a little bit "cranky" at times; but she is willing to put up with that if you will continue to write in the future as helpfully as in the past. I am a minister, and was glad to find a little religion mixed with bee culture. I think they fellowship nicely.

DeKalb, Miss., Aug. 6. L. R. SIMPSON.

KIND WORDS FROM A LADY.

Mr. A. I. Root:—I am sure Mr. Jorgensen does not realize when he gets his money's worth. Mr. C. has taken GLEANINGS over 20 years (and kept every one); he thinks it the best *bee*-journal printed; he never looks at the Home papers. I have been reading GLEANINGS for eight years; also Mr. C.'s back numbers. I read Home papers *first*, then all articles on flowers, pollen, etc. I think it the finest magazine for the price in America. Long live A. I. R.! Keep on punching swindlers like T. W. Bryan.

Springville, N. Y., June 21. MRS. B. A. CROSBY.

Convention and Fair Notices.

The annual meeting of the Kansas State Bee-keepers' Association will meet at Hutchinson, Sept. 18, 19. All persons interested in bees are requested to be present. This meeting occurs during the State Fair, and there will be reduced rates on all railroads. Headquarters for bee-keepers will be at the Hamilton Hotel. O. A. KEENE, Sec.

OHIO STATE FAIR.

The premium list of the Ohio Fair to be held in Columbus, Sept. 2–6, does not offer inducements equal to Indiana, Illinois, or West Michigan, and bee-keepers who are interested in making an exhibit should make the management aware of their shortcomings, so that the premiums offered next year will be in accordance with the status of the industry in Ohio. While the premium list is fair, we naturally expect something better from a rich State where bee-keeping is an established industry.

The Ontario Bee-keepers' Association have decided to ask the following prices for honey (*wholesale*): White extracted, 11½ to 12½c; No. 1 comb, $2.50 to $2.75 per doz.; No. 2 comb, $1.75 to $2.25 doz.—*Canadian Bee Journal.*

THE "BEST" LIGHT

Portable 100-Candle Power light. Every lamp warranted. The most brilliant, economical light made. No grease, dirt, odor or smoke.

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Costs only $1.00, prepaid. Get one and secure the agency in your locality. Every one buys it. Great opportunity for agents east of Mississippi River. One agent sold 100 in 4 days. Write for booklet B 8

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Poultry Journal. Our Beautiful Xmas Number containing **3 color pictures** from Burgess' masterpieces in oil, **costing $1,000**, and book plans for **Poultry Houses**, all for **10 cents**. We will tell you How to Make Poultry Pay. Address INLAND POULTRY JOURNAL, 15 Cord Bld'g, Indianapolis, Ind.

CUTS USED IN THIS MAGAZINE ARE FROM
THE MUGLER ENGRAVING CO.
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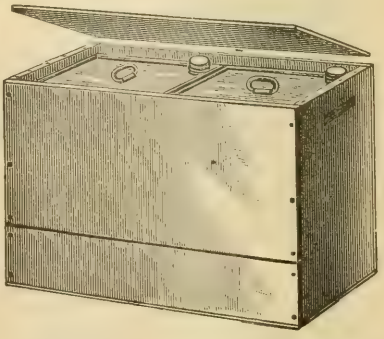
HONEY-PACKAGES IN TIN



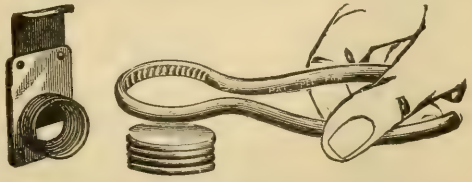
This cut shows a box of two 60-lb. tin cans, which is the standard package for storing and shipping extracted honey. It is far superior to barrels, because there is not the same chance for leakage, or taint from the wood; and, being square they economize space. Owing to light honey crops, the last two years, the demand has been light, and we have a good stock bought below the prices ruling at present. To reduce this stock we will ship from Medina any orders mentioning this notice, at the following special prices: One box, two cans; 80 cts.; 10 boxes, $7.50; 25 boxes or over, at 70 cts. a box. One box of one can, 50 cts.; 10 boxes, $4.50; 25 boxes or more, at 42 cts. a box.

One-gallon square cans with 1¾-inch cap, 100 in a crate, at $10.00 per 100; 500 or over at $9.00 per 100; packed 10 in a case at $1.35 per case; 10 cases, $12 50.

Sturwold's Show-case.

This case is 28 in. high, 20 in. square, outside measure, top and bottom. The glass of which it is made is 16×24. The case is to be set up in any grocery, drug-store, or any other place of business where you want your honey exhibited or sold. The frame is of chestnut, filled and varnished, and finished in natural grain. Price, plain, $5; with name and address, $5.50. As the glass is very apt to be broken in transit, we will ship them, if you prefer, with glass boxed separately, at same price. In flat, no glass or finish, $2.50; glass included, $4.00.

Screw-cap Honey-gate and Can-screw Wrench.



Price 15 cts.; by mail, 18 cts. Price 10 cts ; 75 cts. per dozen. By mail, 4 cts. each extra.

We furnish the gate for 1⅛, 1⅝, or 1¾ screw. Other sizes made to order from caps you may furnish.

The wrench fits a 1¾ screw, and can be used on 1⅝ or smaller by bushing between cap and wrench.

When you order these gates separate from cans we can not guarantee a fit unless you send us a cap from the screw with the order.

Sample Mailing-blocks.

Price, each, 6 cts.; by mail, 9 cts.

These are small wide-mouthed glass bottles, which hold ⅓ oz., with cork, put up in a mailing-block with top which screws on and is easily removed.

THE A. I. ROOT COMPANY, :: :: :: MEDINA, OHIO

Honey-Packages in Glass

We have quite a variety of glass packages for putting up honey for retail. We mention first our

Half-pound Tumbler.

This is shown at the left with a diamond label, No. 95. These include tin cover with wax or parchment paper disk for sealing tight. No labels. Will hold 7 oz. of honey when filled; and the price, $5.50 per barrel of 32 dozen; 5-bbl. lots at $5.25. In reshipping-cases of 4 dozen packed ready to reship, when filled, $1.00 per case; 6 cases, $5.70; 20 cases or over, at 90 cents per case.

No. 25 Jar.

This holds one pound of honey; has an opal cap with rubber ring and lacquered tin screw rim which seals tight. Packed in reshipping cases of 2 dozen each; price $1.10 per case; 6 cases, $6.30; 20 cases or more at $1.00 per case.

Tiptop Jar.

We keep these in two sizes, for half and one pound of honey. The shape of the jar is shown in the cut. It has a glass top, a rubber ring, and a spring-top fastener. Packed a gross in a crate at $5.00 per gross for 1-lb., or $4.50 for the half-pound size. We have them also packed in reshipping-cases of 2 dozen each at $1.10 per case for 1-lb. size; 6 cases, $5.30; 20 cases or over at $1.00 per case. Half-pound size, $1.00 per case; $5.70 for 6 cases, or 90 cts. per case in 20-case lots.

Simplex Jar.

This is one of the handsomest jars we ever handled. The factory making them was wrecked last August, and we have been unable since to secure any more of the size, which holds one pound. We can supply the next larger size, which holds 18 oz. of honey. Packed in reshipping-cases of 2 dozen. Price $1.15 per case; 6 cases for $6.60; in 20-case lots or over at $1.05 per case. We still have at Philadelphia a few cases of the 1-pound size which may be had from there while they last, at the same price as above.

Sq. Jar.

Hershiser Jars.

These jars were designed for use in the honey exhibit at the Pan-American Exposition in Buffalo, and are very neat and attractive. They have cork-lined aluminum caps which seal them tight. They are made in four sizes square and three sizes round. The 1-lb. size in each style is shown in the first two cuts at the left.

¼-lb.	square	Hershiser	jars,	doz.,	50c;	$5.40	per	gross
½-lb.	"	"	"	"	55c;	6.00	"	"
1-lb.	"	"	"	"	80c;	9.00	"	"
2-lb.	"	"	"	"	1.00;	10.80	"	"
½-lb.	round	"	"	"	60c;	6.60	"	"
1-lb.	"	"	"	"	75c;	8.40	"	"
2-lb.	"	"	"	"	1.10;	12.00	"	"

The ordinary square jar to seal with cork, similar to that shown in cut at extreme left, is very largely used for honey. They are made in four sizes. The 1 and 2 lb. sizes are packed ½ gross in a package; the smaller sizes one gross. Price including corks:

5-oz.	square	jar	.....	35c	per	dozen;	$3.25	per gross
8-oz.	"		.....	45c	"	"	4.25	" "
1-lb.	"		.....	60c	"	"	5.75	" "
2-lb.	"		.....	75c	"	"	7.50	" "

PROMPT : SHIPMENTS

If you are in a rush for supplies at present, send us your orders. We have a

Large Stock of Root Company's Supplies

on hand to fill orders promptly. Also a

Fine : Lot : of : Italian : Queens : and : Bees

in one, two, and three frame nuclei and full colonies. Send for our 40-page catalog.

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O. K. Chase

Chase

STRICTLY PURE ALL

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MADE FRESH TO ORDER

Two Full Gallons Free to Try. Sold on Time. Purity Guaranteed. Freight Prepaid.

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I make Paint to order—for the individual user.

I sell it direct from factory—at factory prices.

I ship it in special extra size cans—guaranteed to contain full measure of paint.

These cans are dated the day the paint is made—*your* guarantee that it is absolutely fresh when you get it.

Out of any six-gallon order or over you may use 2 gallons on your buildings.

Then stand off and look at it—test it in any way you like.

If it is satisfactory—use the balance.

If it is not satisfactory—return the balance—I'll refund all of your money—pay the transportation charges both ways—and the test shan't cost you a penny.

That's my way of selling my Made-to-Order Paint.

I'm the only paintmaker in the United States selling it that way.

I'm the only paintmaker in the United States making paint to order.

My paint will please you—it's got to please you. You are the judge—and if it doesn't it shan't cost you anything.

There's no question about the purity of my paint—no question about it's high quality. There can't be—because it's made from the pure materials—the best it is possible to buy.

My O. L. Chase Strictly Pure White Lead Paint—The Roll of Honor Brand—an *all white Lead* paint—is made from strictly pure Old Dutch Process White Lead—strictly pure, well settled, aged, raw Linseed Oil made from Northern grown selected flax seed—pure Spirits of Turpentine and pure Turpentine Drier, and the necessary tinting colors and nothing else.

This paint stands the tests of any chemist—this I guarantee under $100.00 cash forfeit.

I will give that sum of money to any chemist who will find any adulteration in this paint.

It's just what it's name implies—the Roll of Honor Brand.

I Challenge the World on my Strictly Pure All White Lead Paint

It meets all of the requirements of the State Pure Paint Laws and more.

I challenge the world on this Roll of Honor Brand—and as I make it to order for each individual user—ship it fresh as soon as made that you may get all of its life right on your buildings—it's assuredly the best paint in the world to buy.

I want to tell you more about my Made-to-Order paint proposition—want to send you my Big Fresh Paint Book, together with samples of colors to choose from—and tell you all about my

Three Great Chase Made-To-Order Paints

My Roll of Honor Brand—my 40-60 Lead and Zinc Paint—and my O. L. Chase Durability Paint.

When you've read these books I'm sure you will be convinced that it will be more economy—and more satisfaction—for you to let me make your paint to order, than to buy paint of any other kind—made in any other way. Write for these Books at once—*today*.

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¶ Ask any dealer who handles our make along with any other, and he will say, "Of course, Dadant's is the best." Ask a bee-keeper who has used our make and he will tell you the same thing. WHY? Because we make the manufacture of foundation our SPECIALTY. We devote our time and energies to making THE VERY BEST COMB FOUNDATION that CAN BE MADE.

¶ It will cost you no more than any other make. Send for free catalog and prices.

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They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS.

My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

Write for estimate with liberal discount for orders sent in now.

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Gleanings in Bee Culture

This illustration shows a gigantic cake designed and executed by the monks of St. Mary's Abbey, Buckfast, Devon, England. It is in the form of a church. Forty pounds of honey were used in its construction. In the background are the abbey buildings.

The A. I. Root Co., Medina, O., U. S. A.

Entered at the Postoffice, Medina, Ohio, as Second-class Matter.

Vol. XXXV September 15, 1907 No. 18

HONEY PACKAGES

OUR CASES are the non-drip "Root Quality" kind. Also can supply you with glass and tin packages for extracted honey.

BUY NOW FOR NEXT YEAR

and get 5 per cent cash discount for cash orders in September or October. We will quote you prices on the goods you will need for next season. Get your goods ready through the winter before the rush in the spring. ¶ We carry the Danzenbaker Hive, the Comb-honey Hive.

M. H. HUNT & SON

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On account of a recent fire which slightly damaged our stock of goods, we are closing out all

POULTRY AND BEE SUPPLIES

AT A 10 PER CENT DISCOUNT.

It will pay you to order any supplies which you will need for next season's use. Make up your order and deduct 10 per cent. Goods guaranteed to be as good as new, except hives are discolored on outside. Don't delay, as they are going fast. Will exchange supplies for honey and wax

The Griggs Bros. & Nichols Co.

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von Deutschland, Schweiz, Oesterreich, u. s. w., senden Sie fuer unsere 1907 Preisliste von

Bienenwohnungen, Rauchapparaten,
Honigschleudern, Handschuhen,
Bienenschleiern, Walzwerken,
Futterapparaten,
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Schwarmfangbeuteln,
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Wabenenentdecklungsapparaten, und allen anderen Bienengerätschaften der

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GIVE ME your orders for the **Best Goods Made.** You will be pleased on receipt of them. You will **save money** by ordering from me. My stock is complete; in fact, I keep **every thing** the **bee-keeper** needs. **Cincinnati** is one of the best **shipping-points** in the Union, **particularly in the South,** as all freight now **goes through Cincinnati.** Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly **free.**

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Fancy White Comb and White Clover Extracted HONEY.

Queens and Nuclei

Let me book your orders for queens. I breed the finest **Golden Italians, Red-clovers, and Caucasians.** Can furnish **Nuclei** beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White Sweet-scented Clover, Alfalfa, and Alsike.

C. H. W. WEBER

Office and Salesroom, 2146-48 Central Ave.
Warehouse, Freeman and Central Avenues.

CINCINNATI, OHIO, U. S. A.

Honey Markets.

GRADING RULES.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

The prices here quoted are wholesale, or what the honey brings on arrival.

NEW YORK.—The honey situation is unsettled as yet. Bee-keepers seem to be holding for higher prices, and this makes it impracticable to quote prices which will stand. Buyers have been out trying to get consignments for cash, but with little success thus far. There is only one danger—that is, bee-keepers will all attempt to unload at once, and thereby depress the market. Extra fancy comb honey is worth about 18, and the other grades in proportion. California sage, extracted, 8½ to 9; white clover, 8½ to 9½; amber, 7 to 8½. Honey in barrels, 7 to 8. Beeswax, 30 to 31.

Sept. 9. THE A. I. ROOT CO.

PHILADELPHIA.—The market for honey here is in an excited condition owing to high prices due to the short crop. Fancy comb honey in a wholesale way is worth 18 cents; unglassed, 16½ to 17. It looks as if honey were going up, and likely to stay up, but it remains to be seen whether or not consumers will stand the rise in prices. Beeswax is firm at 28. We are producers, and do not sell on commission.

WM. A. SELSER,
Sept. 9. 10 Vine St., Phila., Pa.

INDIANAPOLIS.—The demand at this market is principally for white-clover honey. Fancy white comb sells to retail grocery trade in one to five case lots at 19 to 20 cents per pound, actual weight. White-clover extracted in five-gallon cans sells from 11 to 12 cents per pound. Alfalfa and sweet-clover honeys offered at slightly lower prices. Beeswax plentiful, and sells at $35 per 100 pounds.

Sept. 5. WALTER S. POUDER, Indianapolis, Ind.

ZANESVILLE.—Demand for honey, especially comb, is good, but arrivals are very light. No. 1 to fancy brings about 20 cts. wholesale. I quote best white extracted in 60-lb. cans at 11 to 12½; pound jars, $2.25 per dozen, wholesale. Beeswax brings 40 to 45.

EDMUND W. PEIRCE.
Sept. 6. 136 W. Main St., Zanesville, O.

CINCINNATI.—Since our last quotation there is no material change in the honey market, with the exception that the demand is a little better. As yet, prices have not reached the high point that many people believe they will. We received this week a carload of white comb honey, which we are selling at from 15 to 16 from the store. This was the first car out of the State of Colorado, and naturally commanded attention, which brought many purchasers. We shall have two more cars, which will more than satisfy the demand, and we look forward to lower prices. Extracted honey is moving as lively as can be expected at this season of the year. Quote white-clover in barrels and cans at 7 to 9 according to the quality; amber in barrels at 5¾ to 7. We are paying 30 cts. for choice yellow beeswax, free from dirt, and 28 for darker grades. THE FRED W. MUTH CO.,

Sept. 9. 51 Walnut St., Cincinnati, O.

SAN FRANCISCO.—Honey continues firm at previous prices. The crop has about all passed out of first hands, and there is very little offered. All that is in the market moves well, under a strong demand. Amber, extracted, 6½ to 7c; new fancy white comb, 16½ to 17c; water-white, extracted, 8c.—*Pacific Rural Press*, Sept. 7.

ST. LOUIS.—The arrivals of both comb and extracted honey are coming in more freely, and the demand for fancy white comb honey is pretty fair. We quote fancy white comb honey, 15 to 16; No. 1, 14 to 15; light amber, 12 to 13, as this grade is a very slow seller. The trade here caters more to the extra white than to any other grade, and it commands the best price of all. Extracted light amber honey, in five-gallon cans, would bring 6½ to 7; in barrels, from 4½ to 5½; and Southern, in barrels, from 4 to 5; in 5 gallon cans, one cent higher. Beeswax, firm at 28.

R. HARTMANN PRODUCE CO.,
Aug. 21. St. Louis. Mo.

BUFFALO.—Local bee-keepers have sent in reasonable shipments to this market during the past three weeks, so stocks are fair. Fancy white York State honey is selling to the retail trade at 16 to 17c. No. 1 white at 15 to 16. Bee-keepers could realize more in this market were there fewer producers sending their crops to the commission houses.

Sept. 13.

SALT LAKE CITY.—Comb honey, $2.75 per case; extra grade, $3.00; extracted, 7c.—*Deseret Farmer*, Sept. 7.

LIVERPOOL.—Honey: Peruvian and Chilian, 3½ to 6½; Californian, 6 to 9; Jamaican, 3½ to 6½. Beeswax: Chilian, 30 to 35; West Indian, 29 to 31; African, 29 to 30; American, 30 to 33. TAYLOR & CO.,

7 Tithebarn St.

MARSEILLES.—Beeswax, Mozambique, 31; Madagascar, 30; Morocco, 31.

WHAT HAS MUTH GOT NOW?

Genuine **Orange-blossom Honey.** Genuine **Black-sage Honey.** Genuine **White-clover Honey.**

(All in crates of two 60-lb. cans each),

and Fancy Comb Honey in 24-section cases, averaging 22 lbs. to the case.

You better write for prices; this honey is too good to stay long on our hands.

THE FRED W. MUTH COMPANY,

51 WALNUT STREET. The Busy Bee Men. **CINCINNATI, OHIO.**

EVANS & TURNER

COLUMBUS, OHIO

WANT TO BUY 1907 CROP COMB HONEY

Write us immediately, naming price on different grades. We want to hear especially from Michigan and Wisconsin Producers

WE WILL BUY AND SELL

HONEY

of the different grades and kinds.

If you have any to dispose of, or if you intend to buy, correspond with us.

We are always in the market for WAX at highest market prices.

HILDRETH & SEGELKEN,

265-267 Greenwich St. 82-86 Murray St.

NEW YORK.

The Danzenbaker 20th Century Smoker

Pat. Oct. 3, '05, June 4, '07.

Awarded Highest Prize

A GOLD MEDAL

St. Louis, 1904.

IS THE BEST, STRONGEST, COOLEST, CLEANEST, CHEAPEST, AND LARGEST SMOKER SOLD FOR A DOLLAR

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to **CLOG WITH SOOT.**

ALL THAT IS CLAIMED.—N. E. France, Platteville, Wis., General Manager of the National Bee-keepers' Association says:

I have given your 20th Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

SURPASSES ALL OTHERS.—Mr. Grant Stanley, Nisbet, Pa—"After giving the Danzenbaker 20th Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until the fuel is all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker."

BEST IN TWENTY YEARS.—M. D. Andes, Bristol, Tenn.—"I have used the 20th Century Smoker one season. It has given me entire satisfaction. In my twenty years of bee-keeping I first used the old stand-by Clark smoker, and I believe I have tried all the different makes, as I am always looking for the best, and will say that your smoker beats them all up to date."

NEVER TOO HOT TO HOLD.—Dr. Reginald Munson, Washington, D. C.—"I am well pleased with the 20th Century Smoker. It keeps fire well without getting too hot to hold on continuous use, and makes smoke enough to satisfy the most critical."

Price Dan-ze, Large 3½-inch Smokers:
Postpaid—one, $1.15; two, $2.10; three, $3; five, $4.50.
By Express or freight—one, $1; six, $4.20.

"Facts About Bees," a sixty-four-page pamphlet, sent free on request. Send also address of your bee-keeping friends for same.

F. DANZENBAKER, NORFOLK, VA.
(Jamestown Exposition Sta. Money-orders on Norfolk.)

Established 1876.

S. T. FISH & CO.

189 South Water Street, CHICAGO.

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Comb and Extracted Honey

and Beeswax in car lots and less.

We solicit correspondence from honey-producers throughout the United States, advising what they will have to offer during the season of 1907. Mention *quantity, quality, style of package, and price.*
Long-distance phone, Main 1028. Reference, First Nat'l Bank, Chicago. Respectfully, S. T. FISH & CO.

Established 1873
Circulation 32,000

72 pages, semi-monthly
$1.00 per year

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

Published by
THE A. I. ROOT CO., Medina, Ohio

J. T. CALVERT, Business Manager

POSTAGE IS PREPAID by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian postage is 30c per year. For all other countries in the Postal Union add 60 cents per year postage.

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DISCONTINUANCES.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

HOW TO REMIT. Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of The A. I. Root Company, Medina, Ohio. Currency should be sent by Registered Letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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Made by O-HI-O Cooker Agents in 1905 selling the

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combination

Steam Cooker-Baker.

We have many agents making $5 to $10 daily. Write us and we will give you names of agents near by who are making at least $5 daily. We can easily prove that the "O-HI-O" is the best money-maker you ever heard of, and will make you more money than any thing you ever sold or are now selling. *Write us at once and we will prove it.*

Guaranteed to save 50 per cent in fuel, labor, time, and provisions. A whole meal cooked over one burner on any style stove. It assures you deliciously cooked hot meals; *30 days' trial.* No intermingling of odors or tastes. Fine for use in summer cottages. A necessity every day of the year. The only healthful way to cook foods and breadstuffs.

Handsomely illustrated catalog free.

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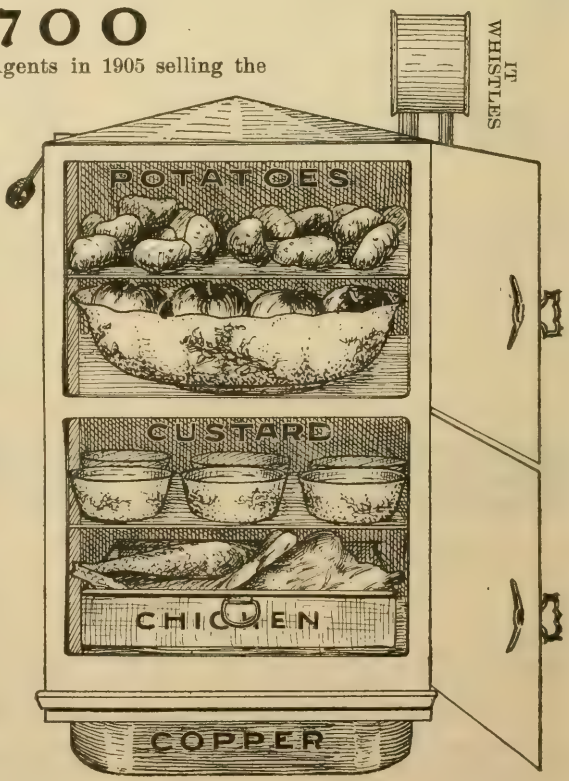

The HAND SYSTEM of Divisible-Brood-Chamber Hives

WE have received so many inquiries with respect to **MR. J. E. HAND'S SYSTEM** of bee-keeping we desire to say that we list a divisible-brood-chamber hive in our regular catalog which is intended to work on Mr. Hand's plan. It does not have the side-opening feature, but the yielding super-springs answer every purpose. It has the advantage that the regular 4x5 section is used. If you do not care to continue the new system you can, with this hive, go back to the old methods, using the sectional chambers as supers. We are prepared to furnish it in eight or ten frame widths at the following prices:

AED882M-8	Sectional hive, eight frame, nailed and painted,						$3.00	each.	In flat,	$2.30;	five,	$10.50;	ten,	$19.00
AED994M-8	"	"	"	"	"	"	3 50	"	"	2.70	"	12.00	"	22.00
AED001M-8	"	"	"	"	"	"	5 00	"	"	3.40	"	16.00	"	30.00
AED882M-10	"	"	ten	frame	"	"	3.20	"	"	2.50	"	11.50	"	21.00
AED994M-10	"	"	"	"	"	"	3.70	"	"	2.90	"	13.00	"	24.00
AED001M-10	"	"	"	"	"	"	5.35	"	"	3.75	"	17.50	"	33.00

We can supply sections split on three sides for receiving full sheets of foundation at 10c per 100 extra, or 50c per 1000 extra over regular styles.

Prices of split sections: 100, 85 cts.; 1000, $5.25.

The A. I. Root Company

Medina, Ohio

Gleanings in Bee Culture

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ABOUT FIXING THE ROOFS.

You will find in the advertising pages of this issue an announcement of a new free book about fixing up the old roofs.

You can have one of these books free by writing to The Anderson Manufacturing Co., of Elyria, O., and mentioning this magazine.

It is full of good sensible suggestions for saving money on roofing. Write for it. It's worth while.

NUT BUTTER.

Mr. Walter S. Pouder, of Indianapolis, Ind., in connection with his honey trade sells a superior grade of nut butter put up in jars in a tasteful manner to suit a fastidious trade such as he caters to. Probably the same customers who buy honey will also purchase nut butter. If you are interested, possibly it would pay you to write to Mr. Pouder personally to get further particulars about developing a trade in nut butter. Then, too, you will probably require some for your own use.

The reader will be interested in reading, if he or she has not done so already, the very interesting offer of GLEANINGS in combination with the *Hunter-Trader-Trapper* for the very small sum of $1.50 for one year's subscription to both magazines. If you are at all interested in hunting or trapping we think you will be pleased with the *Hunter-Trader-Trapper*. It does for the man or boy who wishes to hunt or trap just what GLEANINGS does for bee-keepers. It is intensely practical, and gives in the course of a year very many hints on the proper way to capture wild animals, dead or alive. It is a monthly magazine of goodly proportions, and, being closely printed, with not very many advertisements, it contains as much reading-matter as others that cost twice as much.

The general tendency of the times is to treat all sorts of live stock with greater care than formerly, and this finds expression in better buildings for them, warmer in winter and cooler in summer. In the list of live stock may be included bees. We now know bees suffer from cold after being withdrawn from the cellar unless some kind of covering is added to the hive. One of the best coverings, and possibly the very best, is the excellent ready roofing we have nowadays, and which has the added advantage of being very reasonable in price, every thing considered.

Now that lumber is so expensive, this is important; and all kinds of out-houses can be economically and efficiently protected on the outside with good ready roofing. In some respects the roofing is actually better than lumber—warmer in winter and cooler in summer.

There used to be some trouble with the rusting of the tin caps formerly used in fastening the ready roofing; but even this has been overcome by the invention of a rust-proof cap which has the additional advantage of being square, which gives more holding power than the old-fashioned round-headed broad tack. These new caps are the patented property of F. W. Bird & Son, of East Walpole, Mass., who do not sell them except in connection with their well-known paroid roofing.

If any of our readers are in the market for some kind of covering for buildings it might be well for them to look into the merits of these new caps. It is evident they are quite an improvement, and to a great degree do away with the objections to ready roofing.

F. W. Bird & Son generously send samples of both their roofing and the caps gratis so that prospective buyers may investigate for themselves at their leisure. They may be addressed at East Walpole, Mass.; Hamilton, Ontario, or Chicago, Ill.

If you write, please mention GLEANINGS.

We have been informed that the honey and bee exhibit at the Indiana State Fair was particularly good. The local papers say the exhibit of Walter S. Pouder, of Indianapolis, was especially fine. He had every thing in the apiarian line on show—honey, beeswax, and bee-keepers' supplies. He also had miniature hives of bees on display, calculated to interest farmer visitors. He had a very large number of jars of honey as clear as amber, arranged in rows to show what bees can do in the way of gathering nature's sweets. Mr. Pouder lives up to his reputation as one of the great bee-men of the United States, for his exhibit in Horticultural Hall was well worth going to see and spending some time to examine. Such exhibits justify the management in providing handsome premiums to draw bee-keeping exhibits from all over the State.

Messrs. Rumber, of Mohawk, Ind., and Mr. Leavitt, of Mechanicsburg, Ohio, also had very interesting exhibits of bees and bee-keeping.

Joseph Horne Co.

PITTSBURG, PA.

We want Your

NAME and ADDRESS

You'll Want

OUR... CATALOG

It's about due from the press, and it's a handsomely illustrated fashion-book that you can have sent you for asking.

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"TAKE OFF YOUR HAT TO THE MYERS"

MYERS

The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers Pumps, Hay Tools & Barn Door Hangers. Send for catalog and prices.

F. E. Myers & Bro.
Ashland, Ohio.

If You Want the Bee-book

that "covers the whole apicultural field more completely than any other published," send $1.20 to :: ::

Prof. A. J. Cook, Claremont, Calif.

FOR HIS

"Bee-keepers' Guide"

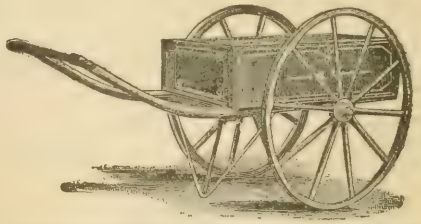
Liberal Discount to the Trade.

Northern New York Bee-keepers.

10 PER CENT DISCOUNT.

We have a large stock of shipping-cases and feeders, and all orders for same will be filled promptly. Beeswax and old combs wanted; cash or trade; 10% discount during the month of Sept. on every thing but cases and feeders. Comb honey wanted; write stating how put up, kind, and lowest cash price deliver'd in Watertown, N. Y.

A. H. REEVES & CO., 17 Morrison St, WATERTOWN, N. Y.



Carts of this kind are growing in popular favor daily. Painters, carpenters, bill-posters, masons, etc., find they are ahead of anything else for carrying tools and light material. Farmers, too, use them to good advantage about the orchard or garden.

— MANUFACTURED BY —

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SAVE YOUR BACK

Save time, horses, work and money by using an

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Low wheels, broad tires. No living man can build a better. Book on "Wheel Sense" free.

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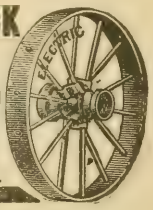

IT IS JUST OUT

Root's A B C in German

We have just been informed by our printers that the work of printing the A B C of Bee Culture in German has been finished, and that in a few days 1000 copies will be in our hands for distribution. The price is $2 postpaid. Send in your order now if you wish a copy hot from the press.

A. I. Root Co., Medina, O.

AND ALL AGENCIES

PATENTS.

Twenty-five Years' Practice.

PRINDLE & WILLIAMSON,

Second Nat'l Bank Bldg., Washington, D. C.

Patent practice in Patent Office and Courts.
Patent Counsel of The A. I. Root Co.

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Our Advertising Rates.

Twenty cents per agate line, flat.
Fourteen lines to inch.

SPACE RATES (To be used in one issue)

One-fourth page.....$11.00
One-half page..... 21.00
One page..... 40.00

Preferred position, inside pages, 30 per cent additional.
Preferred position, inside cover pages 50 per cent additional.
Outside cover page, double price.
Reading notices, 50 per cent additional.
Cash-in-advance discount, 5 per cent.
Cash discount, if paid in 10 days, 2 per cent.
Bills payable monthly.
No medical or objectionable advertising accepted.

"A Square Deal."

We believe that every advertisement in this paper is backed by a responsible person. But to make doubly sure we will make good any loss to paid subscribers sustained by trusting any deliberate swindler advertising in our display columns, and any such swindler will be publicly exposed. We protect subscribers against rogues, but we do not guarantee to adjust trifling differences between subscribers and honest responsible advertisers. With regard to the classified columns, we can not protect our readers from what they consider bad trades, where there is room for a good deal of difference of opinion. This would be impossible; but we do protect them from all deadbeats and swindlers. Of course we are not responsible for the debts of an honest bankrupt sanctioned by the courts. Notice of the complaint must be sent to us within one month of the time of the transaction, and you must have mentioned GLEANINGS IN BEE CULTURE when writing the advertiser.

One of the most useful articles around a rural home is a two-wheeled cart such as that shown in our advertising columns by the Lansing Wheelbarrow Co., of Lansing, Michigan. Such a vehicle will save a great deal of heavy lifting, and earn its first cost in a variety of ways, at the same time greatly relieving the owner or user of much of the more laborious kinds of labor which usually goes under the short title of "odd jobs." Generally speaking, a bee-keeper has a variety of uses for just such a cart. Write for prices to the company.

THE TIME TO BUY QUEENS.

Probably September is the best month in all the year to purchase queens. One reason is, they can be more easily and quickly obtained at this time of the year. It is also a very convenient season for most of us to introduce a new queen, as, with the great majority, the honey has been cleaned up and is out of the way by this time. Even if supers are on to catch the fall flow it will pay to have a queen on hand to introduce. These young queens will do much less swarming next season than queens that are a year older—they will stand the winter better, and lay earlier. Expert poultrymen all know the great importance of pullets for getting eggs in winter and early spring, and it seems young queens are like pullets. The practice of requeening every year is becoming common, and the time to do it is right now. Look over our list of queen-breeders and decide for yourself what you will do. We mean this for the average bee-keeper who has neither the time nor inclination to engage in rearing queens for his or her own use. This also is a good time to weed out undesirable queens before you forget their poor work during the past season, no matter how old or how young they may be. They are not likely to do better next year.

A Very Special Offer

The *Bee-keepers' Review* is a bright, fresh, wide-awake, helpful, inspiring journal, owned, edited, and printed by a practical bee-keeper who has the management of several apiaries and allows his readers to look over his shoulder and see his successes—and mistakes. He has a personal acquaintance with the leading bee-keepers of the country, and gets them to tell in its pages how they succeed. If you are keeping bees for the money there is in it, the *Review* will help you—perhaps 100 times what it costs you.

The price is $1.00 a year. Sometimes the publishers offer the "rest of the year free," to new subscribers, but this offer is not usually made until in November or December, but I am going to make this offer *now*. Send me $1.00 and I'll send the *Review* from the time your subscription is received to the end of *next* year. If you would like to see copies of the *Review* before subscribing, send me ten cents and I'll send you three late but different issues, and the ten cents may apply on any subscription sent before the end of the year.

Superior Stock and what it has done

I have many times told in these advertisements of the superior qualities of the stock furnished by Mr. J. P. Moore, of Kentucky, but I have never seen a more striking illustration of its superiority in the honey-gathering line than the results in one of our northern Michigan apiaries; 60 colonies of ordinary strain of bees increased to 85, and stored 2100 pounds of honey; 51 colonies of the Moore strain increased to 107 colonies and stored 2700 pounds of surplus. Wouldn't it have paid us to introduce the Moore strain last fall to those other colonies? That is what we are going to do this fall. Get a queen of this stock this fall, then, another year, re-queen your apiary from it, and you will bless the day you read this advertisement.

The price of one queen is $1.00, or I'll send you the queen, and the *Review* from now to the end of next year, for only $1.50! You can never spend $1.50 that will do you more good, or bring you greater profit. The queens will be mailed direct from Mr. Moore. As fast as orders are received they will be forwarded to him to be filled, thus they will come right fresh from the apiary, and not in some roundabout way. Add $1.00 to the amount and I'll also send you a copy of the book, Advanced Bee Culture.

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16-in. 2-row "	25	18	1 50	12 00	11 50	11 00	300
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7⅛-in. 4-row for 4x5..	30	22	1 80	16 00		14 00	300
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W. H. Laws says, If there is a queen-breeder who can boast of better stock let him trot out the proof. Testimonials enough to fill this book. Will give you only one. Mr. J. C. King, Washington, D. C., writes, "For two years I have had one of your queens in my apiary. Each season she has given me over 200 lbs. comb honey; last season she actually stored while other colonies starved. I have over twenty strains in my three apiaries, but yours is the best."

Now is the time to get a fine breeding queen; stock up this fall and double your crop of honey the coming season. Single queen, $1.00; 6 for $5.00. Extra select breeders, $5.00. Safe arrival and satisfaction guaranteed.

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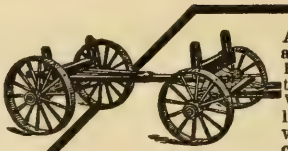

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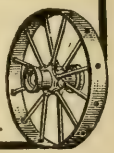

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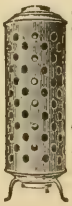

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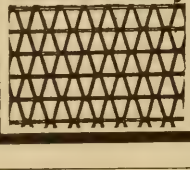

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The American Bee Journal is now a monthly, size 8x11, 32 pages, handsomely illustrated outside and inside. It is wide-awake, bright, up-to-date. Edited by George W. York who has been connected with it for nearly a quarter of a century. Mr. York is well-known wherever bees are kept or honey produced. He is President of the Chicago-Northwestern Bee-Keepers' Association.

American Bee Journal

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For Honey and Beeswax Buyers. The market reports give late advices from the Eastern States as well as the Central and Middle West. It's safe to follow them when buying, selling, or quoting. Send the names and addresses for the sample copies to-day. Address

AMERICAN BEE JOURNAL,
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Here is a magazine that will surely interest many of our readers. It does for the trapper what GLEANINGS does for the bee-keeper, and does it well. It is just the thing for the man or boy who desires to make a little money winter time by trapping fur-bearing animals. It gives all trappers' "secrets," and indicates where to sell furs to advantage.

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is not intended for city sportsmen with fancy guns and expensive fishing-rods. It is written by real wilderness hunters who know all about the capture of wild animals. It is a monthly, containing as much real reading-matter as the great monthlies, and far more practical. For a limited period we are making the following liberal offer:

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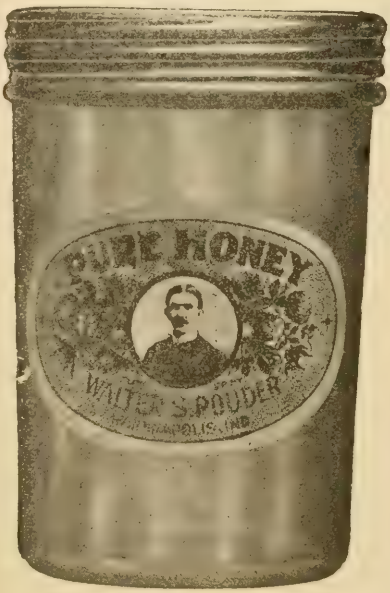
HONEY, BEESWAX, and NUT-BUTTER



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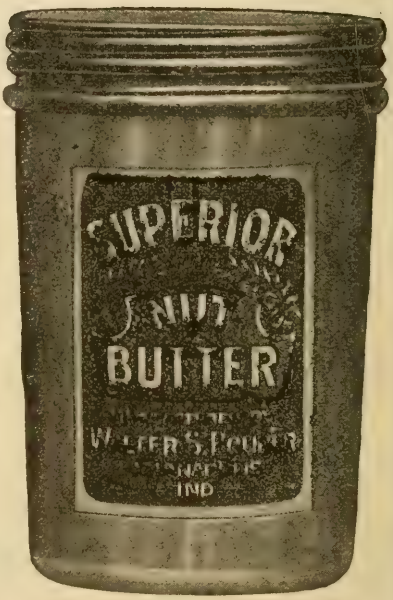
Finest Quality, Neatest Package, and all goods conforming with the Pure-food Laws.



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My new tight-seal package. I claim to have the most complete and sanitary bottling outfit for putting up honey that has ever been installed. I think I have the neatest and most convenient package that has ever been placed on the market. I bottle only the finest *white-clover honey*, gathered from the central States, and have never put up foreign or cheap grades of honey. It is not a question of how cheap, but how good. For more than eighteen years *particular people* have been buying *Pouder's White-clover Honey*.

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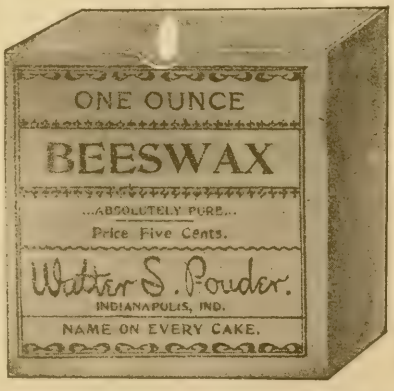
If interested, ask for special prices on White-clover Extracted Honey in five-gallon cans.



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Made from the finest grade of number one hand-picked peanuts. We do our own roasting, our own blanching, and our own hand picking. Our improved blancher not only removes the skins from the nut, but it splits the nut and removes the sprout, which is claimed by some to be bitter. We have the best machinery that can be had, operated by electric power, and our facilities are such that we have always a strictly fresh article to offer, and yet nut-butter does not become rancid like other butters. We do not add salt or a particle of any thing foreign. Our product is simply the nut emulsified in its own oil. Nut-butter is rich in nutriment and health-making qualities. Nut-butter is a delicious and economical health food, the most popular of all nut foods, due to its rich and sweet flavor, its good keeping qualities, and its moderate cost.

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All goods carefully boxed for shipment.

BEESWAX

Beeswax is in demand for so many different purposes that my limited space will not permit me to enumerate them here. In my position as a dealer in bee-supplies I have the very best of opportunities for securing the very choicest quality, and direct from the producers. I put up two sizes of cakes for the trade—cakes weighing three pounds, and another weighing an exact ounce. Each ounce cake is put up in a neat carton, I being the first and only one to adopt this method, which has made it very popular when wanted for medicinal purposes, cartons being dust and germ proof.

WHOLESALE PRICES

Ounce cakes, in cartons, 16 five-cent cakes, one lb	$ .45
Box containing 40 five-cent cartons, 2 1-2 pounds	1.13
Three-pound cakes, per pound	.40

My illustrated catalog of bee-hives, and all supplies that are used in an apiary, is issued annually. Copy mailed free to any one interested. Mail orders solicited.

WALTER S. POUDER,
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GLEANINGS IN BEE CULTURE

Published by The A. I. Root Company, Medina, Ohio

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Vol. XXXV. SEPTEMBER 15, 1907. No. 18

VERY SORRY to learn that *Europaeische Bienenzucht*, the champion of American methods of bee-keeping, has suspended publication. It was a good bee-journal.

FOR HONEY that is bottled, no matter who is the producer, why not have the label read "Bottled by"? [This phrase has not yet received official sanction. It is the most specific, though, of any of the phrases that have been thus far suggested.—ED.]

BRO. WHITNEY, the proposition to have control over a certain bee territory may be as ridiculous as you say, p. 1152, to you, who make bee-keeping a pastime. To some of us who depend on bees for our bread and butter it seems just as ridiculous as for a stock-raiser to control the pasturage for his cattle.

BENJ. A. FORD, p. 1141, succeeds in having queens fertilized in upper stories above excluders. I tried it in former years, and also again this year, with an entrance for each story, but with too many failures. I wonder why. [The trouble with the scheme of having queens fertilized over an upper story of a strong colony with perforated zinc between the two stories is that it fails nine times out of ten—so much so that it is not worth while to fuss with it. The only time it succeeds is during a natural honey-flow, or when bees are being fed liberally outdoors, inducing artificial conditions that approximate very closely a natural flow.—ED.]

AFTER READING about two laying queens invariably fighting to a finish when put together on the ground, p. 1068, I thought I would try it, as I had never done so on the ground. I put two laying queens together on the ground. They walked apart. As fast as they separated I pushed them together, and, although I could make them crawl over one another, I could not succeed in arousing the least degree of hostility. I tried the same thing with another pair, and the result was the same. I wonder what was different in Mr. Bender's case. [Mr. Bender possibly tried younger queens. Suppose next time you take a couple of hybrids not more than six months old and then see what they will do. Mr. Morrison says he has had them fight repeatedly just as Mr. Bender states. Possibly you did not wait long enough.—ED.]

ONE YEAR, as I have reported, I gave a colony entirely drone comb, and they swarmed out. Joseph Trojan reports, in *Bienen Vater*, better success. June 8, 1906, he threw an after-swarm on drone comb. No drone brood appeared—all worker. The workers reared in drone cells were easily distinguished from the older workers. They were not longer, but thicker. In spring, 1907, a frightful quantity of drone brood appeared until the end of May, when worker brood returned. Trojan argues from this that all eggs are fertilized, and that the workers remove the spermatoza when they wish the eggs to produce drones. But he says nothing about the mouth of the drone-cells being narrowed. By the way, I found this week in a weak nucleus, with a queen that had laid not more than three days, eggs in a patch of drone-cells. The mouths of the cells were properly narrowed. [You seem to assume that bees will *invariably* narrow the openings of drone-cells whenever worker eggs are laid therein. Are you not mistaken?—ED]

I HAVE introduced many a queen by merely putting her in the hive without any caging; and I have lost many a queen when she was caged not more than 24 hours. On the whole, one may feel safer about a queen in general if she remains in the hive about three days before being let out of the cage. Here is my plan for having her released automatically in about that length of time: Take a piece of foundation-splint—that is, a

piece of wood about $\frac{1}{16}$ inch square—and a little longer than the tube of candy in the introducing-cage, and push the stick centrally through the candy. The bees will do the rest. When I first tried this, I expected the bees to gnaw the stick out of the way. They don't gnaw it. In some way they manage to work their way through and throw the stick out in the cage; but it takes them about three days to do it. The candy-tube is about $\frac{1}{4}$ inch in diameter. With a tube big enough for two bees to work at a time the time would be shorter; and with a tube sufficiently large the stick would make no difference whatever. [We have introduced a good many queens, and are doing it to-day, without caging; but our own experience has shown us that, for the beginner at least, it is better to cage, keeping the queen confined at least three days. Your scheme of delaying the passage of the bees to her majesty is a good one.—ED.]

IN CONFIRMATION of what the editor says about alsike, p. 1145, I may say that in this region, although alsike-fields are comparatively scarce, yet specimens of alsike are getting to be quite common along the public roads. Sorry to say that I have never been able to find many bees on my field of alsike this year. [But say, doctor, why don't you furnish alsike seed at half price—or, better still, free for one season, to nearby neighbors? It may cost you forty or fifty dollars, but you will find that your neighbors will flock to you for seed. We think, further, that you will find that thereafter they will be willing to pay you half price, and, later on, put it in of their own accord, paying full price for it. While there is not a million in this proposition to you, there is more in it than you may think. Then in the fall of the year you may encourage the farmers to put in buckwheat. If you could only be sure of a good buckwheat year you could afford to give them the seed for nothing until they get in the notion of raising it. In the giving of free seed it is important to stipulate certain conditions—that it must not be thrown on top of bare ground, but sown along with other seed, as, for example, timothy. The farmers will soon catch on to the fact that alsike mixed with timothy makes the very finest of hay. They have learned that trick to a great extent in Michigan, and that is why, apparently, Michigan of late years has been able to furnish white-clover honey in bad years when other States have not been able to furnish any.—ED.]

I ASKED in a Straw, page 1008, "Suppose two queens are introduced at the same time, either in two cages or in the same cage, will not the bees accept both?" Notwithstanding the cold-watery character of the editor's reply I thought I'd try it. August 16 I put into the same cage two queens of the vintage of 1904, making them fast so the bees could not release them. Six days later I found one queen dead in the cage, the other living. I have had old queens die thus when alone in the cage, so it is not entirely certain whether there was a duel or not. But I had also, August 16, put two other 1904 queens in the same cage, fast, and given them to a strong nucleus, No. 69. August 20 I found both alive in the cage, and removed the covering to the candy, so that the bees could liberate them. August 22 I found the bees had eaten out the candy, and a number of the workers were in the cage along with the two queens, which seemed to be quite comfortable where they were, and had not cared to leave the cage. I let them out and closed the hive. That's the last I've seen of them, and it is now August 26. If you'll wait just a few minutes I'll go down to the hive, investigate, and report just what I find. . . . . Well, the first frame I took out contained an incomplete comb, and the bees had built some fresh drone comb in which were eggs, but no eggs in the worker-cells. The next comb contained sealed brood, worker eggs, and—a virgin! I set that frame to one side, and on the next comb I found a clipped queen. I set that frame to one side also. On the next comb I found the other clipped queen. I wanted to throw up my hat; but my veil was pinned down, and if I had taken it off I'd have been badly stung, so I thought better of it, put back the comb with the laying queen, removed the virgin, and hurried back to finish this Straw and to brag over my success.

Now, the question is whether this is one case of success to 99 of failure, or whether there will be only one failure in 100. I have another case under headway over at the Wilson apiary, which I'll be able to report in the next number. [Your experiment is a very interesting one, doctor, and no wonder you felt like throwing up your hat. Then when you come to ask us the question whether this is the one case of success out of 99 failures we hardly know what to say. According to the law of chance you would not have happened to hit upon the first trial—the only case of success. We prefer to wait for your further experiments before giving judgment. There are some new things that we have not yet learned about introducing, and the relation of queens to bees, and of queens to each other. It is probable that nature has been doing a lot of things, and it remains now for us only to inquire.

This whole question is a very interesting one, and we shall be glad to hear from others, especially queen-breeders who would be in position to test this matter.—ED.]

Honey reports from the Southeast are very encouraging in those sections where the main flow comes during the summer, and the flow is heavier in most locations than we have ever known it. The flow with us is about twice as heavy as in previous years. Shipments of honey from Florida are coming into the Georgia markets, and our crop from cotton will soon be ready for market.

Cordele, Ga., Sept. 5. J. J. WILDER.

THE Australian bee-keepers are making an effort to have free sites for apiaries provided for in forest reserves. We think this is no more than right, as a bee-keeper on a forest reserve would be a sort of guard against fires, and, besides, does no harm to and takes nothing from the forest. If the government went to some expense to plant trees particularly suited to bees, then it seems to us the bee-keeper should pay a rental for exclusive rights, but thus far no government has done this.

A PURE-FOOD LAW IN GREAT BRITAIN.

THE British House of Commons has passed the pure-food bill introduced by Mr. Burns, and now we learn it has passed the House of Lords unanimously. Contrary to the general impression, Great Britain has not legislated against imitation foods as we have, the tendency being to get cheap food if possible. France has a strong law on the subject, and Dr. Wiley has just returned from there after making a detailed examination of the French system of food inspection.

THE WOLF IN SHEEP'S CLOTHING.

A CONCOCTION of 90 per cent of glucose and 10 per cent of cane syrup has recently been placed on the market, which has evidently been collected by some variety of long-tongued bees; for on the label, which is a brilliant affair, are beautiful sprays of red clover as large as life. The man who conceived this label has a very vivid imagination to say the least. He fails, however, to state on the label just how the corn syrup is extracted from the red clover. This is not labeled "honey-drips" any more, but just plain "syrup."

DANDELION MALIGNED AGAIN.

"UNCLE HUGH," in the *Wisconsin Agriculturist*, classes the dandelion with ragweed, common thistle, burdock, purslane, pigweed, dodder, and plantain. Evidently he has never studied the dandelion to any extent. If he will take the trouble to plant a patch of dandelions this fall, carefully planting it in rows, he will, early next season, have a supply of fodder or pasture second to none, and which, if fed to milch cows, will cause an increased flow of milk which will produce butter with a June color and flavor long before June has come. There is nothing cows like better. Only a few weeks ago dried dandelion roots were quoted at 15 cents a pound, and the *Hunter-Trader-Trapper* for September quotes them at that price. If the dandelion is a "weed" so is white clover, alsike, timothy, and other forage plants.

UNCLE SAM INVESTIGATING BEE PARALYSIS.

WE note by the California papers that J. M. Rankin, who is connected with the Division of Apiculture, U. S. Department of Agriculture, has made arrangements with F. M. Hart, county bee-inspector at Hanford, California, to make a thorough investigation of the disease known to bee-keepers as bee paralysis. It is said the disease is quite common in that county (Kings), so that there are many opportunities for studying it. It is further reported the yield of honey has been materially reduced by the disease of late in that section. We hope some remedy will be found for this trouble.

FINED FOR SELLING ADULTERATED HONEY.

IN the Nashville *Evening Banner* for June 20 it is stated that a J. U. Phelan was fined by the court in that city $25.00 for selling adulterated honey, and that he was arrested by Meat and Food Inspector Blaine Danley, who had received complaints from two ladies about honey being bad. On investigation he decided to arrest Phelan. The latter, so it is said, stated he had sold such "honey" for a number of years, and never had a complaint before. Judge Baker, who heard the case, decided that a fine would meet the ends of justice.

A few cases exactly like the foregoing would have an excellent effect on the honey market. We want similar prosecutions in all parts of the country.

THE ILLUSTRIOUS SON OF THE GREAT HUBER.

IT gives me pleasure to state that Dr. James Huber, a grandson of the illustrious Francis Huber, who so thoroughly revolutionized our conception of honey-bee life, has been appointed Director of the Goeldi Museum of Para, Brazil, in succession to Dr. Emilio Goeldi, also a native of Switzerland, to which country he is returning. The latter has published some interesting monographs on the stingless bees of Brazil, also his brother. Dr. Huber, is a botanist. His father was a great authority on ants; and his grandfather the greatest authority on bees we know any thing of, and the inventor of movable combs. Evidently natural historians are born, not made to order.

HONEY GINGERBREAD IN FRANCE.

THE central society of the apiculturists in France, with its headquarters in Paris, has been trying to find out if it is actually true that only Brittany honey could be used in the manufacture of honey gingerbread, and have come to the reluctant conclusion that this is so. It ought to be understood this refers to buckwheat honey, which is the main stay of the bee-keepers of Brittany. The reason for this inquiry was, doubtless, the high prices paid by bakers for this honey,

for they dislike to use any other, and must have it. The center of the gingerbread trade is the city of Dijon, which uses something like 1000 fifty-gallon barrels per annum. The bakers claim no other honey will cause the bread to rise and remain light as buckwheat does. Some of the "patent" food companies in this country ought to take up the manufacture of this gingerbread, as it is evidently something good, for no one is a better judge of culinary affairs than the average Frenchman.

A CHANCE FOR BEE-KEEPERS IN NEW TERRITORY.

THE first irrigation government project open for use by the Reclamation Service of the United States was the Truckee-Carson system in Nevada. The town of Fallon occupies the business part of the project, so that it may be located on late maps. The land to be watered was practically all government land, subject to entry under the law. The amount of land under ditch is now about 200,000 acres; but this will be largely increased later by additional dams and canals.

Much of this land is still subject to entry, and the Department of the Interior is anxious that it be taken up at once. The government fees amount to $8.00 for 80 acres, which makes it cheap enough for any one. A tract of 40 acres will cost $6.50 Of course, the cost of water is additional, but that is distributed over ten years of time.

A good deal of the land has been taken up, and the desert has been transformed into a garden wherever the water has been turned on. The climate is said to be fine. The government is desirous of having the land settled quickly so as to make the money received for water available for other projects. The town of Fallon, which had 16 persons three years ago, now has 1000, and steadily grows. This land is peculiarly suited to bee-keepers, fruit-growers, and gardeners.

FIVE-BANDERS, AGAIN.

TWO of our subscribers protest against the black eye we have given the extra yellow or golden bees by stating that they were lacking in hardiness. One of them, Mr. G. W. Martin, of Stroudsburg, Pa., says he has kept five-banders since early in the 90's, and that his winter losses have been so small that it would make an incredible statement. Mr. E E. Pressler has had the same experience; and not only that, but he finds that they are extra hustlers for honey.

We have tested a good many five-banded strains in our yard, and are very sorry to have to report that, while some of them are good honey-gatherers, exceptionally so, yet all of them seem to be about the first to go in winter or spring; while the darker strains of Italians, and especially Carniolans and Caucasians, seem to be able to stand the winter well.

It should be remembered that many of these extra yellow strains came from Southern Italy, while the leather-colored Italians came from Northern Italy, and the Alps, where the winters are severe. The Carniolans and Caucasians also came from cold climates, and for centuries back have been the survival of the fittest. It would be natural to suppose that a strain whose habitat is in localities where winters are severe would be able to stand our Northern winters better than a strain whose natural habitat is in a tropical climate.

ALSIKE CLOVER GROWING IN POPULARITY.

WE note with pleasure the statement made by the old reliable seedhouse of T. W. Wood & Son, of Richmond, Va., that alsike is growing in favor with the farmers of that section. They say that it lasts longer, is hardier, standing more adverse conditions of weather than ordinary clovers, and is better adapted to grazing purposes, and that it should be a constituent part of all grazing mixtures. This is in line with experience elsewhere. But alsike is most popular as a combination with timothy, in which case it furnishes very fine hay.

In this connection *The Farmer*, of St. Paul, Minn., comes to the defense of alsike clover against its detractors in other journals, claiming it will grow for a number of years without reseeding, and that it thrives on poorly drained, unprepared soils in the newer sections of the country. It also says:

> Then, too, in the timber districts where red clover grows extremely rank and coarse, the alsike variety has an advantage in that it has a finer stem, and consequently turns out a better quality of hay.

General experience will bear out the above statements, and it may pay some of our bee-keepers who reside in suitable localities to keep a supply of alsike seed on hand to be sold at low prices to near-by farmers. One of the reasons why farmers do not grow alsike is they can not get seed except at high prices.

HONEY MARKETS AND CROP CONDITIONS.

THE situation so far as crop conditions are concerned is about the same as reported in our last issue, except that there seems to have been a fair honey-flow in Texas, or at least parts of it, and a late flow in Florida. Later information seems to confirm the reports made in our last issue, to the effect that the aggregate crop for the country would be about the same as last year, which was a light one; but the very great scarcity of fruit, the general advance in food stuffs, and the effect of the new pure-food law, will make a strong demand for table honey, especially No. 1 and fancy comb. It is clear to us that some of our honey-merchants, at least, are not offering enough for these two grades; two of them, as will be noted, are offering 20 cts. We are satisfied from reports in hand that many bee-keepers are holding back their crops until the market shall feel the scarcity and offer better figures. Mr. Irving Cross, of Hoosick Falls, N. Y., commenting on the price offered for honey at Albany, N. Y., and in New York city, writes:

Now, this is less than what honey is selling for at Colorado and Pacific Coast points, and it does not seem favorable to rush honey on to the market here till the shortage has made itself felt, even though it seems to be the best plan to do so when the crop is normal. It is usually the way for the buyers of any crop to rustle around and get the bulk of the crop bought at the lowest possible figure and to advance it after the producer has sold out. One or two held on in this town last year till late and got their best prices at the last end of the season.

Unless the market for No. 1 and fancy comb shows up a little better, we can not censure the producers, who have these grades on hand, for not selling at the present time. But there is always danger in holding for a better figure. Our impression is that the producer can afford to wait a little. What little comb honey we can get—a precious little amount—we are retailing at 25 cents for fancy and 24 for No. 1. Talk about supplying the wholesale trade! why, we have not been able to get much if any comb honey to sell, even for a retail trade.

Said a gentleman to us the other day, "I have been trying to get some fruit this year. I can not get it at any price. My wife and I have decided that we shall have to lay in a stock of comb honey. What is it going to cost us?"

"Better get it pretty soon before it goes much higher."

"But," said he, "I can not find it. Have you any?"

"Not yet, but we hope to have some soon."

"Well," said he, "when there is no fruit, honey is the only substitute."

Never was a truer thing said; and yet there is a tendency on the part of many dealers to hold down to the prices of last year. We can not blame them much, as new conditions leave them in the attitude of the senator who said, "I should like to know where I am at." But they should wake up to the situation. They must offer a better figure, as some are doing, or they will not get the honey. Columbus, Indianapolis, Zanesville, and San Francisco are offering good prices.

There seems to be, in many localities, a chance for a fall flow of honey; in fact, it is already on in our locality from goldenrod and some remnants of sweet clover. There has been comparatively little robbing this season, as honey has been coming in slowly from some source.

SUGAR OR HONEY AS A MUSCLE-PRODUCER.

EVER since the days of Liebig it has been the opinion of chemists that sugar and honey were mere heat-producers, therefore of less value to workmen than meats, eggs, cheese, fish, and other proteid foods. Gradually the trend of scientific thought has been changed, and natural glucose, which is the principal constituent of honey, and the sweet part of fruits, is now considered a very valuable muscle-producer. We do know children are very fond of fruits, sugar, and honey—a purely natural craving that ought to be satisfied in some manner. The following from the *Louisiana Planter* (translated from *La Sucrerie Indigene*) will serve to show the trend of modern ideas on the subject of sweets, and at the same time bear out this claim:

Mr. Chauveau found that muscle which worked consumed only the glucose or the glycogene carried by the blood circulation. From this the energetic value of a food should not be measured according to its calorific power—that is to say, not by the number of calories produced by its combustion in a calorimeter, but rather by its yield in glucose. Here the saccharose and starchy materials take the first rank. Chauveau has calculated the isoglucosic equivalents corresponding to 100 grams of fat, and that result one would compare with the equivalent of Rubner cited above 100 fat corresponding to 153 grams of (cane) sugar, 161 grams of glucose (honey), and 146 grams of starch.

Lefevre has essayed to reconcile these two theories that diverge somewhat. He conceded readily, admitting that an organism which labors and which receives the fat transforms this fat into glucose in absorbing 334 calories per 100 grams of fat and in forming 161 grams of glucose. This quantity of glucose will give 480 calories by the combustion in the muscle, and there will remain 120 calories for the energy and the work—a total of 934 calories. If one gives to the organism glucose exclusively, all the calories will pass into work, as they will not have to undergo the preparatory transformation. Lefevre concludes that fat is a source of heat, and sugar a source of work.

Other conclusions might be drawn from the works of Lefevre relative to the digestibility—that is to say, digestive utilization, of the various foods. Among them sugar (of all kinds) holds the first rank, being equal or superior to 96 per cent, and then white bread, rice, and mashed potatoes. Eggs and meat occupy the sixth and seventh rank, and milk the eighth.

All these conclusions are very interesting. They fix in a manner absolutely scientific the basis of feeding in general and the great value of sugar. The practical conclusion, which can give only excellent results, will be the taking into account and determining the rations of soldiers and horses in the army. There the old errors still continue, and very often the men and the animals are fed, if not insufficiently, at least in a manner scarcely hygienic. If we follow our ordinary tastes we do not deceive ourselves.

We may say by way of explanation that the glucose here referred to is not the artificial article which masquerades in this country as "corn syrup," but the purely natural kind which is found in honey and fruits. The artificial product is lacking in taste, so that the human stomach rebels against it; and the free flow of saliva, so necessary to good digestion, is greatly if not wholly curtailed. Honey heads the list of available sweets because it not only "makes the mouth water," but is immediately converted into glycogen without trouble, and in that state passes directly into the blood. Of the solid matter of honey (80 per cent) not $\frac{1}{10}$ per cent of it is wasted in any way when consumed, hence it is real economy to use it more, especially by indoor workers whose digestion is poor, and whose muscular system needs toning up.

Over the whole of Europe there is an idea that honey is very useful in the treatment of consumption; and recent discoveries tend to confirm this, for it is clear that a food which so quickly enters the blood and repairs the working tissues may be useful in warding off or dispelling the germ of consumption.

The words of Lefevre, "If one gives to the organisms glucose (*honey*) exclusively, all the calories will pass into work, since they will not have to undergo the preparatory transformation," ought to be written in letters of gold and displayed in the honey-house and apiary, because they indicate honey is the best food of its sort ever obtained by mankind.

IN MEMORIAM OF L. STACHELHAUSEN.

MR. STACHELHAUSEN, whose death we recorded in our issue for Aug. 1, was born near Fegensburg, Bavaria, in 1845, when Bavaria was an independent kingdom. He was of noble birth according to German ideas, his father being the owner of a landed estate. When ten years of age he was sent to a boarding-school, and it was while there he gained an insight into the art of keeping bees. His uncle kept bees, and by making frequent visits to him he was enabled to get a very fair knowledge of bee culture, as his relative was progressive, and had adopted the movable-comb system. The impressions he got then never left him, and more or less during his life he kept bees. From 1861 to 1864 he studied diligently in the scientific department of the University of Munich, from which he graduated. He next went to the State School of Mines at Loeben, in Austria, to perfect his intellectual equipment as a scientific engineer. During the year 1866 he surveyed several gold and silver mines, in Hungary chiefly. In 1867 he was appointed superintendent of a glass-factory in Bavaria. Later he conducted iron-foundries and machine-factories in Saxony and Bavaria.

It was in 1867 he started his first apiary as soon as he was settled in a home of his own, and practically was never without bees until his death—a period of 40 years, during which time he became thoroughly conversant with scientific and practical bee-keeping as conducted on both sides of the Atlantic. In 1870 he married; and during all his long career, both in Germany and America, his wife truly shared his joys and sorrows as a faithful helpmate. She survives him, very much mourning his loss.

A train of circumstances induced him to leave Germany and seek his fortune under the stars and stripes, choosing Texas as the scene of his future success as a citizen and as a bee-keeper. In 1893 his only daughter married Mr. Ed. Dietz, who became his partner in bee-keeping, and so continued till the last.

Mr. Stachelhausen was not long in this country before he found it necessary to express his opinion in the bee-journals, like his American brethren in the craft. Even if he was a German of the Bavarian species he knew how to express himself in very excellent English—in fact, he had a thorough mastery of scientific words and phrases, such as only an American or Britisher trained in scientific schools might be expected to possess.

He was equally well equipped when it came to practical matters connected with bee-keeping. For example, he was the first exponent of the brushed-swarm system of controlling increase, and in time succeeded in convincing many American bee-men that it was an entirely sound and effective system for money-making bee-keepers to adopt.

At first he was considered too radical; but in time he succeeded in convincing nearly all his critics. He was also the most prominent and daring of all writers on the shallow-hive system, which at present is receiving more attention than ever before. He worked his hives on what may for convenience be termed the Heddon plan; but he went beyond it. Being quite successful in his bee-keeping operations he succeeded where others failed in inducing bee-keepers to adopt the shallow-hive system.

Bee-keepers mostly know of him as a champion of brushed swarms and shallow hives, and are apt to overlook his splendid knowledge of the science of bees, which he endeavored to extend to other bee-keepers not so well informed as himself. As a graduate of the scientific department of a great German university he was well equipped for such work. Moreover, he was very modest and unassuming in what he did and wrote, never descending to personalities or engaging in any pedantic pleasantries for the sake of fame. No one would have supposed he was so well informed, either from his manner or appearance. He looked like an honest, sturdy German farmer of the well-to-do type, rather than a trained and learned investigator.

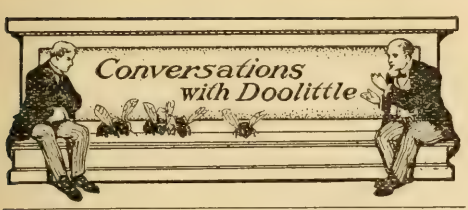
On his Texas farm in Bexar Co. he lived a happy, contented life, for he was quite domestic in his tastes and habits, and liked nothing better than his own home surrounded by his friends. His end, however was, pathetic. In August, 1906, the first sign of cancer of the tongue began to show. A consultation of several doctors in San Antonio decided that the only hope was treatment by the X rays, which he took for 10 months before the end came.

He suffered his terrible affliction with calmness and fortitude, and, indeed, read GLEANINGS within an hour of his departure from this world. In anticipation of his death he had asked to be removed from San Antonio to his farm, on the 5th of July, and on the morning of the 7th he expired.

Many bee-keepers who personally knew Mr. Stachelhausen will hold him in kindly memory; and bee-keepers generally, both here and in Europe, will feel they have lost a friend. His place in our remembrance will be alongside of that of Adam Grimm and Samuel Wagner, his gifted fellow-countrymen whose names are revered by American bee-keepers.

Germany has contributed many able men to the upbuilding of America, but none of them better than Stachelhausen the bee-keeper.

WE have just received an advance copy of the new edition of the British Bee-keepers' Guide-book, by our esteemed friend the editor of the *British Bee Journal*, Mr. T. W. Cowan. The new edition is a considerable improvement on the former ones, to keep pace with the times. It is not a very large book on bee-keeping, but it is a great credit to all who have to do with its make-up. It has had a very large sale, and the new edition will doubtless be as popular as the former ones—probably more so.



HIVING SWARMS HAVING QUEENS WITH CLIPPED WINGS.

"Say, Doolittle, do you ever talk with folks on subjects which are out of season?"

"Well, Smith, is there any subject about bee-keeping which is out of season when a bee-keeper has the *bee-fever* on?"

"I guess not. But some are telling in the bee-papers that articles on bees should appear in print at just the season of the year when the matter contained can be put in practice."

"I know such has been spoken of; but a *live* bee-keeper can keep track of a thing he wishes to know about until the time comes to put it in practice."

"I am glad to hear you talk in this way, for my special errand over here at this time is to know how best to hive bees when a swarm issues having a clipped queen. I know that this is out of season, as the swarming season is past; but I have had such provoking work with a few swarms this summer that it seems as if I could not wait till another year before I know how to be master of the situation."

"Well, about the best way is to set the parent hive from its stand and put a swarm-equipped hive in its place. As soon as the bees miss their queen they will come back to the old stand and begin to run into the equipped hive, when you will let the queen run in with them, and then your swarm has in reality hived itself."

"Yes, I know that way; but I wish some way of having them alight, for it has happened more than once that two or three swarms are in the air together, and then they will all pile into one hive when they come back, and I have no means of getting them where I want them. I want them to alight the same as does a natural swarm."

"I do not allow natural swarming now; but when I used to I had no trouble in having the bees alight where I wished them to, when holding a swarm away from a hive for any length of time, where such a thing was desirable."

"That is just what I want. How is it done?"

"Have you a Manum swarm-catcher?"

"No."

"Well, you want to procure one during the winter, so as to be ready for next swarming season."

"I will do that if you can show me that success will come from its use."

"Very well. When your swarm issues, proceed to secure the clipped queen in your wire-cloth cage, the same as you do in hiving swarms on the returning plan, when you will put the cage containing her in the swarm-catcher, leaving the lid or cover to the catcher open. Now raise the catcher by the pole in the air, and keep it where the bees are the thickest, when, with about two swarms out of three, they will scent the queen and alight right in or on the catcher. When they have begun to alight about the queen, set the pole up according to directions and go about what you wish until you are ready to hive them."

"How long will they stay there in waiting for my motions?"

"As long as you want them to."

"Will they stay two hours?"

"Yes, or two days."

"But won't they go off if I leave them too long?"

"I think not. I have left swarms thus over night, and I have had them start to go off, being gone from five to twenty minutes, but they always return as soon as they find out the queen is not with them."

"But don't they go back to the old hive when they return?"

"I have never had them do so. I supposed they might do this, but in every instance where they have tried to go off they have returned back to their queen."

"You said about one swarm out of three might not alight on the catcher. What do you do in these cases?"

"Where they begin to alight before they find out that their queen is in the catcher I carefully push the catcher up under the limb they are alighting on, holding it there for a minute or two, till quite a cluster has collected on and in the catcher, when it is lowered a little and swung one side so that none of the limbs or leaves of the tree will be clustered upon when the swarm has all gotten together, when the pole is fixed according to directions, and left till I get ready to hive the swarm."

"That is easier than I thought possible, and relieves my mind quite a little. Now tell me how you hive them when you are ready."

"Having the swarm all clustered on and in the catcher, the same is carefully lowered so as not to detach a part of the swarm by hasty, jerky movements, when the bees are carried to the prepared hive by taking hold of the pole in such a place that pole and bees will just balance. Arriving at the hive, a small portion of the cluster is detached from the rest by poking them off with the blade of my pocket-knife or otherwise, right in front of the entrance, when they will run in, setting up the call of 'home is found.' As soon as this occurs the open mouth of the catcher is lowered to the alighting-board, letting it down carefully so as not to kill any bees, when the line of march will be started for the hive, and the bees go in the same as they do with a natural swarm having a queen with her wings uncut."

"But will they not run up to the hive so fast that they will clog the entrance and cluster on the outside of the hive?"

"Where trouble is expected along this line it is well to lower the catcher a foot or two from the hive, when they are not apt to do this; and even if they do, it is no trick to keep them running in by simply stirring the bees immediately in front of the entrance with the knife-blade."

"Don't the bees take exceptions to such treatment, and become cross and sting?"

"Not in the least, if the stirring is done so gently that no bees are injured, as it always should be. In all our manipulations with the bees we should use as much care as possible not to maim or kill our pets needlessly; and if we do this there is little fear of stings, and especially when hiving swarms."

"How about the queen?"

"When the bees have run in to such an extent as to leave the cage containing the queen so it can be gotten hold of, it should be lifted out and the queen allowed to run in with them."

"But suppose two or more swarms come out at nearly the same time, what then?"

"Allow them to cluster on the catcher, the same as they would on a limb, as natural swarming is conducted, only you will not try to have more than the first caged queen with them, holding the others in cages where you can get them when wanted."

"Yes; but how about the hiving?"

"When they all have settled together, and you have prepared and gotten in place one, two, three, or four hives, in accordance with what you want them to occupy, place a queen in front of all except the first (as that has its queen with the cluster on the catcher), and proceed to hive them as I told you before, poking off enough bees in front of each hive to give the proportion needed in each, allowing the queens to run in when two-thirds to three-quarters of the bees have entered the hive. In this way all is done with a perfect ease and certainty, or similar to the way we handle stock of any kind which is kept on our farms."

Honey prices should hold a proper place with other food stuffs, practically all of which have been going up.

It's the bee-keeper's fault if he does not realize a good return for his products this year. Now is a time to learn *how to market* a crop profitably as well as know how to produce it.

BEE-KEEPERS' EXHIBITS.

One feature of the July meeting of the Texas Bee-keepers' Association was the discussion on the value of exhibiting at fairs and such other places where bee-keepers' exhibits should be had. A committee appointed last year has been reappointed, with a slight change, and made a standing committee on exhibits, whose duty it is at all times to look after these matters, getting premium lists in force whenever practicable and using their efforts toward getting bee-keepers to exhibit their products.

A meeting of this committee is contemplated at an early date in San Antonio to discuss what steps of procedure to take up, and all matters that may be brought up before the meeting. Any readers who are interested in this matter, or wishing information, will do well to address me or any of the members of the committee at any time. They are, Louis H. Scholl, chairman, New Braunfels; W. H. Laws, Beeville; F. L. Aten, Round Rock; W. O. Victor, Hondo; and C. S. Phillips, Waco.

HOW MUCH SHADE?

Shade is necessary in the apiaries here in the South, and with the weather around the hundred mark in July and August it is as necessary for the bee-keeper as for the bees. I have thought there was nothing nicer than to be in the cool shade of our magnificent live-oaks, yet I would never recommend these trees for shade in an apiary. Their shade is too dense, and I think such shade is detrimental, even in the working season. As these live-oaks are in leaf the entire year they are detrimental in winter and spring when the hives should be exposed to the sun. Furthermore, during wet weather it takes a long time before a yard under such trees becomes dry again. Bees in too dense a shade are always behind. They are not only late in the spring, but come out later in the day, and turn in earlier in the evening. The picture of the tree shown on page 1205, affords enough shade for an apiary of several hundred colonies, yet I would not use the location.

MAKING INCREASE.

Ever since divisible-brood-chamber hives were used in my apiaries, what is known as the Alexander method of making increase has been used by me. In handling sections of the hives instead of combs there was no looking for the queen when a division was made. Instead, excluders were slipped between the two sections of the brood-chambers on a visit to the apiary, and upon a second visit, a week or so later, the upper section, with bees and all, was removed to a new stand. A queen or ripe cell was introduced into whichever one was the queenless half, a section of empty extracting-combs set on each division, and covered up. The entrance to the new division was closed with grass or moss to hold the bees for several days, and to keep out robbers until the colony had become organized. Such colonies are generally made after the honey harvest, when plenty of empty extracting-supers are on hand and we have our fall flow of darker honey

from broomweed; and often we do not see them again until our spring examination several months afterward, unless we make an extra late fall examination for winter conditions.

TEXAS BEE-KEEPERS' CONVENTION.

The annual meeting was held at College Station, July 23–25, and was a successful one. Every member present was enthusiastic, and wore a smile this year, due to the fact that a good crop was made and prices were also good. There was not a large number present, but there were many interesting discussions. The officers elected were: W. O. Victor, Hondo, President; D. C. Milam, Uvalde, Vice-president; Louis H. Scholl, New Braunfels, Secretary and Treasurer.

The annual place of meeting is at College Station, in connection with the Texas Farmers' Congress, the bee-keepers' association being one of the affiliated sections of some twenty agricultural and kindred organizations forming that body. This congress is one of the greatest organizations of its kind, and is doing great things for the betterment of all the industries represented in it.

THE DEATH OF L. STACHELHAUSEN.

Never before did the bee-keepers of Texas and the whole South mourn a greater loss than that of our most highly esteemed friend and fellow-bee-keeper, Mr. L. von Stachelhausen. He was a bee-keeper of world-wide reputation, and a gentleman—honest, stalwart, and upright, so characteristic of his race—the German.

Mr. Stachelhausen was a near neighbor, living only fifteen miles away, and the way to some of my apiaries led by his home. He was always an intimate friend of mine, and none can feel his departure more than I do. I will always remember him, because he came to see me when I was in a critical condition in one of San Antonio's hospitals last year, and because of the first words he uttered, in the German tongue, "I heard of your being here only late last evening, so I came right away to see you." And only a month later he himself had to take my place in a similar institution. He was unable to see his friends, however; but our correspondence was kept up regularly, he often writing me while confined to his bed. His sufferings were unimaginable; but he stood them, and did not give up hope. It was not until he had returned to his home on the Cibolo that I saw him once more, just previous to his death. The Texas Bee-keepers' Association loses in Mr. Stachelhausen one of the most highly esteemed members; and at the last meeting, in July, at College Station, the members assembled half an hour in memorial service on Wednesday forenoon of the 24th to commemorate his loss. He was held in reverence by all, and proper resolutions were read and adopted.

BEE DEMONSTRATIONS.

Such things are profitable if rightly managed. If anything will hold a crowd a demonstration with *live bees* will do it. I had this experience recently at the annual meeting of the Texas Farmers' Congress, making "a complete demonstration of the bee business with a hive of bees, alive, on the stage." A medium-sized colony of hybrid bees was taken from the College apiary, "tamed" with smoke in the usual way, then carried to the assembly hall and simply set on the stage *without wire cages or other preparation*. They behaved nicely and gave no trouble. Still, I would not recommend such procedure under all conditions. Many congratulations were received for the way our demonstration was arranged. There was a regular program, and several persons on it taking up different phases of bee-keeping, instead of leaving it all for one person to do.

Mr. W. O. Victor was selected to act as a chairman, and announced each subject of the program as it was taken up by the different persons who assisted in the demonstration. For instance, a short talk on the scientific side of bee-keeping; the kinds of bees and their functions; organization of the colony, etc., was the opening part given to my brother, Ernest Scholl, assistant and apiarist in the Department of Entomology of A. and M. College. J. W. Pharr, an extensive queen-breeder, spoke briefly on queen-rearing, value of good queens, introducing, etc., and was followed by W. H. Laws on raising queens and bees for sale and shipping, both local and carloads. This gave sufficient time for F. L. Aten and the writer to get the bees and extracting-outfit ready for our part of the demonstration.

The writer then took up practical bee-keeping and honey production as a business—who should keep bees; in country and city; purchasing the first bees and supplies, and preparation of hives; location for apiaries; swarming and hiving swarms; comb-building and foundation; relative cost of wax and honey production; different kinds of honey; yields; marketing. This was followed by the *real* demonstration, for which everybody anxiously waited. The bees, having been in plain sight throughout the performance, held the crowd admirably. Everybody wanted to be there when that hive was opened, and see the fun.

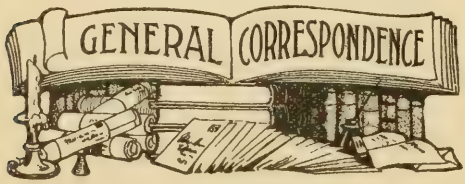
How to open the hive, emphasizing the importance of a few whiffs of smoke into the entrance, and a few more upon raising the cover, thus inducing the bees to fill themselves with honey, was gone through with to answer the first question asked by Prof. J. H. Connel, President of the Congress, who said he wanted to know first how we tamed those bees. The most of the audience did not believe that they were tame.

Combs of honey were removed, uncapped, and extracted, and again returned to the hive, each phase being briefly explained. With the assistance of Mr. Aten the honey-extractor was tilted forward after the combs were put in, so all could see the reversible baskets, and what would happen to the combs of honey was explained. This I found the most satisfactory way to exhibit the work

with the extractor, as it is impossible to let all see the "performance" with the extractor standing upright in a crowd.

With the idea that others who might wish to make such demonstrations might draw at least some idea as to how to arrange it, I have gone into details. The subject matter must, of course, be changed to suit the occasion.

A successful feature in such demonstrations is to arrange for several persons, experts in their lines, to take part, letting each handle his own subject briefly. This creates a better interest and closer attention of the audience every time a new speaker "trots out" with something new. Besides, each speaker starts out with something "fresh." It has a great advantage over just one person covering the whole subject, as it becomes monotonous to the audience and tiresome on the part of the speaker to keep up an interest for an hour or more, on the same subject. People want a variety, so we must provide for that.



CELLAR WINTERING.

The Effect of Disturbance; How to Manage so that there will be but Few Dead Bees on the Floor.

BY E. W. ALEXANDER.

[This article, as will be seen, came late last March; but as the subject for discussion would be more seasonable we have held it until now.—ED.]

It seems rather strange to me that Mr. Bingham, on p. 407, March 15th issue, should question the importance of perfect quiet in bee-cellars during the long cold months of the northern winters. I think our experiences must be taking diverging lines. For a long time I have thought that this subject of perfect quiet was one upon which we could all agree, but it seems there is a difference of opinion even here.

Now, before entering into an argument I will admit that there are certain times when the conditions are such that a disturbance among the bees is not in the least harmful. For instance, the disturbing influence of the sun on a warm balmy day in early November, even though it causes every bee in the colony to take a fly, can not be considered detrimental; but if on a cool cloudy day we open the hive with a snap and a jar, using smoke to enable us to replace the light combs with combs of honey, thus breaking up the winter cluster, causing the bees to fill themselves with honey, then certainly we have sown the seed of winter losses and spring dwindling. And, while it might not do our bees much harm to enter their cellar and quietly remove the dead bees from the floor, I do think it would be a great mistake to take off the bottom-boards and tops with a sudden jar, and then carry the hive-bodies to another part of the cellar, using smoke to keep the bees in, causing them to gorge themselves with honey. Then carefully sliding a dish holding a pound of warm honey under the cluster of a colony, and withdrawing from the cellar as soon as possible, might disturb them but little, as but comparatively few bees would be engaged in taking up the honey. But if you remove some of the center combs, and pour the honey into them, returning these wet combs to their hive, causing all the bees to fill themselves with honey, and to scatter through the hive, then again there would be cause for future restlessness and loss.

The injurious effects of disturbing bees in winter depends to a great extent upon how often and to what an extent it is practiced. When we wintered our bees in the cellar of our dwelling-house, with four rollicking children playing over them, it was no uncommon thing for many colonies to be badly affected with dysentery in February and March. Then it was "Hobson's choice" to leave them in the cellar and see them waste away and die, or set them out for a fly and have the most of them die after they were put back, for the bees never again quieted down into a compact cluster, but continued restless and uneasy until they were set out to stay.

In regard to the effect of a continued jarring noise over a cellar of bees, as in the case of The A. I. Root Co.'s bee-cellar under the machine-shop, I would say that I have always believed this disturbance was very closely related to the necessity of so many mid-winter flights.

As to giving bees a sleighride of fifty or sixty miles in mid-winter, I am quite sure that there are not many that would care to have their bees handled in that way for much less than their actual value. I have brought home on a sleigh bees that I bought in the winter, and then put them into a cellar; but without a single exception I had to set them out early in the spring in order to save them. Bees handled in that way never will stand five months or more of confinement. I have never thought that it did any particular harm to enter a bee-cellar occasionally for a few minutes, if as little noise is made as possible.

But when from any cause a disturbance is made in winter to the extent that the cluster is broken up and the bees get frightened, filling themselves with honey, then because of the unnatural condition they are injured very much and only a chance to fly will restore them to a normal state.

We have to-day, March 23, 750 colonies in our cellar, and the bees are so still with the thermometer at 45° that, when I entered this morning with a lamp, it was almost impossible to hear the least noise, and there seems to be less than 4 quarts of dead bees in the cellar, and not a spot of dysentery on any hive.

I have given many years of study to learn how to keep bees through a five-months' winter in that way, and I must say that, if there is any one thing connected with cellar wintering that has more to do with success than any other, aside from good food, it is perfect quiet. When we take a hive from the cellar with only about a pint of live bees, and see about four or five quarts of dead bees around it, we can hardly say that that colony lived through the winter; but when they can be placed on their summer stands after 160 days' confinement, apparently as strong as they were Nov. 1, then we can say we know something about wintering. This has been done, is being done, and can be done when they are kept quiet. But it will be a long time before it can be accomplished where they are subjected to harsh disturbance during long northern winters.

Delanson, N. Y.

HOW TO CURE FOUL BROOD IN FIVE MINUTES, AND YET SAVE ALL THE GOOD BROOD.

BY N. E. CLEAVER.

I have never had any foul brood in any of my yards, and so have not practiced the plan at home. But I am called all over this part of the State to treat foul brood, and have had only one failure since using this method. The plan works equally well for old box hives or new and up-to-date hives, and is so simple that any one can work it.

Provide the following outfit: 1. A nice clean hive with full sheets of foundation, and in the center a frame of unsealed brood, with some adhering bees from a colony that has no disease (a caged queen may be hung by the side of the frame of brood if desired). 2. Tack a small piece of queen-excluding zinc over the entrance side of a Porter bee-escape board, to prevent drones from clogging the escape, or a full sheet may be used without tacking.

Now you are ready to begin. In the evening, during a fair honey-flow, lift the diseased colony from the stand and place the clean prepared hive where the diseased colony had stood. Do not put a cover on this new hive, but instead put on the Porter bee-escape board with the opening downward. Now take the old bottom-board off the diseased colony (if the bottom-board is nailed on, you can either knock it off or bore a hole through it), and set the diseased colony on top of the Porter escape-board. Close every entrance to the diseased colony if there is any. Be very careful about this part; do not leave an opening anywhere except the one through the escape-board into the lower hive. Shade the upper diseased hive, or it may overheat the next day when the sun comes out.

Now you have not been more than five minutes, probably not more than one minute, and your part of the work is done. In the morning, when the bees go out to work they will carry no diseased honey with them. They go out through the Porter escape and through the new clean hive. When they come back loaded with honey, they can not get back up into their old hive, and so deposit the honey in the new clean hive. The frame of brood makes them feel at home, and from it they will raise a queen, if you have not given them one. The old queen goes on laying in the upper story until the honey and nurse bees get scarce. In two or three weeks the upper story will be practically deserted; sometimes a handful of bees and the queen will be all that you will find, and sometimes all will be dead. If you want to utilize the colony for section honey, though a diseased colony is not likely to be strong enough for that, you can take away the upper diseased hive after about a week, and the loss in brood will not be very great. When the diseased hive is removed it should be taken into a closed room, the few remaining bees should be destroyed, the combs melted at once, the frames burned, and the hive carefully cleaned. If the hive is a cheap thing, burn it. I said I had one failure in working this plan. The apiary belonged to a woman. I told her how to proceed after the bees were trapped out of the diseased hive, so she took the honey and old combs out of the frames, burned the frames, carefully cleaned the hives, and set the diseased honey out in the wash-tub "for the bees to eat." The last part reminds me of the article on page 907. Well, the bees ate the honey and spread the disease all through the apiary, and she said she thought my plan was a failure.

If I were working in my own yard where time is not so great a factor, I would put an empty hive under the diseased hive, and take the escape out of the escape-board, and get the bees accustomed to going out and in through the lower hive, before trapping them out; they would not then be so likely to be excited and carry diseased honey out with them.

Any one who understands catching queens should put the old queen in the lower hive at once, keeping her caged for a day or two, unless it is desirable to requeen the colony.

If the colony to be treated is a very large one, it would be well to place an empty super on the diseased colony to give additional air-space, and make the danger from suffocation less.

The frame of brood in the lower hive is not essential to the plan and may be left out, but the bees start to work better with it in. I think this plan has three advantages over the McEvoy system. It enables the bee-keeper who is afraid to shake his bees to treat the disease successfully; it saves the good brood, and it can not spread the disease to other colonies. The McEvoy system shakes bees full of diseased honey, and in the excitement some get into the wrong hives, carrying the diseased honey to well colonies. And then, if requeening is desirable, there is no hunting for queens: the merest novice in the business can requeen successfully.

Emporium, Pa.

[The plan that you have presented seems to have considerable merit in it, but involves the same principle as was proposed by M. M. Baldridge, of St. Charles, Ills., about ten years ago, but he used an outside chute in connection with the bee-escape that delivered the bees directly outdoors. They would go to the field, then on returning would go back to the hive beneath. The only question is whether the bees going down through the perforated zinc into the other hive might not, before they go outdoors, feed some of the infected honey to larvæ and thus spread the disease in the lower hive. If they have never done so, then the method has some advantage in the fact that it permits one to save practically all of the good brood.—Ed.]

WHITE CLOVER.

A Theory Offered to Show Why it Does not Always Yield; the Effect of Drouth; Young Plants.

BY VIRGIL WEAVER.

Producers, consumers, and dealers alike can take warning from this; for the very drouth that made Dr. Miller's cow-pasture brown, page 478, last summer, prevailed over 75 per cent of the white-clover belt of the United States. Eastern Kansas, Eastern Nebraska, Missouri, Iowa, Illinois, Northern Indiana, and Northern Ohio are all included in the list that will not produce twenty-five per cent of a white-clover crop in 1907; so the producer that secures a crop of honey this year can expect a pretty stiff price. While the crop north of the Ohio River will be a failure from white clover, the reverse is true of the conditions south of the Ohio. In the white-clover belt of Kentucky and Tennessee, which is a very limited area, prospects are the best in ten years. With the largest area covered with clover in years, and an unusual amount of rainfall at just the right time, prospects are very flattering indeed.

How do I know these conditions? There has not been a drouth over this territory since 1901, when the dry weather cleaned out all of the old white clover. Weeds and grass were cleaned out to a certain extent. The year 1902 was excessively wet, and the young white-clover plants simply covered the face of the earth. Then 1903 gave the greatest yield from clover on record. So do not have the blues, for an occasional drouth is very beneficial to white clover. Without the drouth we can not have a crop of young white-clover plants; and without these young plants we secure only a moderate honey-flow. So while 1907 will be a failure, 1908 may give a bumper crop.

There has been a great deal said by the knowing ones of late years about weather conditions for a honey-flow. Bee-keepers seem to be superstitious about conditions that produce a flow of honey. Dr. Miller was puzzled last year as to why his white clover did not yield. In the first place the clover was old and poorly rooted; also a moderate supply of embryo blossoms set in 1905 to bloom in 1906. Then with a falling-off of his rainfall last spring there was very little white-clover bloom in his locality—just enough for one to think that he should have a honey-flow; but a few thousand clover-blossoms will not make a honey-flow. It takes billions.

There is a difference of opinion as to why a honey-flow will suddenly stop after a thunder-shower. This is the case only where the blossoms are large and open. Basswood, tulip, buckwheat, etc., are affected thus. Before the thunder-shower, with low barometric pressure, the flow is great, as the large amount of moisture in the air adds to the honey secreted by the flower; while after the thunder-shower, with high barometric pressure, the flow is least, as the dry air takes from the honey secreted by the flower and the flow stops. White clover, asters, goldenrod, and, in fact, all flowers that have a close blossom, are not affected to a very great extent by the high or low barometric pressures. So, watch your weather conditions closely, and be governed accordingly.

Baldwin, Ky., May 9.

[Knowing that Dr. Miller had spent a good deal of time in studying on this same question, we sent the above article to him. His reply follows.—Ed.]

The nub of Mr. Weaver's theory, as I understand it, is that a severe drouth kills off the old clover, which is not so good for nectar; the succeeding year young clover springs from seed, and the second year after the drouth is the one to be depended on.

I don't know enough to say whether this theory is right or wrong, but may suggest some points that need reply by any one defending the doctrine.

What is the proof that old plants do not yield nectar as well as new?

In a year of drouth one would think the seed would not be so plentiful nor so good as in a prosperous year. Do not seeds form in as great abundance in a good year, and will they not produce as many and as good plants in good as in bad years?

Perhaps it may be offered that the "old and poorly rooted" clover occupies the ground, so that the young has no chance. But if there is any crowding out, ought not the "old and poorly rooted" to be the part crowded out?

But it must be remembered that propagation by seed is not the only means, nor, indeed, the chief means, of increasing white clover. Give it time enough, and a single seed is enough to stock an acre, as it goes creeping and rooting at the joints. Are not the new plants thus formed every year of the most vigorous sort?

Mr. Weaver refers to the article on page 478, where I say that white clover didn't do its best "although blooming abundantly," and he says, "there was very little white-

clover bloom in his locality." How does he know so much better than I?

In favor of his theory is the fact that 1901 was a year of drouth here, and 1903 a bumper year. Is it the general testimony that each very good year was preceded two years earlier by a drouth?

This seems to be another year of failure in

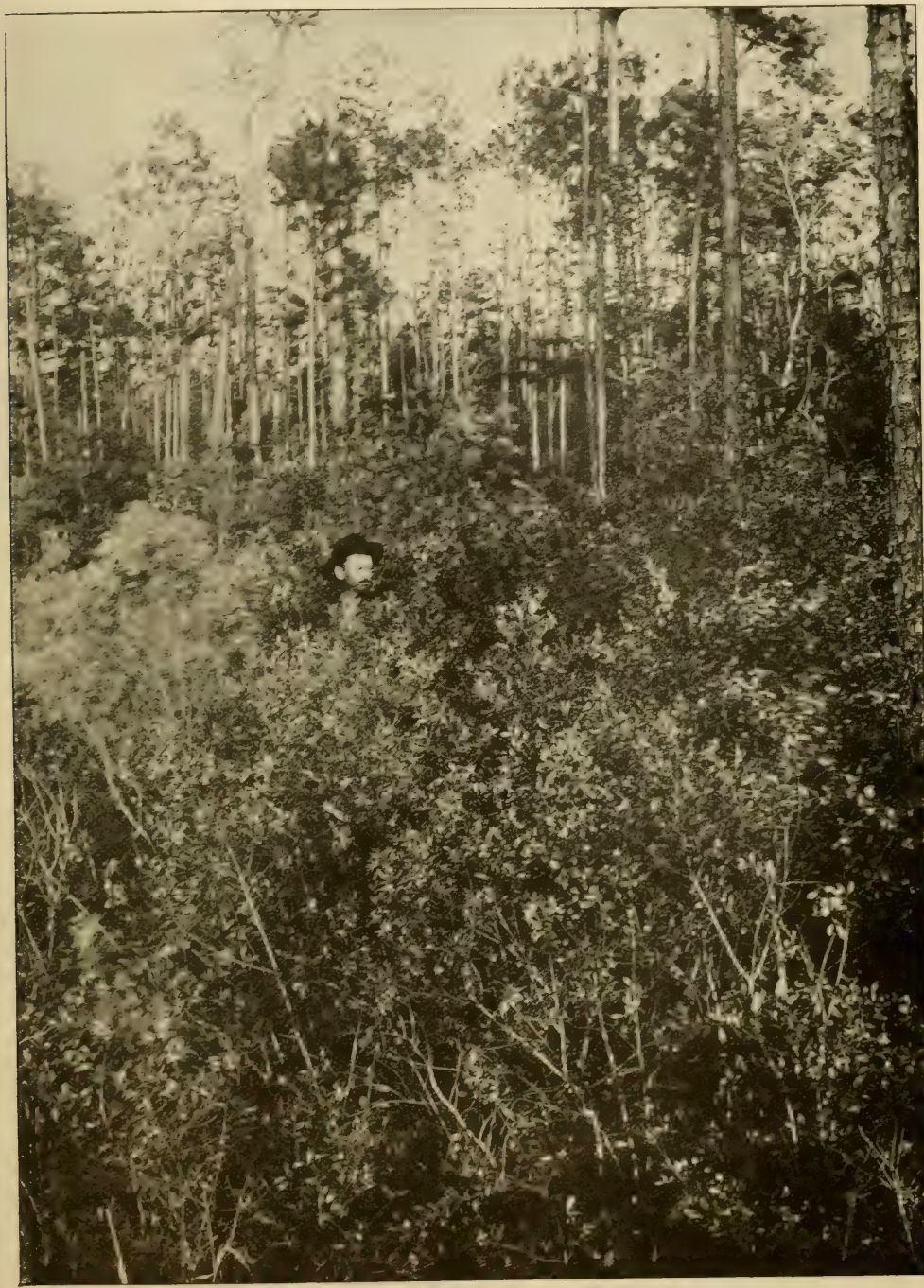


FIG 1.—THE GALLBERRY IN GEORGIA.
The bushes grow so dense that it is difficult to get through them.

this locality. White clover is not abundant; and what there is, I am afraid, is not yielding as it should. A field of alsike, with most luxuriant bloom, attracts the bees but little. Would Mr. Weaver's theory account for this? C. C. MILLER.

Marengo, Ill.

THE GALLBERRY AS A HONEY-PLANT.

A Very Reliable Source; Roots Hard to Exterminate; Many Localities not now Occupied with Bees.

BY J. J. WILDER.

The gallberry is a sprangle-top evergreen bush four or five feet high, and grows prolific everywhere, but is mostly found on waste lands, and spreads both from seed and roots, and is so dense that it is difficult to pass through it, and the roots are hard to exterminate. No growth is detrimental to it; but the great pine forests seemed to have hindered its progress on high lands; but since the forest has been lumbered it is fast spreading. The bushes are never rid of ripe berries, which are food to the birds of the forest

ITS VALUE AS A HONEY-PLANT.

As a honey-plant perhaps it has no equal in the Southeast. We have never failed to get a surplus from it, even during the most unfavorable weather conditions. It begins to bloom the first of May (settled weather here then), and continues for 24 to 28 days. During this time bees disregard other bloom, working it up to about 8 o'clock for pollen, then the flow comes on for the remainder of the day.

A glance at the cut shows that it is a great bloomer; even the stems are rolls of blooms, and there can be no greater sight in all beedom than to be in the midst of acres of this solid mass of blooms, 4 and 5 feet deep, and see the bees tumbling over the blossoms, loading up and doing but little flying.

FIG. 2.— RANCH OF THE GALLBERRY-BUSH.
This is a very reliable source of honey in Georgia, for it is almost impossible to overstock a locality with bees.

We have never taken off a large crop of this honey, as 147 lbs. of surplus is the best crop we have ever had from one colony. The honey is of a light amber color, has a heavy body, a very mild taste, and is highly flavored. The demand for this honey is so great that we can not furnish our local markets; consequently very little is shipped from the Southeast to other markets.

We have raised tons of this honey, and have never seen a pound of the pure article, well ripened, that granulated. It is strange we have never seen a bumble-bee, butterfly, nor any kind of insect on the gallberry blossoms, except the stingless and honey bees. Both blacks and Italians work it alike.

It has been said it was impossible to overstock a good gallberry location. We do not know that this statement is true; but we never heard of one being overstocked. We have had bees in a location where there were

362 colonies, with about the same result as with 100.

Good gallberry locations are nearly numberless, and large quantities of this fine honey are wasted each year in locations where there is not a bee to gather it. The gallberry should be put in the list of the best honey-plants of the United States.

Cordele, Ga.

SOME GLIMPSES OF A. I. ROOT'S ROBINSON CRUSOE ISLAND.

BY M. L. BREWER.

Last winter, while planning our annual vacation, I noticed that the senior member of The A. I. Root Co. was at his island cottage home for the winter, and I proceeded at once to write him for directions how to find the path to his front door. In due time said directions were received, though they led by a watery way.

After some wandering we located at Sarasota, Florida, within fourteen miles of the desired place, and at the end of railroad transportation. Sarasota is located on Sarasota Bay, twelve miles below the Manatee River, on the most beautiful sheet of water it has ever been our fortune to see. The bay is about two by four miles, open water, and as completely landlocked as can be by a network of keys varying in size from a rod square to hundreds of acres in extent, and covered with tropical foliage. One can cruise for days through the channels and passes, and here we find the homes of the sturdy fishermen whose vocation is very similar to that of those Christ called, and of whom he so often speaks.

Here we find beautiful winter homes, and more building all the time, and, I believe, the best fishing-waters of the southwest coast. Amid such surroundings, while on a cruise down the bay, neighbor Love and the writer called at Osprey to inquire of the postmaster if he could tell us where we could find A. I. Root. "Why," said he, "Mr. Root is here now, for his boat is at the landing, and I will find him for you." Then a desire of thirty years' standing was realized, for the writer has done business with the firm, and has known the family "on paper" as they grew up for that time. After self-introductions and "greetings," for it was like meeting an "old acquaintance," we could not resist the pressing invitation to accompany Mr. Root across the bay, one mile further, in his sail-boat, to his cottage on the key. Bro. Root was captain, and Bro. Love and I sailors; so, after varying experiences of rowing and sailing, we landed safely at port, where we were met and welcomed by Mr. I. T. Shumard, his wife, and two charming little daughters, Flossie and Clara. Bro. Shumard is one of the progressive bee-keepers of the South, and raises queens for the Root Co., and was very busy at the time of our visit.

Chat soon carried us over space and to other years, and it soon developed the fact that

FIG. 1.—MR. AND MRS. SHUMARD, FLOSSIE, AND CLARA ON THEIR ISLAND HOME, NEAR OSPREY, FLORIDA.

FIG. 2.—PAPAYA, OR MELON-TREE OF THE TROPICS—THE TREE THAT BEARS DELICIOUS MUSKMELONS EVERY MONTH IN THE YEAR.

Mrs. Shumard and the writer's wife had known each other in girlhood days.

Our constant companion, the camera, was put to action, and No. 1 gives us the four members of the Shumard family at home that day. Sorry we could not have them all, as I remember there are seven children with their home on the island. The bay (not shown in the picture) is in the foreground.

We saw Bro. Root's cottage under the live-oaks, draped with moss, and where he raised his poultry, and gave us so many instructive lessons thereon. Back of his house about twenty rods is the gulf rolling up its surges. We saw also the Florida greenhouse we heard of in GLEANINGS, and the plants were thrifty at the time of our visit.

No. 2 is a papaya, or melon-tree, with its fruit, that stands in the yard, and it was our privilege to sample the fruit therefrom, and can say it is all right.

Arrangements were made for a later date for the ladies to renew their girlhood acquaintances, and the day fixed proved to be the thirty-fourth wedding anniversary of the hosts, and the day spent at that time was the one referred to by Bro. Root in GLEANINGS on page 498, and one we shall long remember for Christian friendship and fellowship.

Later it was ours to have Bro. Root with us in our temporary home, and with him visit the far-famed nurseries of the Reasoner Bros., where we met a family that was formerly of the Root Co.'s forces, the Westwells. It was ours to meet many bee-men from different parts of the country, and we found them all to be men worth knowing.

Philo, Ills.

ORANGE-BLOSSOM HONEY.

Apiary in California Averages over a Hundred Pounds per Colony.

BY FRANK McNAY.

One of my apiaries is located within a few rods of a large orange grove (over 2000 acres in easy range). One ordinary colony in a twelve-frame Langstroth two-story hive showed, by the scales, a gain of 119 lbs. in 17 days, April 7 to 23. There are over 100 such colonies in this apiary. A few of them yielded a little more at each extracting than the scale hive.

This apiary worked exclusively on orange during these 17 days. White sage was not yet in bloom, and there is no button or early sage in range of this apiary; and apiaries that were in button-sage locations were doing nothing at that time, as the weather was not warm enough. Sage requires quite warm weather to yield honey.

The scale showed that nearly all of this orange honey was secured in about five

hours of each day from 11 to 4 o'clock. I noticed bees every morning working on pollen blossoms, but before noon every bee made a rush to the orange-trees.

The honey is fine and very heavy. I have some chunk comb orange honey in shallow frames that is excellent.

Redlands, Cal., May 11.

CELLAR WINTERING AT DR. MILLER'S.

High Temperature Does no Harm if the Air is Pure; Why Bees Cluster Out in a Cellar.

BY DR. C. C. MILLER.

Wintering bees in a cellar with a furnace is quite a different affair from wintering in a cellar where the problem is to keep the temperature sufficiently high. After several winters' experience I know at least a little more about the matter than I did; and, as between the two, I think I'd take the furnace every time. You may be interested to take a few peeps to see how things appear when the bees are in the cellar.

First, an outside view, Fig. 1. No hives to be seen there, but I wanted you to see how the outside door is kept during a large part of the winter. Sometimes when the thermometer goes down below zero, especially if windy, the cellar-door is entirely closed, and a good deal of the time it is half closed, propped up with a stick; but for each day it was entirely closed last winter, I suppose it was open ten days as shown in the picture—possibly twenty; but last winter was a mild one.

FIG. 1.—OUTSIDE DOORWAY TO DR. MILLER'S BEE-CELLAR; THIS IS KEPT OPEN NEARLY ALL THE TIME.

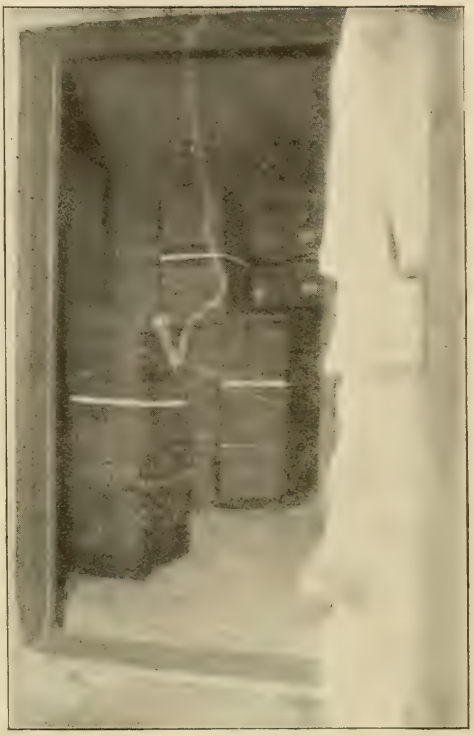


FIG. 2.—ENTRANCE TO THE BEE-ROOM IN DR. MILLER'S CELLAR.

That picture was taken Feb. 20, 1 P.M., and the door was open all night the previous night, and throughout the day, Feb. 20, and yet the thermometer in the cellar stood at 50 degrees. You will easily see that the picture is a snap-shot, with the sun shining brightly, which shows that a good deal of light can be endured. To be sure, no direct light shines on the bees, but the inside door is wide open, and at the back of the hives nearest the door one could see to read coarse print. The temperature at the time the picture was taken was, as already said, 50 degrees, and that's about the usual temperature throughout the winter. It could be kept lower by having the window open, but that would make it too cold for colonies near the window, and on the whole the bees seem to do well at 50.

You will see that the door that is open is covered with snow, and the heat of the cellar has thawed the snow from the upper part of the other door, and it is wet from the melting snow just above the snow-line.

That cellar-door is on the south, as you will see by the shadows; and after going down five steps there is a landing of five or six feet before you come to the door in the cellar wall, which door is always kept wide open since the furnace is in the cellar, as it opens directly into the furnace-room, the furnace standing about 12 feet north.

Notice the stone wall at the right in the cellarway. That same stone wall you see at

the right in Fig. 2. Passing down the cellar - way, and turning to the right, you come to the door that opens into the bee-room as seen in Fig. 2. The backs of the hives face us, so the light will not shine into the entrances except that you see four hives at the extreme east that are facing you That east row faces in that direction because the window is back of it, and it is better not to have the light shining directly into the entrances when the window is open.

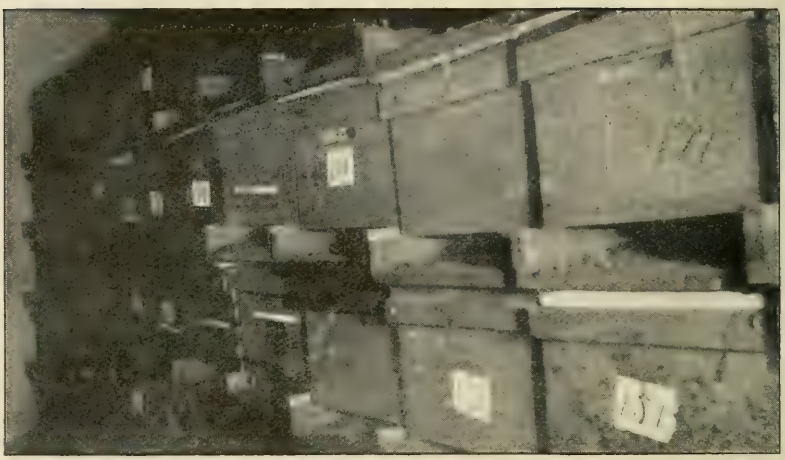


FIG. 3.—INTERIOR VIEW OF THE BEE-ROOM.

FIG. 4.—CLUSTER OF BEES UNDER FRAMES: TEMPERATURE OF CELLAR 43 DEGREES.

Fig. 3 is a flashlight picture showing some of the hives—a difficult thing to get, as the passageway between rows was less than four feet. In very few of the hives are clusters of bees to be seen below the bottom-bars. An east wind was blowing, and the cellar temperature was 48 degrees. But it probably would have looked all the same if the temperature had been 50 or more. The bees do not cluster down as they did before the furnace was in the cellar, although the temperature is now five degrees higher than then, and I don't think the hives were ever heavier with bees and honey than the past winter. I don't know what should make the difference, unless it be that now the cellar is so open that it is much like outdoors as to pure air.

I have seen (no doubt many others have seen the same thing) in a warm spell, toward spring, bees hanging out of the hives in great clusters in the cellar, with the temperature no higher than 50 degrees. I never saw any thing of the same kind outdoors at the same temperature—did you? Now, why shouldn't 50 degrees crowd the bees out when in the open air just as much as in the cellar? Can you explain it in any other way than the difference in the quality of the air? If the bees do not hang out at 50 outdoors, why should they in the cellar if the air is just as pure? Well, you see my bees have a good deal the same as outdoor air, the cellar being so open, and so they behave as they would outside. At least, that is the best explanation I can give.

Look at the cluster of bees under bottom-bar in Fig. 4. At the time that was taken the cellar had been cooled down to 43 degrees. A week later it was made 24 degrees warm-

FIG. 5.—CLUSTER OF BEES UNDER FRAMES; TEMPERATURE OF HIVE 67 DEGREES.

er, the temperature being run up to 67 degrees, and you will see by looking at Fig. 5 how the cluster looked at that time. As nearly as I could make out, that increased 24 degrees merely made the cluster a little looser, for the bees did not seem uneasy at all. Fig. 5 was taken March 2, and the floor of the hive had not been cleaned out since the bees were put in the cellar. In the majority of the hives the floor-boards were cleaner than this one. I don't know why.

That suggests one advantage of the warmer cellar—the bees leave the hives to die. Indeed, so few dead bees were left in the hives last winter that it was not thought worth while to clean them out the whole winter, except one hive. It must be a good deal better for the bees to have a clean house; and if the bee-keeper doesn't like dead bees on the cellar bottom he can sweep them up. I don't like them, so I always sweep up two to four times during the winter. Last winter I first swept Feb. 20, when the bees had been in 93 days, and took up 2½ coalhodfuls of dead bees. After 24 more days I took up 2 hodfuls more. After the bees were taken out, March 23, 3 hodfuls were taken up. That makes 7½ hods from 170 colonies for 124 days' confinement.

Four of the 170 colonies died. I don't know why. The hives were as empty of bees as if they had swarmed out. Two or three colonies showed signs of diarrhea in spite of the good air; one extra strong one, pretty bad, but the four dead ones left clean hives.

Marengo, Ill.

[We understand from what Dr. Miller has said, although he does not directly say so, that he finds that a furnace in a cellar, with a great abundance of ventilation, gives better results than he formerly obtained when he had no furnace, and the cellar closed most of the time; but it is fair to say that he had a small stove, but only for the purpose of raising the temperature when it got too low. Under the new conditions he is obliged, we take it, to keep the cellar open in order to keep the temperature down to 50 degrees; and, incidentally, it gives the bees a large amount of fresh air.

Dr. Miller raises a very interesting question—why the bees will cluster down among the frames, at shown in Figs. 4 and 5, under a certain temperature in the cellar, when with the same temperature outdoors there will be no hanging down. He, however, answers the question by leaving us to infer that pure air, or, rather, the want of it, in the one case, draws the bees downward into an atmosphere that is too cold for them, but into which they are obliged to go in order to get the requisite oxygen. Pardon us, doctor, for interlining your thought; but if we have assumed more than you intended we hope you will correct us.

It was once universally held that, when bees hung in great festoons under the broodframes, this indicated a condition of perfect wintering; but some events have occurred during the past year or so that would seem to indicate this may be erroneous. J. E. Hand has made the statement that bees come down to shut out the cold. In a cellar without ventilation we have often found that, at a temperature of 50 degrees, the bees clustered down below the frames. Are they there because the hive is too hot? Hardly.

SPREADING OAK IN TEXAS; GIVES SHADE FOR SEVERAL HUNDRED COLONIES, BUT IS TOO DENSE.

See Bee-keeping in the Southwest, page 1194.

The conclusion is that they come down to get more air, and perhaps, as Mr. Hand says, to shut out cold because the opening is too large.

A short time ago a correspondent suggested that the ordinary summer entrances were quite large enough if the air in the cellar were fresh, and that bees would stay up in the brood-nest and not cluster down. We are inclined to think he was right. Last winter those of our colonies that were lifted up four inches from the bottom-board did not seem to do as well as those with the ordinary entrances. Let it be understood that our cellar temperature was 50°, and much of the time higher. The windows were open most of the time, and, a great deal of the time, an electric fan was forcing the air directly from outdoors down the row of hives. Over Sunday, when there was no electric current on, the bees would often get very uneasy; but at night, when the fan could be started, quiet would be restored in an hour or so, and

yet the temperature would *not change even one degree*.

Please understand that we do not claim the old policy of a closed cellar with a uniform temperature is wrong, because comparatively good results in wintering have been secured; but we are raising the question whether or not much better results might not accrue with a uniform temperature and plenty of pure air, providing both conditions can be supplied. Experience in our own cellar, at least, has shown that ventilation, and lots of it, is a necessity. Now, we apprehend that, if Dr. Miller were to have kept his cellar closed after he put in the furnace, he would have had severe losses. A high temperature and bad air are both decidedly detrimental. No one will dispute that proposition. The only point at issue is whether a temperature of 45, and closed cellar, affords as good a condition for wintering as a temperature of 45 to 50° with plenty of pure air. In the case of the latter the hive should have narrow entrances, about the same as they had in summer, so that the animal heat will not be dissipated.

Experiments were conducted last winter, showing that a colony of bees in an observatory hive was wintered in a living-room while the temperature was 72 and over, and it wintered perfectly. But this colony had an outdoor entrance. Strange to relate, the bees did not fly out at any time except when it was suitable for them to fly. But a report of this will be given later.

But the point right here is this: These bees were not compelled to waste their animal heat in keeping up the internal temperature of their hive. They had plenty of fresh air. Now, then, if we give our bees too much bottom ventilation in the hives, and then put them in a temperature of 45°, with practically no ventilation of the cellar itself, do we not compel those bees to consume heavily of their stores, thus bringing on dysentery? for overfeeding is likely to cause bowel trouble.

If we in any thing that has been said thus far have made a positive statement we beg leave to withdraw it. We simply desire to throw out a few interrogations around some old orthodoxies on cellar wintering.—ED.]

A YOUTHFUL INVESTIGATOR.

BY FRANK WANSTALL.

The accompanying picture shows five-year-old Ernest Harry Wanstall, who is doing a little investigating on his own account. Ernest wants to know where the bees put all the honey which they carry into the hive, as he knows from experience that there is a good deal to take out sometimes (when he turns the "stractor"). So he has the magnifying-glass to see how it is done, as they are being fed some honey during a warm day in spring. Ernest is not at all afraid of them, but he has learned that there are times when it is wise not to go too near, especially during the late fall, when there is no honey to be got, unless he has one of papa's veils on.

White Plains, N. Y.

ERNEST WANSTALL WATCHING BEES TAKE UP HONEY FED IN EARLY SPRING.

[We desire to commend most heartily our young investigator; but may we suggest that this plan of feeding is, a good many times, fraught with danger, not only to the other bees in the yard but to the apiarist? If there is no colony within half a mile one can pursue his investigations without any trouble. We will assume, however, in the absence of any statement, that the experiment here illustrated was conducted when there was a good flow of honey, and, consequently, not much disposition to rob.—ED].

ROBBING; GLASS PLAN A SUCCESS.

I have tried Mr. Long's plan for preventing robbing, as described on page 1188 of Sept. 15th issue, 1906. It is a complete success—so much so that I consider it worth five years' subscription to GLEANINGS. It is fun to see the robbers get caught, and so confused that they are glad to get away alive.

Bracebridge, Ont., Can. JOHN BAILEY.

A SEASON'S WORK WITH SECTIONAL HIVES.

Swarm Control and Comb-honey Production; Feeding to Stimulate Brood-rearing in September.

BY J. E. HAND.

Sept. 1.—Up to this time our bees have received very little attention since we removed our surplus honey in July; and on account of there not being very much honey-yielding flora during this period our queens have not been laying very much, and therefore the strength of our colonies has greatly diminished since that time. This is as it should be; for, since we do not get any surplus honey from fall flowers, there could be nothing gained by producing a lot of bees that would only become consumers of honey. However, it is very important that our queens be kept laying during September in order to give us a good strong force of bees of the proper age to go into winter quarters; for our success in wintering depends not upon how strong were our bees during July and August, for these bees will be dead before spring; but it does depend upon how many bees our colonies contain that were hatched out during September and October, for these are the bees that are going to stay with us during the winter and spring, or until more can be hatched out in the spring to take their places.

Since there is very little honey being gathered at this time we will place a feeder under each of our colonies and give to each colony about a pint of sugar syrup every alternate day during September unless the fall flowers should yield honey enough to keep up brood-rearing nicely; for the key to successful wintering, as well as building up in the spring, is to have a strong force of *young* bees to go into winter quarters.

FEEDING FOR WINTER STORES.

Oct. 1.—Having kept our queens laying well during September we shall have a good strong force of young bees to go into winter quarters; and the next thing to be considered is the winter stores, for we must have at least 25 lbs. of honey or sugar syrup in each hive to carry our bees safely through the winter and early spring. It is true that we have been feeding our bees mildly during September; but this was nearly if not quite consumed in rearing brood, and the most of our colonies will have to be fed. Hence we will hook a spring-balance scale on to our hive-lifter and weigh each hive, marking the weight of the hive on a piece of section which is dropped into the open end of the feeder, and by deducting the weight of the hive and empty combs, and allowing for the weight of the bees, we know just exactly how many pounds of honey each hive contains; and the difference between this and 25 lbs. is what we shall have to feed each colony; and we know without any guesswork that every one of our colonies will have at the very least 25 lbs. of well-ripened stores. We will feed in this case just as we did in feeding for finishing off sections, except in this case our feed is composed of granulated sugar and water, equal parts, well churned up so as to dissolve all the sugar. We will give to each colony five or six quarts each evening until each has received the required amount.

We find that our bees require more feeding this season than usual—in fact, very few of our colonies have their full quota of winter stores; however, with our large rapid feeders this job is soon over.

MANNER OF WINTERING CONSIDERED.

Nov. 20.—Having our hives well stocked with young bees, and each hive containing sufficient stores to carry them safely through the winter, we will next turn our attention to preparing them for their long winter nap; and right here the question arises, "Shall we winter our bees in the cellar or on the summer stands protected by outer cases?" After years of experience in the successful wintering of bees by both these methods we are as yet undecided as to which method is better, for we have been equally successful with both. Since the hives that are protected by heavy packing enable the bees to build up faster in the spring it is, perhaps, as well to winter bees on their summer stands with suitable protection, south of latitude 41; and since we are located near the dividing line we usually compromise matters by wintering a part of our bees out of doors and the rest in the cellar; hence all our *strong* colonies are selected for outdoor wintering, and those that are a little light, either in bees or stores, are carried into the cellar about Nov. 15 to 20.

Our cellar is very dry, and the temperature ranges between 40 and 45, and our bees always come out of this cellar bright and active, and ready for business. It is not necessary that a cellar be perfectly dry in order to winter bees successfully. However, unless the temperature and ventilation in a damp cellar are properly balanced it is a dangerous place to winter bees.

THE RELATION OF MOISTURE AND VENTILATION TO THE SUCCESSFUL WINTERING OF BEES.

While we shall not attempt to view this subject from the standpoint of the scientist, yet we feel that our success in wintering bees is largely due to a correct solution of the problem of moisture and ventilation, and its relation to the successful wintering of bees. That the part that moisture and ventilation play in the successful wintering of bees is too often overlooked by the average bee-keeper is evident from the too frequent reports of a certain mysterious disease known as spring dwindling, which is the direct result of either improper wintering conditions or a failure of the queen to rear sufficient brood during the autumn months. In either case the bees die off before young ones can be raised in sufficient numbers to keep up the strength of the colony; in the former, by disease caused by improper wintering conditions; and in the latter by old age.

However, in either case the results are the same. It is true that a strong healthy colo-

ny of bees might winter in a hive reeking with moisture, and with the outside combs covered with mold, and come out alive in spring. However, there is a vast difference between a colony of bees that comes through the winter alive and one that comes through in a good healthy condition.

It is not enough that they be *alive* in the spring; but in order to build up in time for the harvest, and thus become profitable honey-gatherers, they must be in a healthy condition—strong, active, and alert, and ready for business.

The question naturally arises, "Why is ventilation necessary to the successful wintering of bees?" It is true that very little ventilation would be required by the bees during winter if it were not for the moisture that is constantly being thrown off by the bees through the respiratory system; and if this surplus moisture is not speedily conducted out of the hive the result will be that the air within the hive will soon become so heavily charged with moisture that it would condense on the sides of the hive and form ice and frost, turning the hive into a veritable cold storage, causing the stores to become sour, which results in distended intestines and dysentery, and is fatal to the health of the colony.

The question that arises at this point is, "How shall we dispose of this moisture?" So far as we have been able to learn, ventilation is the only means by which this purpose can be successfully accomplished. There are two methods of applying the remedy. One is by upward ventilation by means of suitable moisture-conducting material that will gradually conduct away the moisture as fast as it arises from the bees, thus keeping the inside of the hive dry as well as the combs.

A flat cover, laid directly upon the chaff packing over the brood-chamber of a strong colony of bees, cuts off the circulation of air above the packing. This soon becomes heavily charged with moisture which is forced back into the hive, causing the packing to become damp and moldy, and a direct menace to the health of the colony; hence care should be taken to allow a free circulation of air through the chaff packing above the brood-chamber. Care should also be taken not to allow too much ventilation, either above through the chaff tray or at the entrance.

Another means of conducting away the moisture is by diffusion through an air-chamber five inches deep under the brood-chamber. In this case a sealed cover is used with plenty of packing above it, which prevents the condensing of moisture on the under side of the cover, and the humidity is diffused through the air-chamber and passes out at the entrance. In either case the entrance during winter should not exceed $\frac{5}{16}\times 3$ inches. I am aware that many will take issue with me regarding the size of entrance for winter. Scientific theorists will tell us that bees require a very large entrance when wintered out of doors; but the evidence of the bees themselves, backed up by years of successful outdoor wintering with an entrance $\frac{5}{16}\times 2$ inches, would seem to contradict such a theory. We believe that over-ventilation kills more bees in outdoor wintering than any other one thing. We believe that safety lies in the medium course, so we use an air-chamber under our hives five inches deep, whether wintered in the cellar or out of doors. This acts as a safety-valve, and, with the proper amount of moisture-conducting material above the brood-chamber, with an entrance $\frac{5}{16}\times 3$ for outdoor wintering, we have solved the problem of moisture and ventilation in connection with outdoor wintering. No one should attempt to winter a weak colony of bees out of doors.

Having our strongest colonies prepared as above, with outside winter cases having a space of two inches between the hive and case, which is filled wilh chaff or dry sawdust and several thicknesses of heavy cloth spread over the top of the brood-chamber, and coming well down over the sides of the hive, and a tray with five inches of dry chaff or sawdust with a good water-proof cover which telescopes over the winter case, we have a certain feeling of security regarding the successful wintering of our bees, especially since we have never yet lost a colony of bees that we prepared in this way except by starvation. Bees that go into winter quarters in the above condition will need no further attention until time to prepare for next season's harvest.

Birmingham, Ohio.

[We almost feel that what our correspondent says on the size of entrances for outdoor-wintered colonies should be put in italics. At all events, what he says on the subject has been verified over and over again in our apiaries; but one must see to it that these narrow openings are kept clear of dead bees during the winter.—ED.]

SECTIONAL HIVES.

Their Advantages and Disadvantages.

BY R. C. AIKEN.

[When Mr. Aiken wrote this article he had not seen the article by J. E. Hand, page 844, wherein he describes a method of finding queens in divisible-brood-chamber hives without handling frames; nor had he seen what J. A. Green wrote on the same subject, page 951. The fact that he confirms the statement made by the other two goes to show queen-hunting can be simplified.

Incidentally it may be observed that Mr. Aiken agrees in the main with what others have said on the subject of divisible-brood-chamber hives.—ED.]

Since the shallow-frame divisible-chamber hive is under discussion I feel that I may take a hand in it too. I am not by any means new to the subject, nor am I without a large experience, having used such hives for many years, and that extensively, and of various styles and plans.

I began the study of divisible-brood-chamber hives with the writings of Heddon; followed quite minutely all that he wrote on the subject, and the discussion as participated in by others.

DIMENSIONS.

About the year 1890 I did much thinking and studying on a hive and system by which to apply the ideas I had gained. In all the years since, I have not ceased to study the subject and to experiment and read. My interest has been so great that, in looking over the journals, when any thing on the subject appeared it soon took my attention and was sure to be read. For the past fifteen years I have never been without such hives, and probably not a year that I did not handle nearly if not quite 50 colonies, and sometimes as many as 100 or more. This experience has been with frames 6×13 inches, 5×16, and 4¼×17, the first named predominating until lately, when I adopted the 5×16 as my standard.

As for the number of frames to the hive, I have tried 8, 9, and 10, settling on the 8 as standard — reasons later. So far as my experience has gone, the main part of it has been with the 8 and 9 frame widths. I have used both the 8 and 10 for comb honey, and the 9 for extracted. All these have been closed-end standing frames, and all so made that it made not one whit of difference which side was up, and to day I have great numbers of these frames that it would take close inspecting to tell which was originally the top side.

REVERSIBLE FRAMES.

These were much discussed some years ago, and a multitude of devices invented to facilitate the reversing act. Even *hives* were made to be reversed chamber by chamber, thus turning upside down the whole body, and I also took a hand in devising reversible hives, but in only a very limited way, carrying the idea to the super with the view to having the sections built solid to the wood all around. In brood-chambers, when once a set of combs has been built complete it can be reversed thereafter as much as one desires; but with the divisible-chamber hive there is nothing to be gained in reversing a whole set of combs—at least, nothing of importance except to get the combs built out solid to both top and bottom bars; and this can be so easily done by alternating, and by turning frames upside down when manipulating them singly, that there is no necessity whatever to have the hive-body reversible. As for the super, when the sections have reached the stage where they can be reversed with safety it is about time to take them off. Only a small per cent of the sections will be at the point desirable to invert at the same time. Reversible hives and supers are not feasible, nor are they needed.

To get combs well attached to bottom-bars, if they are placed in an upper chamber it will soon be done. The divisible-chamber hive is frequently alternated. What was for a time the bottom one will become the top, and the top one at the bottom, so it comes to pass that soon all combs are built to the bottom-bars — at least a large part of them are. But as we want to manipulate frames *sometimes*, when one has a frame in his hand it is a very easy matter to return it to the hive the other side up, and then it is sure to be built up solid to the bottom-bar, which now becomes the top. Frames completely filled with comb are desirable for several reasons. In deep or Langstroth frames it is desirable to have the all-around attachments to give greater strength to guard against breakage; but unless the combs are used in an upper chamber, or full sheets of foundation used, the great majority are not attached below, or but partially so. With the divisible-chamber hive with its shallow frames there is not so much danger from weak combs dropping out or breaking down from any cause, yet they are almost certain to be almost completely attached, and no foundation used either.

LOOKING FOR QUEEN-CELLS IN A SECTIONAL HIVE.

It is commonly understood that, in the vacant space between the comb and bottom-bar, is where to expect many queen-cells when such are being built. The choice place for building cells is in breaks or rough places near the center of the brood-nest or well among the brood; but if such places are not to be found, the edges and ends of the combs are the next choice. With sectional hives the great bulk of queen-cells will be from the lower edge of the upper-chamber combs (that is, a chamber higher than the bottom-board), with their points sticking down between the bottom-bars of the upper set of frames, and many of them with their points between the top-bars of the body below. When a sectional brood-chamber is opened at the midlle, if queen-cells can not be seen protruding, or at least not visible from beneath this upper chamber when the bees are smoked up, it is usually safe to conclude they have none. This readiness with which cells may be observed is one of the favorable points. You can quickly determine whether you will need to hunt for cells. It is not safe to cut off such cells as may be found between the bodies, thinking that will be all, for there may be (and usually are) others not observable from this point; but if cell-building is going on we are almost certain to find some as indicated above by simply opening the hive horizontally at its center. This enables one to examine for cells rapidly. If none are found we pass on to the next, and so may do several hives where we would be doing one of the deep-frame style where frames had to be handled to find out.

THE COST AS COMPARED WITH DEEP HIVES.

Many object to shallow-frame divisible hives on the ground of increased cost, because there are two parts to the brood-chamber where there would be but one with the deep frame. Well, there is probably a very little additional amount of lumber used; because, if cut from two boards, there will be a little more waste; but a cheaper grade of lumber can be used which will offset the trifle of a few square inches more used.

As for the two sets of frames as against the

one set of deep ones, these shallow standing frames have very little more lumber in the two sets than is used in the one set of deeper ones. The top and bottom bars are much lighter, and also much more simple, and require less work or complicated machinery to make. A few more nails are used, but not enough to add two cents to the cost of a hive. When the whole hive is considered it is less complicated and of fewer pieces than the regular Dovetailed hive, except in the matter of frames; and the hive for equal capacity need not cost to exceed ten cents more than the standard. It ought not to cost any more, and will not if properly made.

But here is a fact commonly overlooked in comparing cost. Almost every one looks at the first cost of fixtures and not at the running expense. An ox team with the yoke and an old worn-out or otherwise cheap plow is much cheaper than a plow of best make, and new, and drawn by a good team of horses; but who would think of hiring a man at a cost of $1.50 a day to operate the ox outfit? The running expense would soon make the ox team by far the more expensive. A divisible-brood-chamber hive is but very little if any more expensive as to first cost; and when it comes to the operating it is cheaper.

If it were necessary to handle the frames one by one in the two-chamber hive as often as in the deep style there would be a serious objection in that point; but the handling of frames is reduced to a minimum, and that objection does not hold. When it comes to the question of hunting for queens the apiarist is not practical or bright in his profession if he finds it necessary to hunt through the two sets of combs for them except in a small per cent of cases. It is possible with queen-excluders, with a judicious use of smoke, or with common-sense judgment, to find nearly every queen without handling more than one set or part of one set of frames. It is also possible to make examination, and determine many things about condition, with the least exposure and time. This hive requires no more outlay of cash to purchase and operate than does the standard hive, and it gives a number of advantages not found in the others.

WEAK POINTS OF SECTIONAL HIVES.

If the hive be used in two sections there is a strong tendency to build a row of drone-cells between the two sets of frames. These to some extent tie the two bodies together, yet not so much so as to make it hard to separate them. I admit this makes some little annoyance, but it does not occur at all times, and is aggravated by a crowded condition. I have never found it a serious matter by any means in many years of practice. If the hive be used three sections deep, there is also some disposition to build store-cells between the parts; but this will not be serious if the management is right.

The real facts are, that, even with the common hive and modern L. frames, to let a colony get too badly crowded will cause the building of comb around the ends and above the top-bars, and even beneath the bottoms of the frames until it is almost impossible to remove them. The frame I use and the one I recommend for the sectional hive is a closed-end standing one. With such a one there is never any building around the ends. The building between bodies is a slight objection; but, as indicated above, an intelligent and proper use and manipulation with a proper spacing reduce that to a very small consideration.

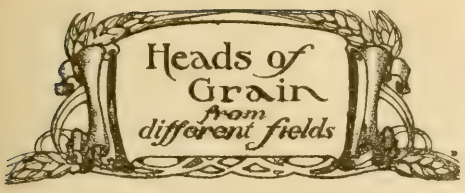
About the only other weak point is the larger number of frames to contend with; but that, too, ceases to be at all serious for all of the ordinary brood-chamber manipulations; and it is the question of the *brood-chamber* we are considering. That is the part that is attacked by the critics. The apiarist may arrange his surplus fixtures to suit his notion. If producing extracted honey he can use deep frames if he wishes, but, of course, the objection would be raised of two sizes of frames. I do not by any means advocate this, and believe all would be better to have but one frame. To extract from shallow frames does make extra handling of parts, and would be an objection; but the majority produce comb or section honey, and with all such the objection does not hold. As for the production of extracted I expect to treat that subject in a subsequent article, and from another standpoint, so I pass it here.

There have been many changes in the past few years in both methods and appliances, and few would think of going back to the old lines; but while this is a fact, and well, yet it sometimes happens that, with improved appliances, we may better apply old-line principles in a new way, and be the gainers thereby. Why should we think it strange if, with the divisible-brood-chamber hive, or some other modern appliance, we would simplify modern practice?

When I was a boy the mowing-machines we used on the farm were heavy and both crude and complicated as compared with the ones now in use; we compare the old and the new, and wonder why we did not think of the ideas used in the new—they are so simple. We want to simplify hives and methods. The old appliances taught us many things, and now that much more of the nature and habits of the bee is known we can shorten and simplify methods and get better results.

Loveland, Col.

IN a former issue we alluded to the newspaper *furore* over the death of a boy, alleged to be the result of a bee-sting. Our representative in Philadelphia now informs us that the report of the *post mortem* by the doctors of Frankford hospital has been issued, and the finding is that the immediate cause of death was cerebral tetanus, and that the sting of the bees had nothing to do with it.



TWO QUEENS IN ONE COLONY; ITS BEARING ON THE SWARMING QUESTION.

I have been much interested in the "two queens in a colony" discussion. I ran a colony last summer this way: I put queen-excluding zinc between the first and second story, with a queen in each story. They made one of the strongest colonies that I have ever seen, and did not offer to swarm. Before uniting queens I think we must make them acquire the same odor. I use some window-screen between for the first twenty-four hours.

Before I used the two queens in one colony I took a queen, confined her in a mailing-cage without attendants or food, and then introduced another queen. For three weeks they fed her through the screen, and at the end of that period she was as lively as ever, while the free queen was working as usual. This convinced me that the workers would accept two or more queens—any way, if the queens were separated, so I put queen-excluding zinc between, thinking that one queen in each story would bring about the same results as two loose in two stories—that there would be quite a saving of heat for hatching purposes, hence a larger field force would be put out.

I have been trying to think of some reason why two queens would influence swarming. It seems to me that the "piping" sound of the old queen when the young queen is about to hatch is mournful enough to indicate that she does not want to leave her happy home. Perhaps when there are two in a colony the workers can not decide which one they want to go with, or perhaps each queen is bound to stay just to spite the other. I might mention that I tried to winter my big colony in two stories, but the bees all went up into the upper story and let the lower queen die. The lower queen was the younger. J. A. YEOMANS.

Spokane, Wash., June 29.

PERFECT WINTERING OF BEES IN AN UP-GROUND BUILDING WITH SMALL ENTRANCES.

I have a way of wintering bees that is very much different from the various ways some have described. I winter without loss, unless from starvation, in a building above ground, 28×20, ceiled overhead, with loft filled with hay. I set posts on the inside on three sides, and pack with straw 18 inches. I cover each hive on the back side and top with newspapers. I pack with clover straw, four to five inches—bottom, top, and sides—leaving the front without protection of any kind. When I put them in I reverse all bottoms from wide to ⅝ bottom entrances. This retains all the heat, and I have found, from a number of years' experience, that it gives them ample ventilation. Dead bees never in any way nor at any time clog the entrance, from the fact that the bees do not die in sufficient quantity to do so. If it is very cold, the cluster will move to the back of the hive, where it is warm. If the temperature rises the bees will come to the unprotected front, where it is cooler, but never come outside. I leave the entrances open. Bees do not cover the floor as they did when I wintered in the cellar. The reason that a colony will live through the winter in this climate, in a hollow tree, is that the different thicknesses of rotten wood in a tree will give them a place to keep warm or keep cool as they may desire in their home. I did not lose any bees during the cold winter that was so disastrous to this business in Wisconsin. The unprotected side of my building I keep closed to make it dark inside. P. W. MAXWELL.

Hudson, Wis.

[This kind of building is something like the Boardman illustrated in the A B C of Bee Culture. It has the advantage of being perfectly dry at all times; and when the weather is cold enough to keep down the temperature it serves the purpose nicely.

We note that our correspondent packs each hive thoroughly, except at the front, and, what is more, uses *only a ⅝-inch entrance*, and yet he "winters without loss." There are not wanting facts to show that wide deep entrances, or bottoms of the hives off entirely, are too much of a good thing in indoor wintering. Our best wintering in the cellar has come from small entrances, although it is only recently that we have begun to grasp the fact.—ED.]

WINTERING IN SINGLE-WALLED HIVES; A PROTECTION MADE OF CLOTH DIPPED IN LINSEED OIL.

I have thought of a way of wintering bees that I would suggest as practical to the bee-keepers who are living close to Mason and Dixon's line. It is this: I propose to have a canvas covering or hood about one inch square larger than the hive cover, and oil the same with boiled linseed oil, colony to have 30 lbs. of surplus in each hive. Lay ten or twelve thicknesses of newspapers over the top of the hive and sides, then pull this canvas covering down over the hive and let it extend clear to the bottom-board, and tied securely. I think that colonies so fixed would winter without cellar or straw hives here.

Philadelphia, Pa. GEO. M. STEELE.

[Canvas would be somewhat expensive. Oiled manilla paper would be just as good, and, while not as durable, would be cheaper, and, when unsuitable, new ones could be made. The principle of the plan in either case is good.—ED.]

A CONCRETE CELLAR WITHOUT A DRAIN.

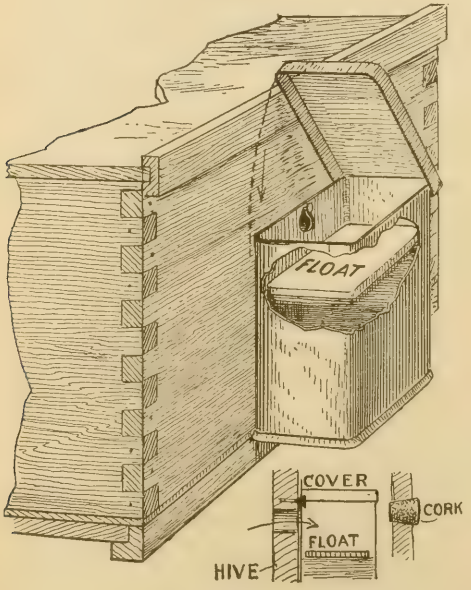
My bee-cellar is under the dwelling-house, which is 20×30. I put in a concrete floor, about 8 in. thick, and concrete walls 3 ft. high, 4 in. thick inside the stone foundation. This was sufficient to keep out the water. Before I put in the concrete there was usually about 2 ft. of water in the cellar in the winter months. Now I have a cellar that is dry, and lots of moisture outside the walls, and the bees get all the moisture needed.

January came in mild here, taking away all the snow. On the 6th the bees which were packed outside had a fly; and, although it was like a summer day, the cellar stood at 44 degrees. Before the snow went, the cellar stood at 46, so you will see that the water that came around the walls lowered the temperature 2 degrees just at a time when it was most needed. If I were building another cellar I would have it exactly the same as this one. Chris. Grimoldby.

Owen Sound, Ont.

A CAN FEEDER ATTACHED TO THE BACK OF A HIVE.

I have been using a bee-feeder which I like better than the Alexander, for three or four reasons. They are much easier to put on; rain does not fill them up with water; easier to take off if a swarm issues and you have to move the hive, and they do not incite robbing like the others. I have been experimenting some by feeding from 50 of these and 50 of Alexander's. I can feed at any time of day with these, and all goes well; but by the time I have put the feed in 15 or 20 of the other the apiary is in an uproar. I made mine from cast-off asparagus-cans, which hold about a quart before the hole is cut. To use them, bore a ¾-inch hole in the rear end of the hive or super, and drive a small nail nearly up, just above the hole, to hang feeder on. These holes are very convenient to have for mating queens on the Alexander plan, and also for ventilation on hot days. I keep corks in them when not in use, of course. Feeders made like this should be coated inside with paraffine, propolis, or wax, so the bees can crawl up and out without slipping. If made of zinc, like the excluders, they ought to last a lifetime. If excelsior is used in these feeders no waxing or float is necessary. D. R. Keyes.



Montgomery, Ala.

[We illustrated a feeder on much the same principle a couple of years ago. One objection to metal feeders is their coolness, especially when put outdoors. A feeder of this kind could not be used in chilly or cold weather, as the bees would not go into it.

Beeswax would be better than paraffine, as it would not present as slippery, not to say oily, surface as paraffine.—Ed.]

SECTIONAL HIVES; THE HEDDON PATTERN USED FOR TWENTY YEARS.

I have used the Heddon hive for 20 years with 20 to 60 colonies. I have used the Danzenbaker hive one year, but as yet I don't like it as well as the Heddon, as I often close the Danzenbaker without putting back all parts, springs, wedges, and division-board or follower. The Heddon has no loose pieces to look after, and I think it is a No. 1 hive for some things. If you wish combs drawn out before the honey-flow starts for sections to be put on, just raise up one section of the hive and place a new section between with full sheets of foundation, and see how soon they will be built out into combs; and if you wish increase I don't know of a better hive, as a set of these new drawn-out combs and a section of the old hive make a swarm soon ready for work. In most cases it could be done without moving a frame; but I like to know which hive the queen is in, and give the queenless colony a choice cell or a frame of eggs from my best queen.

I think J. E. Hand's articles should have started a little sooner. S. Heath.

Tidal, Pa., May 30.

MISTAH HONEY BEE.

No one's makin' speeches
'Cept de honey-bee;
De principles he teaches
Sounds right sensible to me.
He says: "Keep lookin' fo' de sweets
Dat's growin' eb'rywhere;
An' if some no-'count weeds you meets,
Pass on an' don't you care."

As he comes a-bringin'
De goods f'um roun' de farm,
He says: "A little singin'
Ain gwinter do no harm;
I tells you, lots of us would get
Mo' joy f'um life if we
Kep' follerin' de sample set
By Mistah Honey Bee.

—*Washington Star.*

OUR HOMES

by A. I. ROOT

The spirit of Elijah doth rest on Elisha.—II. KINGS 2:15.

I wonder if the teachers of our land realize the extent to which the impress of their characters and spirit is left on their pupils. Do our great teachers *recognize* the tremendous responsibility that rests upon them as they stand before their pupils? In speaking of the way in which Prof. Cook has been the means of impressing his many pupils with the spirit of the man himself, I have been thinking of other great teachers whom I have known. When I was about twelve years old, circumstances made it convenient to send me to a high school in Wellsville, Columbiana Co., Ohio. I was then full of enthusiasm for chemistry and electricity, but I did not "like" grammar. I shall always remember the kind lady, Mrs. Udell, who took me in hand; and under her gentle guidance and exhortation I not only learned to love grammar, but at the end of the term I stood at the head of my class. Who can tell how much this kind act on her part has been worth to me in editing a public journal like this for so many years?

When the winter was over, and I had returned to my home in Medina, one of the pupils wrote me that Mrs. Udell said to the school that I had made greater progress during the previous winter than any other pupil she had. Four years later my parents decided to send me once more to the Wellsville high school. I was placed in the highest department, under the charge of the superintendent—a very different person indeed from the lady teacher of four years before. Professor Hitchcock, although a very good man in some respects, sometimes gave way to his temper, even in school. I took up geometry that winter for the first time. My teacher insisted on my repeating the problems and theorems in the exact language of the book. Now, it has been a very hard matter for me all my life to recite any thing word for word. I can give the *substance* of a sermon pretty well in my own language. Well, my teacher made fun of me before the class because I, as he put it, presumed to think I could improve on the language of the book. This was not fair, and it was not true. I would gladly have used the language of the book could I have done so without taking more time than seemed to me worth while. Later on, there was a lesson that was very hard for me to get through my head. For some reason or other I was reciting alone, and on that day I had a very short lesson. When informed that that was all I had acquired as a lesson for that day the superintendent threw the book on the floor with a bang, and declared that such short lessons would not be tolerated.

Soon afterward the winter term closed, and I went back to Medina. I was a good deal discouraged, and was almost inclined to give up geometry because I was so dull and thick-headed. During the summer I helped build a house on the old farm. As I greatly enjoyed carpenter work with my father for my teacher, I did a great part of the house-building. An expert carpenter was employed, however, to do the more particular finishing work, and he gave me some excellent hints. When I told him my trouble with geometry he advised me to be sure to take a winter term under S. G. Barnard, who was just opening a normal school in Medina for teachers. I called on Mr. Barnard and told him my troubles about geometry, etc. He gave the boy of sixteen a kind and friendly talk—a talk that I shall remember to the last day of my life. He said that, while it was desirable to have the pupil give the language of the book where it came natural and easy for him to do so (as it *is* a good thing), yet he added that he would give more for a boy who could show the teacher in his own language that he understood the lesson than one who learned to repeat the words of the book without a full understanding of what the words meant. I think there were about a dozen that winter in our geometry class, and there were two in that class who rather excelled. If you will excuse me for saying so, I will say I was one of the two, and the other was Professor Hendrickson, who has been all his life in the employ of the government—a man of great education and ability. Mr. Hendrickson not only understood mathematics, but it seemed an easy matter for him to quote the exact language of the book.

Mr. Barnard was a great teacher. The carpenter I have referred to gave me an illustration. Previous to coming to Medina Mr. Barnard taught in a smaller town. Before his term was out, somebody started a report that he spent a good deal of his time on the streets, even while the school was in session. The board of directors at one of the meetings took him to task. He quietly asked the committee if the pupils were not making good progress. They looked from one to the other, and finally admitted that the children had never learned so fast before, to their knowledge.

"Well, gentlemen, have any of the pupils made any complaint of their teacher?"

They looked at each other again, and finally admitted something like this:

"Our pupils never loved a teacher before as they love you. They all seem anxious to get to school on time, and they are sorry when school is out."

Then the teacher replied, "Gentlemen, it *is* true I have been out of school a good many times during school hours. It is part of my plan. It is true, as some of the gossips have said, that, instead of teaching the children, I go out of the house and leave the older and more proficient pupils in charge of the younger ones. Much of my teaching is

done by a monitor. Now, gentlemen, with your age and experience have you not learned that it requires a man of much greater ability to set other people at work than it does to do the work himself?"

If I am correct, the directors apologized, and undertook to hire him for another term; but he had other plans in view. He came to Medina and started a normal class to prepare teachers, not only for teaching, but for their lifework. Most of his pupils were from the country. They were, like myself, farmers' boys, and, like myself, many of them were bashful, awkward, and needed a wise leader in more ways than one. Some of the spry, well-dressed young clerks in the Medina stores rather poked fun at the farmer students. I think they nicknamed us "Barnard's elephants;" but, oh dear me! where are those young "counter-jumpers" now? If still alive, how do they compare with the sturdy farmer boys, strong men of integrity who fill important public offices throughout this land of ours?

Shortly after the term opened, our teacher gave us a talk in regard to our signatures. He said it was time for us to decide just how we were going to write our names. He emphasized the importance of making a signature always in the same way. He said it should be arranged as brief as possible. Then we should take great pains, not only to write it quickly but to write it so plainly that even an entire stranger would have no difficulty in reading it correctly at sight. He took our names, one after another, and put them on the black board. I do not know that *anybody* ever heard of A. I. Root before that day. It had always been *Amos Root*. He suggested that I drop the "Amos" and just put it "A. I. Root." He told me I could write it without taking my pen off the paper if I chose; and as it was a short name I could make it very plain. He took the names of the rest in a similar way, and then added something like this:

"Now, boys, do not be content with learning how to write your names plainly and well. Do not stop to put on any ornamental flourishes. Just have it plain and neat-looking, and then make it *the business of your life* to defend that name. Have it *mean* something whenever you append it to any piece of paper. Not only have the handwriting clean and plain, but make the man it represents clean and plain in every act of his life. Defend it and stand by it until there shall never be any need for you to be *ashamed* to write it or to tell the whole wide world *who* you are and *where* you live."

If my dear old friend were yet alive and could read the above words I think he would laughingly remind me that, although fifty years have passed, I am still the same chap who could never recite his geometry lesson in the language of the book; and that, although my version of his talk to his boys that morning was substantially the same thing in substance, the words were not exactly the same as he used. Every boy and girl (for there were girls there too) loved S. G. Barnard. They loved him while he lived, and I am sure I voice the sentiment of the whole school of about a hundred pupils when I say they love his memory since he has gone to his last reward. He died while I was in Florida last winter; and when I saw a notice of his death I felt regret that I had not remembered to tell him before he died that I, at least, appreciated the efforts he made years ago to start us all in wisdom's ways.

Some years ago, when traction-engines first became common, a young man at the county fair jumped off his machine while it was running, and let it describe a circle all by itself; and as it came back to where he stood he called and motioned where he wanted it to run, and it seemed like some great animal that heard and answered his bidding. I have sometimes thought that Judge Barnard's teachings were a good deal on this plan. He would call on proficient pupils, and have them hear a class recite while he attended to other duties, and every thing went on like clockwork. He had one advantage, I admit, over the teachers of our common free schools. Each pupil paid his tuition. Many of the parents worked hard to save up money to pay the tuition and other expenses of letting their boys go to that normal school. In fact, that was the case in our own home. I walked two miles and a half every night and morning, and chopped all the wood to keep up our winter fires in our humble home; but I never made such progress before nor since as I did in that one winter's time. It was the last of my schooling, when I was seventeen years old. Well, each pupil, knowing how all in the old home had raked and scraped to send him to this school, felt the obligation resting on him to improve the time. I said every thing went like clockwork; but you must not imagine from this that that miscellaneous collection of farmers' boys were above the average in manners or intelligence. At recess our teacher usually took a walk in the open air. During one of these recesses a couple of the "elephants" got to scuffling near the master's table. The table was split and one leg was broken off. The boys propped it up, and the teacher seemed to pay but little attention to it. When school opened up in the afternoon he said very quietly, "I have consulted a cabinet-maker, and he tells me it will cost 75 cents to have this table put in repair. Will the young men who caused the accident come forward and furnish the needed amount?"

Almost instantly two stalwart young farmers arose from their seats, pulled out their pocket-books, and laid the amount on the table. This being done, every thing went on as usual. I think there was no more wrestling in that schoolhouse during that winter. There were some very bright girls in that old school, and I think they are now filling noble places as mothers of families or elsewhere, every one of them. When we were on this matter of signatures the teacher gave us the names of the different young ladies for copy, Perhaps I should say right

here that I was a very poor writer indeed when I commenced at that normal school; but right *then* and *there* I practiced writing the words "A. I. Root" until people have many times since expressed surprise that I always wrote my name so neatly and plainly. Well, one day to vary the monotony a little, the teacher gave us the name of one bright and quite good-looking young lady, and he asked who in that whole school could write her name the best. This young lady and I had been getting pretty well acquainted just about that time; and after he mentioned her name I naturally looked over toward her desk. I do not know but I might as well confess that I had done the same thing several times before during the winter, even in schooltime. She, of course, was very intent on her book or slate; but as I began to fear I should not catch her eye after all, she turned her head enough to give me just one glimpse, and I bent all my energies to writing her name. I think I said to myself something like this:

"Well, now, old fellow, if you do not succeed in writing *her* name on a slip of paper in better shape than any other one in this school, it will be funny."*

I give this as an illustration to show the way in which our great teacher managed—for, dear friends, he *was* a great teacher, even if some of you who knew him did not realize it. This was only one of the many ways he had for waking us up and stirring up an honest and innocent enthusiasm to do our very best in the various lines of work. A near neighbor of ours who had also heard of Mr. Barnard's wonderful faculty asked him if he would consent to take a child just learning to read. He said he would be very glad to do so, because it would furnish an object-lesson for those who were preparing to teach; and there was a juvenile class of three—two boys and a girl—in that normal school. I think it was understood that the whole school could, if they chose, stop their lessons long enough to hear these juveniles recite. I have never, from that day to this, seen children enjoy their recitations and their school as did those three. I think Mr. Barnard enjoyed it too, and the grown-up pupils enjoyed it. It was to me a revelation of the possibilities in child culture. You will please remember this was long before kindergarten or such graded schools as we have now with proficient teachers were known. In lively contrast with such a teacher is one who scolds and frets and nags the uneasy owner of the little hands and feet because they can not keep still. I think the juvenile class of three spent a good deal of their time in the open air when the weather permitted, and they made progress I assure you.

During the fifty years that have passed since then, every little while I have come across some of Mr. Barnard's pupils; and there have been many reasons to believe, as I said before, that the drill of that one winter, to say nothing of other terms, has left its impress on large numbers of both men and women. The spirit of Judge Barnard has descended on his pupils in much the same way as, in the language of our text, the spirit of Elijah rested on Elisha. When I opened up business in Medina, Judge Barnard was a particular and intimate friend and a safe adviser. When I began to feel it was my duty to unite myself with the followers of the Lord Jesus Christ I had many an encouraging talk with him; and when our business became so large that a better system of book-keeping was demanded, I consulted him; and he not only gave me instruction but started our books in "double-entry" book-keeping; and this same system, or something equivalent to it, is carried on here to this day.

I suppose there are many whose eyes rest on these pages who have done more or less in the line of teaching some time during their lives; and not only should these thoughts I have been giving you prove to be an inspiration and encouragement to teachers, but they ought to remind the publishers of our various periodicals—men who occupy prominent places before the world, and even the fathers and mothers of families—of the way in which they are consciously or unconsciously leaving their imprint on the rising generation; and it ought to be a comforting thought to our teachers when they come to die that they have been the means, to a greater or less extent, of giving life and inspiration for that which is good and pure and holy to those for whom they have labored; and I think I can imagine no more fitting closing words than the 13th verse of the 14th chapter of the book of Revelation. Read it, and see if you do not agree with me.

"Blessed are the dead which die in the Lord from henceforth. Yea, saith the Spirit, that they may rest from their labors, and *their works do follow them.*"

* After the teacher announced that *A. I. Root's* was rather the best copy, if I remember correctly I got another glimpse of her bright face, that gave me new zeal and inspiration for my studies.

WHY WE GET SICK, AND HOW TO GET WELL.

In *Health Culture* for August I find the following:

Now, of all the causes of disease, rotting food in the stomach or intestines is the most common and the most dangerous. In fact, it is claimed by some competent physicians that no disease would be possible but for the putrefaction of undigested food. That many dangerous diseases come from this cause there is no doubt whatever. In these cases, and, in fact, in every case where one is in any state other than splendid health and energy, the food taken and the circumstances under which it is taken are matters which should receive careful attention.

There, friends, we have it. I have been for some years past coming to the conclu-

sion that, if we lived as God intended we should live, there should be no bad smell anywhere about these bodies of ours at any time, either day or night, no matter if we *are* getting to be old and gray-headed. The Bible tells us these bodies of ours are temples of the Holy Ghost; and if there is any thing on the whole face of creation that should be kept clean and pure it is these physical bodies of ours. You ask why it is, then, that we often do smell bad in *spite* of all that we can do. Well, another clipping from this same journal, I think, hits the spot very fairly. The opening article, on hay fever, contains the following:

As to diet, I may say at once that here we find as a rule the real and fundamental cause of the disorder we are studying. In severe cases, order a complete fast of from four to ten days, with free water-drinking and moderate exercise. Rest and sleep should be taken to the greatest possible extent.

The idea, given in a condensed form above, is that we either eat too much or eat food that we should know by experience does not agree with us; and the remedy is to stop eating—stop entirely if nothing else will answer. Years ago, when I was on the beefsteak diet for many weeks, all fermentation and gases in the bowels were gotten rid of, and I supposed the lean-meat diet was the only thing that would accomplish it. I have reason now, however, to think that a careful diet, with many other things, especially if we leave the table every time when we are still a little hungry will accomplish a good deal the same result. If you live on raw wheat or uncooked food, as friend Terry does, you will not be likely to overload your digestive apparatus. The reason why so many of us get sick and die is through mistaken kindness of our wives and mothers. After eating a pretty good square meal, perhaps of wholesome food, the good wife or mother says, "Oh! I have got some good pudding," or some dessert, possibly ice cream in hot weather, etc.; and although we had finished our meal, or had about finished it, we eat these other things because it might look a little surly if we should refuse to touch the dessert. I believe tempting and delicious desserts, *more than any thing else*, cause the fermentation and the bad smells. I *know*, exactly as Josh Billings said he knew that it is bad policy to tell lies —he knew by *experience*.

Now, friends, if you wish to be well, as God intended you should be—if you wish to be sweet-smelling and clean, try this plan of keeping a little hungry all the time. Of course, it makes a difference when you have hard muscular work to do. When you are taking a vacation, or when you are old enough to take things easy, be careful about eating more than you *need*, and avoid the food that you do not need and are better off without. I hardly need add, for it ought to be obvious, that you will not only make a great saving in *money*, but, what is more important, you will save the health and strength of the wife and mother, and possibly you may save the wages and presence of a hired girl in your home if you cut off all these things which are not only useless but which bring sickness and doctors' bills and untimely graves.

PABST BEER—IS IT "FOOD AND DRINK"?

In the Chicago *Daily News*, for Aug. 6th (and, we are told, in many other papers), in the advertisement of the Pabst Brewing Co. we see the following astounding statement:

The United States Department of Agriculture officially declares that beer is the purest and best of all foods and drinks.

Well, the editor of the *Home Defender* wrote to the Department of Agriculture and received a prompt reply as follows:

You are correct in assuming that no such statement has been made by the department. The department does all in its power to prevent having its views distorted, but I regret that there is no law by which such practices may be reached. Respectfully,
Aug., 1907. M. N. HAYS,
Acting Secretary, Department of Agriculture.

Well, friends, what do you think of the above from the Department of Agriculture, saying that we have no laws to prevent the brewers from manufacturing such a statement about their beer when there is no truth in it whatever?* It seems to me that our lawmakers had better get together and make a suitable law or our people will arise in their might and do something *without* law. By the way, the editor of the *Home Defender* does not tell us what the Chicago *Daily News* decided about accepting such an advertisement *after* the statement from the Secretary of Agriculture. Below is their excuse for accepting such an advertisement before they were informed what the Secretary of Agriculture had to say:

We, of course, can not refuse to accept all advertising which we can not editorally endorse; for as a publisher you are aware that the majority of the largest advertisers do not adhere very closely to the line of truth in their copy.

Well, the editor of the *Home Defender* submitted the statement of the Secretary of Agriculture to the Pabst Brewing Co., and after writing them again and again they finally secured a reply reading as follows:

With reference to the subject matter contained in same, will say that we have what we consider very good authority for making the statement in question, and expect within a few days to be in position to favor you with full information along the line requested, as well as arguments fully backing up the statements contained in our advertisement.
Trusting in the meantime you will kindly have a little patience, we are Yours truly,
Milwaukee, Aug. 14. PABST BREWING CO.

On page 1379 of last year the heading of one of these Home papers was "The Char-

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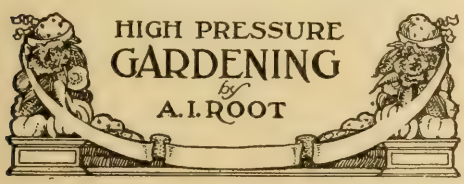
*Permit me in a footnote to direct your attention a little more emphatically to the above statement. Notice the word *officially*. Now, this statement, no doubt, goes broadcast throughout our land. Young men who have not kept posted, but who have never touched beer, may be induced by the thousands to give it their attention, and finally become sots; and yet the Department of Agriculture thinks they can not do any thing with this villainous piece of forgery —a piece of forgery that in its results may do more harm to our youth than if this brewing company had secured *millions of dollars* by a forged name attached to a note.

acter of the Enemy we are Fighting." The above transaction gives a glimpse of the "character" of the great Pabst Brewing Co.; and it also gives us a glimpse of the way in which the hands of the Department of Agriculture seem to be tied. But better things are coming; and, may God be praised, they are coming thick and fast.

BEE-STINGS FOR RHEUMATISM.

In reply to our good friend on page 1168 of our last issue I omitted mentioning bee-stings as a remedy for rheumatism. From facts given in GLEANINGS for years past, as well as articles given in newspapers, I think there is no disputing the fact that bee-stings often prove a positive remedy for rheumatic pains and for many kinds of rheumatism. Like almost every other remedy, however, it does not seem to operate alike on all subjects. Some people, with some kinds of rheumatism, experience immediate relief. Others find themselves almost or quite free from pain the next day. It is a matter easily tested. A year or more ago I related an incident of an old gentleman in our own locality who went into an apiary and picked out and purchased the crossest colony of bees the man had, and proceeded to make the bees sting him as soon as they were his property. He said the stings were painful, but greatly to be preferred to the rheumatic pains; and he said, furthermore, that he had kept one colony of bees for several years for no other purpose than to drive away the rheumatic attacks when they came. His neighbors all corroborated his statements. Of course, we do not know how many other sufferers may be relieved or cured in a like manner. But I would suggest to every person who is afflicted with rheumatism to give bee-stings a good thorough test. It is a form of hypodermic injection older than any doctor, and both instrument and medicine are furnished ready made for use, by the great Father of all.



SELECTION OF SEED CORN FOR THE NEXT SEASON'S CROP.

On page 45 of this journal for Jan. 1 I spoke about what our Ohio Experiment Station had been doing in the way of getting a strain of corn that was not likely to be blown down by a high wind. In my hand I hold a bulletin from our station in regard to the selection of seed corn. I clip the following from page 3:

VIGOR OF PLANT.

A second character which is well worthy of consideration is vigor. While it is freely admitted that a good ear of corn is a very good recommendation for the plant which produced it, many plants produce good ears which they are unable to carry to harvest. That this character is hereditary, there is abundant evidence. In a breeding plot of last season (1906) this station had growing side by side rows planted from individual ears, one of which had 56 and another 49 per cent of its plants broken over before harvest. Between, and upon either side of these, were other rows of which, in one instance, not a single plant, and in two others, 3 and 6 per cent only, were broken. The ability to stand upright did not result from a lighter load, for the ear of which 56 per cent of the progeny broke over yielded 75.6 bushels per acre, while the ear having every plant upright yielded 114.7 bushels per acre. The broken plant presents a problem which I believe can best be solved by a consideration of the vigor and stiffness of the mother plant.

Now, friends, I fear you do not realize the possibilities that lie before you in the direction outlined in the above. How often we hear farmers say, "I should have had a magnificent crop of corn had not a terrible windstorm just about ruined it"! We have been in the habit of considering such catastrophies as unpreventable; but this report from our station tells us that more than half of the stalks from one ear of corn were broken by the wind, while an entire row from another ear of corn, that probably looked exactly like the first one, produced plants of such vigor that *not one* stalk was broken down. I talked with Prof. Holden about this matter, and he suggested that we might go too far in that direction and get a strain of corn with stalks of such vigor that they would withstand a storm and yet not produce a very high yield of ears, because so much of the growth goes to the stalk. But this bulletin from our station tells us that the row of corn with no stalks blown down yielded 114 bushels per acre, while the other one, that was more than half broken off, yielded only at the rate of 75 bushels. I presume this yield of 75 bushels was calculated from the stalks that remained standing. Now, what would it be worth to you to have your seed corn all selected from ears from that row with no broken stalks and 114 bushels to the acre? and yet it may be done. In the summary at the end of this bulletin the matter is summed up as follows:

Vigor of plant, as shown by ability to stand upright, is hereditary. Ear-rows growing side by side have shown a variation of from no broken plants to 56 per cent of broken plants.

Now, friends, it will pay you who are corn-growers to send to the Ohio Experiment Station, Wooster, Ohio, for Bulletin No. 71 on the selection of seed corn.

Right across the way from our home we have a cornfield of half a dozen acres, and I tried to make it after Prof. Holden's teachings. A friend who has just made a trip to the Norfolk exposition, and back home by way of New York, says it is the best-looking field of corn he saw on the whole trip. Of course it is rather late, as we could not get it planted in shape to suit us until after the usual planting time. I am now looking forward to the time when I can go through that field and select ears for planting next year.

SWEET CLOVER IN THE SAN LUIS VALLEY, COLORADO.

The pasture problem (for pigs) has been solved. Sweet clover, the common roadside and ditchside pest, makes a fine hog-pasture. When it is small and innocent, hogs like it. As it gets older, like some folks its nature gets tough and bitter, and nothing likes it. Therefore, plant it for your hogs; and as soon as it is six inches high, cut it down with a mower close to the ground. It will keep more hogs to the acre than any thing else; grows anywhere, in rocks, swamps, wet ground, dry ground, alkali ground, cinders, or any thing, and is the greatest ground-enricher of all the legumes.—C. A. LYMAN in *The Breeders' Gazette.*

The above is still another item for people (if there are any) who insist that sweet clover is a noxious weed.

SWEET CLOVER FOR PIGS—MORE ABOUT IT.

We clip the following from the *Kansas Farmer* of Aug. 22:

I should like information on sweet clover. Will it do well if sown in September in Oklahoma? Where can I get the seed? My land will not raise alfalfa, and I desire to get a good plant for hog pasture.
Woodward Co., Oklahoma. WM. QUEEN.

Sweet clover can be sown in the same manner as alfalfa, about the last week in August or the first week in September, and the seed-bed should be prepared as you would prepare a seed-bed for alfalfa, by thoroughly disking wheat or oats ground which is comparatively free from weeds. The disking should be done as soon after harvest as possible, and the land disked or harrowed at frequent intervals, or after each rain, to conserve soil moisture and to prepare a mellow, firm seed-bed.

Many farmers who have not been successful with alfalfa have grown sweet clover for hog pasture, keeping the clover clipped off so that it does not become hard and woody, with the exception of one crop each year, which is allowed to grow up and seed to furnish plants for the next year's crop. When grown in this manner sweet clover has proven fairly satisfactory; but it should never be grown for hog pasture where alfalfa does well. Any reliable seed-house in Kansas or Oklahoma can furnish you sweet-clover seed. G. E. CALL.

There is another point that comes in with the above; and that is, wherever you can get a catch of sweet clover you are all right for alfalfa after the sweet clover, because sweet clover is the very best agency in the world for bringing in the nitrogen bacteria to prepare the land for the successful growing of alfalfa.

Temperance.

ARE WE READY FOR ANOTHER "DECLARATION OF INDEPENDENCE"—INDEPENDENCE FROM THE RUM POWER?

The following is an extract from quite a lengthy personal letter. It is nothing new, however, and it is nothing but what might have happened almost anywhere near your home or mine. Read, and see what you think of it:

A man 19 years old, of a fine family, from Missouri, came here to work in the coal-mines. He got drunk (in a saloon, of course), and they kicked him out and he, drunk like, wanted to whip some one; so along comes the bouncer bar-tender, a bully—a kind of prize-fighter or sparring-master. He knocked the boy down, but he got up and wanted more, so that bully knocked him down and got straddle of him with his knees and went to mauling him to death. By this time a crowd gathered and cheered the murderer on, with the poor boy begging for God's sake for them to take him off. But one of the licks broke the boy's neck, so the bully left him. The boy was put in one cell and the murderer in the one adjoining (nothing between but the grating). The murderer slept all night as soundly as an innocent babe. Next morning, as they were removing the body he looked through the bars, and laughed and joked with the men. He thinks it a *huge joke.*

From what experience I have had with saloon-keepers, not only in Ohio but in other States where I have traveled, the above incident is only a fair illustration of what has been going on and would still be going on were it not for the fact that our whole nation seems to be just now waking up and getting ready for a declaration of independence from the rum power and the power of the open saloon. May God hasten the day when they may be swept from every State in the Union, and, better still, from off the face of the earth.

"BLUE EYES"—A SECOND EDITION.

More than thirty years ago there appeared in GLEANINGS, and also in the earlier editions of the A B C book, a picture entitled "Novice and Blue Eyes." Well, on the 30th day of August a kind Providence sent to Rootville a second edition of Blue Eyes. We can not exactly label it an "enlarged and improved" edition, for at the present writing the new comer is only nine days old. Novice has not yet had the privilege of taking her on his knee as he did the Blue Eyes of olden time in the picture, but the grandmother succeeded in getting her to give us several of her bewitching smiles, indicating that she was at least happy to be placed where the great Father saw fit to drop her. One of the axioms laid down by father Langstroth, if I am correct, is that, in order to have a colony of bees flourish, there should be a constant accession of young bees; and it seems to me this rule is a pretty good one for any business house or established industry. As the older ones (like your humble servant) get out of the harness, there should be younger members coming along. Here at Rootville, Ernest was the first to come on the stage (and, soon after, Mr. Calvert, his brother-in-law, and still later Mr. A. L. Boyden), just as I needed a little relief from the cares of this journal. Twenty years later Huber came along, and now there are several grandchildren tall enough to pass for men, even if they are young in years. But among all the grandchildren till this last one, there has been only one girl, Miss Mildred Calvert. For some time past I have been rather uneasy because of the preponderance of *boys* in the Root hive. I did not say *drones*, mind you—God forbid there should *ever* be any drones in our family. (Queens, of course, are *always* O. K.) So you can realize how we all thanked God, especially myself, when this second edition of Blue Eyes, little Helen Maude Boyden, came along to bear Mildred company; and just now we ought to be a very happy family praising God for what he has done for us, especially in answering our prayers.

IN THE HEART OF MICHIGAN

Did you know that within one hundred miles of me are over three-fourths of the bee-keepers of Michigan? Are you one of them? If so you will find it to your advantage to write for my new catalog. A full line of Root's Goods at Root's Factory Prices. Hilton's double-walled hives are used more than any other in my State. It has stood the test of thirty years. . . . . I ship goods promptly. Wholesale or retail. . Cash or exchange for beeswax at all times.

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The Bingham Smokers and Honey-knives have been the standard in America and every European country 29 yrs. There is no *smoker* so *old*, so *new*, so *perfect*. Accept thanks for 30 yrs. liberal patronage.

BINGHAM SMOKERS. Name.	Size of barrel.	Price of 1	Price of 3	Postage.
Smoke Engine.....	4-inch	$1 25	$3 45	25
Doctor.....	3½ "	85	2 40	25
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Large.....	2½ "	65	1 65	25
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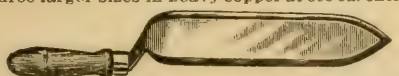

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TO THE

BEE-KEEPERS OF CANADA.

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Deer Park,

Toronto, Ontario, Canada.

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THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

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COMB-HONEY HIVE

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ITALIAN QUEENS!
Golden and three-band stock; fine queens and fine honey-gatherers. Untested, 50 cts. each; six, $2.75. Safe arrival and satisfaction.
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Texas Seed and : Floral : Company

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FOR YOU

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ITALIAN

QUEENS

AND NOTHING BUT ITALIANS

A superior improved strain, Northern-bred, are hardy and vigorous; always come out strong in the spring. Our stock is well known, and not necessary to say more here. :: :: :: :: :: :: ::

Send for circular and list of testimonials.

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Select queens	$ 75	$4 00	$7 00
Tested queens	1 00	5 00	9 00
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Young queens from our improved stock is the best security against poor seasons. Requeen now and have bursting strong colonies in the spring. We employ 500 swarms. Queens sent outside of United States or Canada, 25 cts. extra.

QUEENS NOW READY!

SAFE ARRIVAL AND PURE MATING GUARANTEED.

Address all orders to

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ABHASIANS: In order to distinguish our superior Caucasians of the genuine imported Abhasian stock from the common dark Caucasian, we have termed them "ABHASIANS." These are the YELLOW CAUCASIANS and possess all the valuable characteristics of the race in addition to their color, which commends them to the lover of bright color.

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BANATS: Choice untested queens from imported stock, at $2.00.

ABHASIANS OR BANATS imported direct to customer, $6.00.

Golden and red-clover Italians ready for shipment.

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Golden Queens!

By return mail, 75 cts.; select, $1.00; warranted pure and O. K. J. B. CASE, Port Orange, Fla.

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Banats from Hungary.
"Echte Lüneburger Heide Bienen"

for late flow. Very prolific. From Hamburg queens are in charge of responsible parties who will care for them across the ocean, thus eliminating the danger of the mail-bag. Price $5.00 each.

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1905, '06 Queen-breeder in Apiary of Dept. of Agriculture, Washington, D. C.

Both Races.	1	6	12		
UNTESTED,	$ .60	$3.35	$6.50	TESTED	$1.25
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Satisfaction Guaranteed. Descriptive Cir. free.

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QUEENS of MOORE'S STRAIN OF ITALIANS

Produce workers that fill the supers, and are not inclined to swarm. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Mr. W. Z. Hutchinson, editor of the *Bee-keepers' Review*, Flint, Mich., says: "As workers, I have never seen them equaled. They seem possessed of a steady, quiet determination that enables them to lay up surplus ahead of others. Easier bees to handle I have never seen."

My queens are all bred from my best long-tongued three-banded red-clover stock (no other race bred in my apiaries), and the cells are built in strong colonies well supplied with young bees.

PRICES: Untested queens, 75c each; six, $4; doz., $7 50. Select, untested, $1.00 each; six, $5; doz., $9.00.

Safe arrival and satisfaction guaranteed.

Descriptive circular free. Address

J. P. Moore, Queen-breeder, Rt. 1, Morgan, Ky.

Try the Robey strain of three-banded Italians that have become so famous all over the country as honey-gatherers. W. L. Coggshall and E. W. Alexander have both said in their writings to GLEANINGS that in extracting they always found better filled combs when they came to colonies containing the Robey queens. Many of the largest honey-producers of this and other countries use the Robey queens and pronounce their bees high-rollers for honey. Warranted queens, 75 cts. each, $4.25 for six. Safe arrival and satisfaction guaranteed, or money refunded.

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The best all-round bees on earth. My stock is composed of selections from my own strain of 3-banded Italians that were awarded diploma at the Pan-American Exposition, and The A. I. Root Co. clover stock.

Tested queens, $1.50; select tested queens, $2.00; fair breeding queens, $3.00; extra select breeders, $5.00—ready to go promptly. Untested 1907 queens, $1.00; select untested queens, $1.25—ready early in March. Yours for a prosperous 1907.

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QUEENS

are sent out by our firm; should any prove unsatisfactory, we promptly replace them. Try our strain of three-band Italians; they will not disappoint you. Tested queens, $1 each; untested, 75 cts., $8 per doz.

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Fine young prolific three and five banded Italian queens by return mail. Untested, only 60 cts., or $6.00 a dozen; tested, 75 cts., or $8.00 a dozen; extra fine queen, $1.00. Directions for introducing go with every queen.

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200 more between now and November 1, at 70 cts; 3 for $2 00, or 5 for $3.00. I can also furnish tested queens at 60 days old for $1 00, or 6 for $5. Queens sent immediately. Perfect satisfaction.

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to improve your stock by purchasing some of our Red-clover and Leather-color Italian queens. All of our queens are bred for their honey-gathering qualities, and you'll find them prolific and gentle.

Prices for Sept.	1	6	12
Untested	$ 65	$3 75	$7 00
Select Untested	90	4 75	9 00
Warranted Purely Mated	75	4 25	8 00
Select Warranted	1 00	5 25	10 00
Tested 1907 Queens	1 25	7 00	
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All orders accompanied with cash are booked and filled in rotation. Safe arrival by mail guaranteed. Send for price list of bees and supplies.

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This patented rust-proof square steel cap is supplied only with

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Other ready roofings are laid with cheap, round caps, cut from scrap tin that soon rust out and destroy the roofing.

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cannot work loose. They have large binding surface and add years to roof life. The rust-proof cap added to other superior features, makes **Paroid** the best ready roofing ever laid on a building.

To let you test and prove **Paroid's** superiority we make this

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Buy one roll of Paroid, apply it to your roof. If you are not then satisfied that you have the best, we will send you a check for the amount paid for the roofing and the cost of applying.

Ask for Free Samples of Paroid, Rust-Proof Caps and name of our Paroid Dealer. If you care for our Book of Plans, for Farm Buildings, enclose four cents for postage.

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The originators of the complete roofing kit and the Paroid rust-proof cap.

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HOW TO GET RID OF THEM

Lambert's Old Reliable **"Death to Lice"** simply exterminates all kinds of lice on poultry. One can of Lambert's will save dozens of dollars in the hatching season. Use it on your setting hens, no lice on the chicks. Sample 10c. 100 oz. $1. 1907 Pocket Book "Pointers" free.

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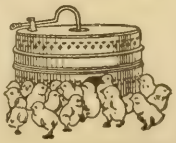

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The A B C of Bee Culture

(and the X Y Z as well).

IT is only two years since we undertook to revise a new edition of our A B C, numbering 15,000 copies; yet the general advance along all the lines of bee-keeping, and the demand for the A B C, have been so great that we have been compelled to go completely over our work again and issue another edition, larger and better than the last.

A COMPLETE REVISION.

When we started on the work of revising the A B C book we had no intention of submitting it to any great changes, more particularly as we were in a hurry to get it out, as the old edition was nearly exhausted. But as the work of revision progressed, we found it necessary to make extensive alterations and additions—so much so that the book itself will be considerably larger. To meet the demand for better illustrations we had to provide a higher and more expensive grade of paper. These two factors compelled us to raise the price of the new edition, for, as most bee-keepers are aware, the A B C is sold on a very small margin of profit.

PRACTICALLY A NEW WORK ON BEES.

In addition to our regular staff of Root experts we have been assisted by W. K. Morrison, who has entirely rewritten many of the articles having to do with the scientific side of bee-keeping, besides reading and editing much of the other work as it went along. Mr. Morrison has traveled over all sections of the United States, almost every island in the West Indies, a large portion of South America, and also in Mexico, Central America, and Europe, so that the new A B C will be world-wide in its application, and sectional ideas largely eliminated. While the new book is American in its make-up from start to finish, in no sense can it be termed local to this country, and we believe it will be found as useful to a bee-keeper in Mexico, Cuba, West Indies, Argentina, Brazil, Canada, Europe, South Africa, Australia, New Zealand, and other countries, as it has been found to the bee-keepers of the United States.

VERY PRACTICAL.

In doing this the practical side of bee-keeping has not been slighted; on the contrary we have kept the dollar and cents side of the bee-business constantly in view, for we recognize the fact that bee-keeping must be made to pay or it ceases to exist.

LARGER THAN BEFORE.

While the new edition is larger than its predecessors, it is in no sense padded with useless material; on the contrary much of the work is necessarily condensed after the manner of an encyclopedia. We recognize the fact that the average bee-keeper has not a superabundance of time on his hands, and we have tried to meet his views of the matter.

THE NEW PURE-FOOD LAW.

In conformity with the changes now going on, new articles on sugar, honey, glucose, and nectar have been provided; also others on the law of bees, and foul-brood laws. These features alone are valuable.

HONEY-PLANTS.

The question of honey-plants is very important in estimating the value of a locality for bees, and this has been carefully rewritten, in many cases, so that the beginner in most parts can get a fair conception of the value of his locality for bee-keeping. In every case the scientific name accompanies all common names of honey-plants, so that the information conveyed will be found useful in all parts of the world.

QUEEN-BREEDING.

As the readers of GLEANINGS are fully aware, rapid strides are being made all along the line in scientific queen-breeding, and the usual article on this subject has been recast to suit the times.

MAKING AND RENDERING WAX.

As most of our readers know, improvements have been recently effected in this department, necessitating an entire change in this subject. Mr. H. H. Root has written this after much study and many experiments.

POWER-DRIVEN EXTRACTORS.

These have been dealt with under the subject of "Extracted Honey," so that the owner of such an outfit, or the bee-keeper who desires to get one, will have the necessary information at his elbow at all times.

DISEASES OF BEES.

So much has been learned about the inner workings and origin of bee-diseases that this is absolutely new in this edition. While the article under this head is necessarily brief, it covers the whole subject as it now stands. E. R. Root, the editor-in-chief, has gone to a great deal of trouble to get this so that the average bee-keeper can thoroughly understand it.

ILLUSTRATIONS.

The A B C of Bee Culture has always been famous for its illustrations, which are calculated to arouse the enthusiasm of the average bee-keeper, making him more determined than before to excel in his chosen pursuit or avocation. Price $1.50 postpaid; $1.25 by freight or express, not prepaid. For sale by all booksellers and supply dealers.

THE A. I. ROOT COMPANY, MEDINA, OHIO.

Classified Advertisements.

Notices will be inserted in these classified columns at 20 cents per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Help Wanted.

WANTED.—Six salesmen wanted to introduce our new State surveys. An absolute new idea and a splendid opportunity for energetic men.
RAND, MCNALLY & COMPANY, Chicago, Ill.

Wanted, Situations.

WANTED.—Positions by two young men to work with bees next season; have had experience. Give full particulars in first letter; prefer Texas or California. Address Box 33,034 care The A. I. Root Co.

For Sale.

FOR SALE.—Opaline honey-jars, all kinds; send for price list. HAROLD E. SHORE, Germantown, Pa.

FOR SALE.—Fine job-printing outfit.
C. A. STEBBINS, Broad Creek, Va.

FOR SALE.—One horse-power hay-press, run one season, $150. M. A. JONES.
Rt. 45, Atwater, Ill.

FOR SALE.—Beagle hounds, straight-legged, 18 months, 2 years, good rabbiters; $10 each.
FRED L. GRAFF, Parkersburg, W. Va

FOR SALE.—Homestead farm crops in their season, consisting of honey, grapes, pears, apples, etc.
C. J. BALDRIDGE, Kendaia, Seneca County, N. Y.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1907 send your name and address to FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE.—Best Wisconsin sections, per 1000, $4.00; No. 2, $3.40; plain, 25 cts. less. Discounts on Danz. hives and other Root's goods; also berry-boxes. Italian bees for sale. H. S. DUBY, St. Anne, Ill.

KODAK and Camera users, send us your developing and finishing. Send for price list. A full line of Kodaks, films, and all Photo Supplies.
FURNAS & MADDOX, 552 A, Louisville, Ky.

FOR SALE.—One two and a half H. P. engine and boiler in good working order. Used not over 150 days. Cost $150. Will sell for $75. J. W. UTTER.
Amity, Orange Co., N. Y.

FOR SALE.—Cowan rapid honey-extractor, $7 00; uncapping-can, $2.00; Vandervort 6-inch foundation-mill, $8.00; Given foundation-press, for brood-foundation, $15.00; Barnes' combined circular saw, new style, with scroll-saw attachment and several groovers (a $50 00 machine), $20 00. All in good condition. For all practical purposes, as good as new. T. H. KLOER,
902 Locust St., Terre Haute, Ind.

Real Estate for Bee-keepers.

FOR EXCHANGE.—My $1200 equity in a four-room cottage at Colegrove for bees or an apiary complete. House is plastered, has hot and cold water, bath and toilet, and 5-cent fare to Los Angeles. Will give or take some difference. Address
O. C. MOORE, Colegrove, Cal.

FOR SALE.—A good apiary free, 200 ten-frame hives and new extracting-house; 352½ acres splendid farm land in famous Nueces River Valley irrigation belt. Guaranteed artesian water. No waste land. Ranch house; 10 acres cultivated; 1000 acres leased for pasture. Price of land, $25.00 per acre. Will throw in 50 head fine graded stock and apiary. Place will now produce 15 per cent on price asked for land. Address owner, HUGH KNIGHT,
Box 310, San Antonio, Texas.

FOR SALE.—652 acres of choice land in the prairie-belt of east Mississippi, situated 12 miles east of Macon, Miss. Telephone and R. F. D.; 100 acres in young hard-wood timber; 400 acres in pasture; Bermuda, melilotus, lespedesa, white clover, and blue grass predominating; about half this land will grow alfalfa, which can be cut six or seven times each year. Also 700 stands of Italian bees in three yards; my average for 15 years has been about $8.00 per stand—no disease, no failure in 15 years; 75 head of high-grade Jersey cows; butter sells for 20 cts. in summer and 25 cts. in winter, and the demand has never been filled. Improvements—7-room house, barn accommodating 52 cows; barn for horses; 10 cabins, 400 acres fenced in four pastures, best of water in abundance. Fine and healthful climate. Write for further particulars.
GEO. A. HUMMER, Prairie Point, Miss.

Bees and Queens.

QUEENS—Red-clover strain; imported mothers, leather color, $1. A. W. YATES, 3 Chapman St., Hartford, Ct.

FOR SALE.—Fine golden Italian queens by return mail, 50 cents. J. F. MICHAEL, Winchester, Ind.

FOR SALE.—200 strong colonies of bees in eleven-frame hives, standard frame. W. J. STAHMAN,
Bruce, Wis.

FOR SALE.—All my queens advertised for this season are engaged; can spare a few tested Italians at 75 cts. B. F. AVERILL, Howardsville, Va.

FOR SALE.—400 colonies of bees; 2 apiaries in Delta, Colorado; 2 apiaries in New York, in the buckwheat location. W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—Tested Italian queens, $1.00 each; untested, 55 cts. each, or 6 for $3.00. Make money order on Canton, Mo. W. SIMPSON, Mexer, Ill.

FOR SALE.—After Oct. 1, 200 clipped young tested queens, 50 cts. each.
H. A. ROSS, 1709 Upper Sec. St., Evansville, Ind.

FOR SALE.—225 colonies of bees heavy with honey; also fixtures; two lots with shop; good reason for selling. H. A. ROSS, 1709 Upper Sec. St., Evansville, Ind.

FOR SALE.—By return mail or money refunded. Italian queens, each, 75c; 6 for $4. Caucasian queens, each $1; 6 for $5. Warranted purely mated.
D. J. BLOCHER, Pearl City, Ill.

FOR SALE.—At a bargain, 200 hives of Italian bees in two-story hives for comb honey; well supplied with winter stores; fine location. R. L. TUCKER.
Independence, Mo.

FOR SALE.—75 colonies of Italian and Caucasian bees in No. 1 condition, with comb and extra supers; $4.00 each for the lot; $4.50 in small lots. All wired combs. A. D. D. WOOD, Lansing, Mich.

FOR SALE.—At a bargain, 100 colonies in 10-L.-frame hives; combs built on wired foundation. Bees are located in eastern Iowa. Address Box 128, GLEANINGS, Medina, Ohio.

FOR SALE.—Red-clover Italians and golden-all-over queens, now ready, reared during September honey-flow; select untested of either, $1.00; six for $5.00.
VICKERY & HAPPEL, 414 Fourth St., Evansville, Ind.

FOR SALE.—125 colonies of bees, and fixtures for extracted honey; 75 two-story hives; 66 cases 60-lb. cans; also driving mare, single harness, and buggy.
ERNEST W. FOX, Hillsboro, Wis.

FOR SALE.—100 select tested Italian red-clover queens at 80 cts. each; ½ doz., $4.00; untested, each, 60 cts.; ½ doz., $3.25. I guarantee every queen.
FRED LEININGER, Ft. Jennings, O.

FOR SALE.—My experience with red-clover bees and circular of queen-bees for the asking. Queens reared by the most improved methods to get good long-lived queens. Root red-clover stock, the best that money can buy.
A. H. KANAGY, Milroy, Pa.

Wants and Exchange.

WANTED.—Apiary on shares. Michigan or Ohio preferred. C. S. DOWNER, Kalamazoo, Mich.

WANTED.—500 colonies of bees in Texas, Arizona, or California. N. E. MILLER, Box 373, Logan, Utah.

WANTED.—Buckwheat extracted honey; state price and quantity. C. B. HOWARD, Romulus, N. Y.

WANTED.—Physician wishing to engage in bee culture as a side-line. Good locality. Write to
BEE-MAN, Filion, Mich.

WANTED.—Your price on 25 or 100 young Italian or Carniolan queens. W. L. COGGSHALL,
Groton, N. Y.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

Honey and Wax Wanted.

WANTED.—White ripe extracted honey; will pay cash. GEO. RAUCH, North Bergen, N. J.

WANTED.—To buy comb and extracted honey for cash; car lots or less. E. R. PAHL & Co.,
Broadway and Detroit Sts., Milwaukee, Wis.

WANTED.—Fancy clover honey, both comb and extracted. Send average sample of extracted honey, and give lowest price.
J. E. CRANE & SON, Middlebury, Vt.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.
R. A. BURNETT, 199 S. Water St., Chicago, Ill.

WANTED.—Comb and extracted honey in any quantity; state quality, quantity, and price f. o. b.
THE WAXELBAUM-HEARD PRODUCE CO., Macon, Ga.

WANTED.—To buy for cash, comb and extracted honey, also beeswax. ROBT. A. HOLEKAMP & SON,
4263 Virginia Av., St. Louis, Mo.

WANTED.—Well-ripened extracted basswood and clover honey. Prompt payment on receipt; 8 cts. per lb., F. O. B. West Bend.
H. C. AHLERS, West Bend, Wis.

WANTED.—No. 1 and fancy comb honey; 4x5x1⅜ section preferred. Also light extracted. Must be guaranteed pure. Write, stating grade and how put up, and lowest cash price.
C. M. CHURCH, Arnold, Pa.

Honey and Wax For Sale.

FOR SALE.—800 pounds of pure beeswax for sale. Refuse from wax-extractors wanted. Will pay cash.
W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—Basswood and buckwheat extracted honey in 60-lb. cans and 200-lb. kegs.
W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—Fine white honey, two cans in case, 124 lbs. at 9 cts. per lb.; 10 cases, 8½ cts. Sample, 10 cts. I. J. STRINGHAM, 105 Park Pl., New York.

FOR SALE.—Extra quality clover and basswood extracted honey in new 60-lb. cans.
F. W. LESSER, Sta. A, Syracuse, N.Y.

FOR SALE.—25 cases alfalfa and sweet-clover honey, in 20-section cases, at $3.40 per case; a very fine article. THOS. ATKINSON, Cozad, Neb.

CHOICE TABLE HONEY.—Direct from apiaries, f.o.b. car. One can, 60 lbs. net, $4.25. two cans, $8.10.
CHECK & WALLINGR, Las Animas, Colo.

FOR SALE.—Alfalfa and sweet-clover honey, mostly 4¼x4¼ plain sections, put up in 24-section glass front single-tier cases. Solicit offers on car lots or less.
J. E. PRYOR, Plateau City, Colorado.

FOR SALE.—Extracted honey from clover and alfalfa, produced by the Emery Co. Bee-keepers' Asso'n. Car lots a specialty. Sample and prices free.
PETER NIELSON, Sec., Huntington, Utah.

FOR SALE.—Alfalfa honey. If you want nice honey for the table try a can of Colorado alfalfa honey, $5 a can of 60 lbs., F. O. B.
A. A. LYONS, Ft. Collins, Col. R. F. D. No. 2.

FOR SALE.—Fine alfalfa honey in large or small lots and at a very low price. Dealers and others wanting a fine table honey should write for free samples and prices to
THE DELTA APIARIES, Delta, Colo.

FOR SALE.—Three tons of comb honey—A No. 1, white, $4 per case; No. 2 white, $3.50; amber or buckwheat, $3 per case; 24 Ideal sections in glass-front case, less than four-case lots, 25 cts. per case extra; honey all well ripened, amber extracted, in sixty-pound cans, two to case, eight cents per pound.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

FOR SALE.—2000 lbs. fancy extracted clover honey, put up 56 lbs. in new cans, at $10.00 per case of two cans, f. o. b. at Amsterdam. Sample free for the asking. This honey was not taken away from the bees before Aug. 1. For body and flavor I am willing to have it compared with clover honey produced anywhere by anybody. EARL RULISON,
R. F. D. No. 1, Amsterdam, N. Y.

FOR SALE.—Raspberry extracted honey—thick, ripe, rich, delicious; been left on the hive for weeks after it was sealed; flavor unapproachable and delightful; honey put up in new 60-lb. cans, two in a case, and offered at ten cents a pound. Also have a few hundred pounds of clover honey, ripened same as above, put up the same, price the same. Will send samples of either upon application. W. Z. HUTCHINSON,
Flint, Mich.

FOR SALE.—1500 lbs. of extra-fine clover honey. This honey was extracted August 1st from new combs. Since extracting it has been kept at a temperature ranging from 80 to 120°. It is light in color, and of a *very heavy body*. In fact, I am so proud of this honey that it will be a pleasure to mail you a sample. I shall put this honey up in clean new 60-lb. cans, and ask only 10 cts. per lb. for it. JAY NORTH,
North Adams, Mich.

FOR SALE.—We have a small quantity of honey on the hive, *curing*, that will be extracted about August 1st. This left-on-the-hive-all-summer honey will be put in new 60-lb. cans, and will be the finest article that skill and pains can produce; of course, it costs more to produce this superior honey than the ordinary, and it is worth more. It is from white clover and wild red raspberry. Ask for free sample. The price in any quantity is 10 cts. a pound f. o. b. shipping-point. E. D. TOWNSEND, Remus, Mich.

Bee-keepers' Directory.

QUEENS.—Clover stock. Experience and methods count. Write me. H. G. LARUE, LaRue, Ohio.

ITALIAN queens bred for honey, untested, 75c each.
GEO. H. PLACE, 816 No. 49th St., Omaha, Neb.

Extra honey queens and choice mountain honey. Francis J. Colahan, Bernardo, San Diego Co., Cal.

QUEENS.—Pure Gold, Red-clover, Caucasian, Banat. ROSE LAWN APIARIES, College View, Lincoln, Neb.

ITALIAN QUEENS.—Golden and leather, 60c each; worth $1.00. G. W. BARNES, Box 340, Norwalk, O.

Bee-keepers' supplies, Italian queens. Send for a free catalog. ARTHUR RATTRAY, Almont, Mich.

ITALIAN BEES and queens—Red-clover strain imp'd mothers. A. W. YATES, 3 Chapman St., Hartford, Ct.

ITALIAN BEES, queens, and Root's bee supplies. E. SCOGGIN, Carlsbad, N. M.

I club a high-grade Italian queen with GLEANINGS, new or renewal. W. T. CRAWFORD, Hineston, La.

ITALIAN BEES and queens—red-clover and golden strains. E. A. SIMMONS, Greenville, Ala.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York City.

ITALIAN bees and queens bred for honey; price list free. B. F. YANCEY & SON, Angleton, Tex.

FINEST Golden and red-clover queens, Caucasian and Carniolan. DANIEL WURTH & GRANT, Pitkin, Ark.

ITALIAN AND CAUCASIAN bees and queens of best quality; price list free. A. E. TITOFF, Ioamosa, Cal.

MAPLEWOOD APIARY.—Choice comb honey, Italian bees and queens. GEO. H. REA, Reynoldsville, Pa. R. 2.

ROOT'S SUPPLIES at factory prices; wholesale and retail. ANTON G. ANDERSON, Holden, Mo.

ITALIAN BEES, queens, and bee supplies. H. H. JEPSON, 182 Friend St., Boston, Mass.

ITALIAN BEES, queens, comb and extracted honey. A. T. DOCKHAM, Rt. 1, Box 95, Eagle Bend, Minn.

ITALIAN BEES, queens, beeswax, honey, and bee-keepers' supplies. M. E. TRIBBLE, Marshall, Mo.

FOR SALE.—Bee-keepers' supplies. Write for catalog. Lengst & Koenig, 127 S. 13th St., Saginaw, Mich.

FOR SALE.—Golden and red-clover Italian queens. WM. A. SHUFF, 4426 Osage Ave., Philadelphia, Pa.

ITALIAN BEES and queens—red-clover and golden strains. E. E. MOTT, Glenwood, Cass Co., Mich.

SWARTHMORE Golden-all-over, Caucasian, Banat, Carniolan, Cyprian queens. E. L. Pratt, Swarthmore, Pa.

GOLDEN yellow Italian queens—my specialty. Price list free. E. E. LAWRENCE, Doniphan, Mo.

ITALIAN BEES, queens, honey, and ROOT'S bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

FOR SALE.—Bees, queens, and bee-keepers' supplies (Root's goods), at factory prices. F. W. VAN DEMARK, Mehan, Okla.

FOR SALE.—Root's bee-supplies, wholesale and retail; factory prices; catalog free. Beeswax wanted. W. E. TRIBBETT, Staunton, Va.

GOLDEN-ALL-OVER Caucasian Banat bees and queens. We book orders for early queens from our best imported breeding stock for honey, with 600 twin mating-boxes. THE SNYDER APIARIES, Lebanon, Pa.

QUEENS.—Improved Red-clover Italians bred for business; June 1 to Nov. 15, untested queens, 60c; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

I must say to my friends, please do not send me any more orders for queens, this season, as my health is so poor I find it impossible to continue queen-rearing. Thanks to all my friends for their very liberal patronage. W. W. CRIM, Pekin, Ind.

IMPROVED ITALIAN QUEENS now ready; nuclei and colonies about May 10. Danzenbaker or L. frames; 20 years a queen-breeder; 500 colonies to draw from. Circular and testimonials free. QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

ANGEL'S GOLDEN BEAUTIES and his bright three-banded Italian Queens have but few equals and no superiors. A fine large queen of either strain for $1.00; an extra select breeder for $2.50. I have had 12 years' experience at queen-breeding. Address SAMUEL M. ANGEL, Route 1, Evansville, Ind.

QUEENS

We beg to remind our customers the season for breeding queens here in Medina is rapidly drawing to a close. At present we are able to furnish all grades by return mail. Now is the best time to requeen. A young queen is more vigorous than an old one in spring, and not nearly so liable to swarm.

Prices of Home-bred Italian Queens

Untested queen	$1.00
Select untested queen	1.25
Tested queen	2.00
Select tested queen	3.00
Breeding queen	5.00
Select breeding queen	7.50
Extra select " " 1 yr. old	10.00

The A. I ROOT COMPANY
Medina, Ohio

BUSHEL CRATES.

Very best make with beveled corners, all hard wood, made up, 11 cts.; in flat, 8 cts.

Full line of Dovetailed hives, sections, smokers, and every thing needed in the apiary, and sold at a discount.

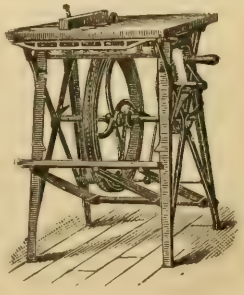
Honey and Beeswax wanted, cash or trade.

Send for free catalog.

W. D. SOPER, Jackson, Mich.

BARNES' HAND and FOOT POWER MACHINERY

This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, etc.



MACHINES ON TRIAL

Send for illustrated catalog and prices. Address

W. F. & JNO. BARNES CO.
545 Ruby Street,
ROCKFORD, ILLINOIS.

Convention and Fair Notices.

PREMIUM LIST FOR ILLINOIS STATE FAIR, SEPTEMBER 27 TO OCTOBER 5.

The judges in this lot will be governed by the code of rules adopted by the Illinois State Bee-keepers' Association.

Five hundred pounds only will receive full score for quantity in displays of comb and extracted honey, and 300 pounds only in displays of candied honey; 50 pounds will receive full score for quantity in display of beeswax.

Only one entry will be allowed each exhibitor for any one premium.

No.		1	2	3
2293	Display of comb honey	$20	$15	$10
2294	Collection of labeled cases containing 12 or more pounds of white honey from different flowers	8	5	3
2295	Collection of labeled cases containing 12 or more pounds of amber or dark honey from different flowers	8	5	3
2296	Case of white clover comb honey, 12 to 24 pounds	4	3	2
2297	Case of sweet-clover comb honey, 12 to 24 pounds	4	3	2
2298	Case of basswood comb honey, 12 to 24 pounds	4	3	2
2299	Case of amber comb honey, 12 to 24 pounds	4	3	2
2300	Display of samples of extracted honey, not less than half-pound each	5	3	2
2301	Display of extracted honey	20	15	10
2302	Honey extracting on the grounds	5	3	2
2303	Frame of comb honey for extracting	5	3	2
2304	Display of candied honey	20	15	10
2305	Display of beeswax	15	10	5
2306	One-frame observatory hive dark Italian bees	4	3	2
2307	One-frame observatory hive golden Italian bees	4	3	2
2308	One-frame observatory hive Carniolan bees	4	3	2
2309	Honey vinegar, one-half gallon, with recipe for making	4	3	2
2310	Display of designs in honey	15	12	8
2311	Display of designs in beeswax	20	12	8

HONEY WANTED.

Notwithstanding repeated calls for honey, both comb and extracted, we have had very few offers. Evidently the demand is such that our readers are finding ready sale at good prices. We need honey to fill orders on file, and should like to hear from those having choice extracted or fancy, or No. 1 comb honey for sale, with description and price.

HONEY-JARS.

We have been disappointed by delay in delivery of a carload of No. 25 and Simplex jars, and, as a consequence, some orders have been delayed. Order was placed more than two months ago, and we were promised delivery early in August. As we go to press we have every reason to expect shipment to arrive within a few days, so that we can fill orders promptly when the car arrives.

THE J. E. HAND SYSTEM.

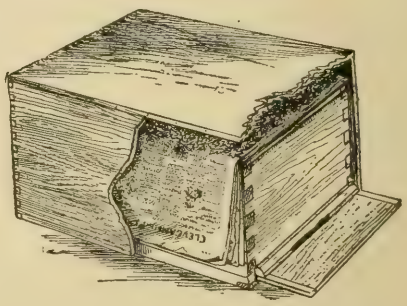
We are receiving numerous inquiries for hives and fixtures as used by J. E. Hand, and described in the series of articles which have been running in GLEANINGS for the past few months. We already list in our catalog, page 5, a sectional or divisible-brood-chamber hive which you can operate by the Hand method; besides it has the advantage of using the Danz. super with 4x5 plain sections. It does not have a movable side, but the super-springs afford the same facility in getting at the contents, for it is not often that you have to disturb the contents of a section of the hive by Mr. Hand's method. We can supply the sections split on three sides, for receiving a full sheet of foundation, at 10 cts. per 100 or 50 cts. per 1000 extra over the price of the regular style.

HONEY PACKAGES AND LABELS.

We call attention to the honey-packages, both of glass and tin, on other pages of this number; also to the inside front cover page of the July 1st issue for labels. We are offering some new designs in labels. If interested in ordering, send for complete label catalog, of which a new edition has just been completed. If you have choice honey to sell, put it on the market in neat and attractive form, and it will find readier sale.

CARTONS FOR COMB HONEY.

In casing your fancy comb honey for market you will find it quite an advantage to enclose each section in a carton before placing them in the case. Sections packed in the Danzenbaker style of carton may be packed in the regular-sized shipping-eases; but the folding cartons which entirely enclose the section require more room, and, consequently, larger cases to take them in. We are now prepared to supply cartons made from a better grade of stock and more artistic printing than the ordinary style listed in our catalog, at about $1.90 per 1000 more than the price of the regular style listed in our catalog. Send for samples with 5 cents to pay for postage on same.



TELESCOPE CAP FOR WINTER PROTECTION.

The above illustration shows a very satisfactory method of protecting bees over winter in single-walled hives. This same cover, listed as K in our catalog, is also a great protection in the fall and spring, especially the latter when bees are building up ready for the honey-harvest. We have known cases where enough additional honey was secured because of this added protection to pay the price of the covers in one season. The rim is 11¼ inches deep, and the top is covered with galvanized steel. The price, nailed and painted, is 80 cts. each, 8-frame; 85 cts., 10-frame. In flat, 62 cts. each; $3.00 for 5, 8-frame; 65 cts. each, $3.10 for five, ten-frame. Where this cover is substituted for the regular cover on a single-wall hive, a light super cover should be used in connection with it. Price of super cover is 15 cts. each, $1.30 for 10.

CHANGES IN PRICES FOR 1907-8.

Up to this time we have determined on the following changes in list prices. During the past season we have worked off our surplus stock of No. 2 plain sections so that from this date forward, until further notice, the price on B grade or No. 2 plain sections will be 25 cents per 1000 higher than the rate given in our catalog.

We cut out the dozen rate on No. 30 wire on spools, and increase the 5-lb. coils to $1.00 each.

B. P. S. paint for hives is advanced to $1.75 per gallon; 90 cts. per ½ gallon; 50 cts. a quart; 30 cts. a pint.

Painted wire cloth is advanced to 2½ cts. per foot for cut pieces; 2 cts. in full-roll lots. Galvanized wire cloth, 8 mesh, is advanced to 8 cts. per sq. ft.

The A B C of Bee Culture, very greatly enlarged and improved, printed on enameled paper, is advanced to $1.50 postpaid; $1.25 with other goods by freight or express. The new edition will not be completed till November. Half-leather editions will be $2.00; full leather, $2.50.

There has been an advance of over 30 per cent in material for bee-veils, and new prices are adopted as follows: No. 1, all silk tulle veil, 90 cts.; No. 2, cotton tulle with silk face, 60 cts.; No. 3, all cotton tulle, 50

cts.; No. 4, mosquito-bar veil, 30 cts.; bee-hat, 30 cts.; silk tulle per yd., 60 cts.; cotton tulle per yd., 25 cts.; mosquito-bar, per piece of 8 yds., 75 cts. No change in globe veil.

EARLY-ORDER CASH DISCOUNT.

This has been such a backward season that we have followed suit and been backward in announcing our early-order cash discount. We have been obliged to cut this down below that offered in former years; but it is still sufficiently liberal to pay transportation charges quite a distance, or to pay liberal interest on the money invested in supplies early, and should attract those forehanded people who know pretty well what they want for the coming season.

Before going to press with our catalog for next year we may find it necessary to make further advances in price, so that we do not guarantee present prices for the future. The small margin of profit the past season, and the increased cost of material for next season's output, warrants an advance.

The following is the schedule of discounts for early cash orders for bee-keepers' supplies, subject to the conditions below:

For cash sent in September,			deduct	5	per cent.
"	"	" October,	"	5	"
"	"	" November,	"	4½	"
"	"	" December,	"	4	"
"	"	" January,	"	3½	"
"	"	" February,	"	3	"
"	"	" March.	"	2½	"
"	"	" April,	"	2	"

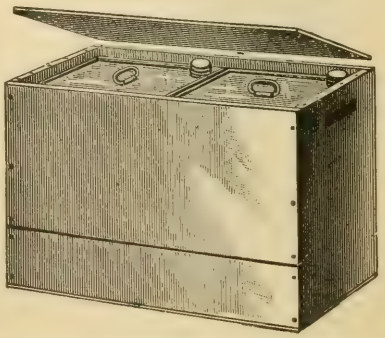
The discount is only for cash sent before the expiration of the months named, and is intended to apply to hives, sections, frames, foundation, extractors, smokers, shipping-cases, cartons, and other miscellaneous bee-keepers' supplies. It will not apply on the following articles exclusively; but where these form no more than about one-tenth of the whole order the early order discount may be taken from the entire bill: Tinned wire, paint, Bingham smokers, Porter bee-escapes, glass and tin honey-packages, scales, bees and queens, bee-books and papers, labels, and other printed matter, bushel boxes, seeds, and other specialties not listed in our general catalog.

A BARGAIN IN MUSIC.

If any of our readers know of a mission church or Sunday-school, or Christian Endeavor Society, in need of singing-books we are in a position to do them some good. We formerly sold large quantities of Gospel Hymns, and have left in stock several lots of desirable books which we will close out at about half price.

We have 51 copies of Christian Endeavor edition of Gospel Hymns No. 6, words and music, board covers, which sold at $35 00 per 100. We offer them to close out at 20 cts. each, $2 00 per doz., or $7.50 for the lot. We have also 14 copies of Gospel Hymns No. 6, which sold at $30 00 per 100. This is the same book, except that the C. E. edition has a few extra special C E. songs in it which are not in the other. We offer these at 20 cts. each, $2.00 for the lot. There are 33 copies of Christian Endeavor Songs, a later edition than No. 6, which sold at $30.00 per 100. Price 20 cts. each, $2.00 per doz., $5.00 for the lot. Postage extra in each case 5 cents each if sent by mail. Of Gospel Hymns Consolidated, Nos. 1, 2, 3, 4, words only, large-type edition, board covers, which sold at $20.00 per 100, we have 23 which we offer at $1.50 per doz., $2.50 for the lot; by mail, 15 cts. each. Small-type edition, limp cloth covers, which sold at $10.00 per 100, we have 46 copies which we offer at 80 cts. per doz., $3.00 for the lot; 8 cts. each, postpaid.

HONEY-PACKAGES IN TIN



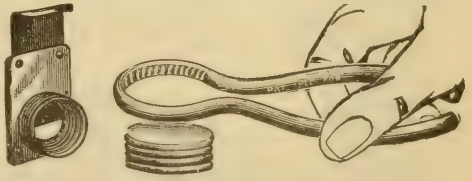
This cut shows a box of two 60-lb. tin cans, which is the standard package for storing and shipping extracted honey. It is far superior to barrels, because there is not the same chance for leakage, or taint from the wood; and, being square, they economize space. Owing to light honey crops, the last two years, the demand has been light, and we have a good stock bought below the prices ruling at present. To reduce this stock we will ship from Medina any orders mentioning this notice, at the following special prices: One box, two cans, 80 cts.; 10 boxes, $7.50; 25 boxes or over, at 70 cts. a box. One box of one can, 50 cts.; 10 boxes, $4.50; 25 boxes or more, at 42 cts. a box.

One-gallon square cans with 1¾-inch cap, 100 in a crate, at $10.00 per 100; 500 or over at $9.00 per 100; packed 10 in a case at $1.35 per case; 10 cases, $12.50.

Sturwold's Show-case.

This case is 28 in. high, 20 in. square, outside measure, top and bottom. The glass of which it is made is 16×24. The case is to be set up in any grocery, drug-store, or any other place of business where you want your honey exhibited or sold. The frame is of chestnut, filled and varnished, and finished in natural grain. Price, plain, $5; with name and address, $5.50. As the glass is very apt to be broken in transit, we will ship them, if you prefer, with glass boxed separately, at same price. In flat, no glass or finish, $2.50; glass included, $4.00.

Screw-cap Honey-gate and Can-screw Wrench.



Price 15 cts.; by mail, 18 cts. Price 10 cts; 75 cts. per dozen. By mail, 4 cts. each extra.

We furnish the gate for 1⅛, 1⅝, or 1¾ screw. Other sizes made to order from caps you may furnish.

The wrench fits a 1¾ screw, and can be used on 1⅝ or smaller by bushing between cap and wrench.

When you order these gates separate from cans we can not guarantee a fit unless you send us a cap from the screw with the order.

Sample Mailing-blocks.

Price, each, 6 cts; by mail, 9 cts.

These are small wide-mouthed glass bottles, which hold ½ oz., with cork, put up in a mailing-block with top which screws on and is easily removed.

Honey-Packages in Glass

We have quite a variety of glass packages for putting up honey for retail. We mention first our

Half-pound Tumbler.

This is shown at the left with a diamond label, No. 95. These include tin cover with wax or parchment paper disk for sealing tight. No labels. Will hold 7 oz. of honey when filled; and the price, $5.50 per barrel of 32 doz n; 5-bbl. lots at $5.25. In reshipping-cases of 4 dozen packed ready to reship, when filled, $1.00 per case; 6 cases, $5.70; 20 cases or over, at 90 cents per case.

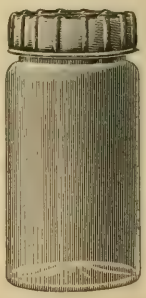
No. 25 Jar.

This holds one pound of honey; has an opal cap with rubber ring and lacquered tin screw rim which seals tight. Packed in reshipping cases of 2 dozen each; price $1.10 per case; 6 cases, $6.30; 20 cases or more at $1.00 per case.

Tiptop Jar.

We keep these in two sizes, for half and one pound of honey. The shape of the jar is shown in the cut. It has a glass top, a rubber ring, and a spring-top fastener. Packed a gross in a crate at $5.00 per gross for 1-lb., or $4.50 for the half-pound size. We have them also packed in reshipping-cases of 2 dozen each at $1.10 per case for 1-lb. size; 6 cases, $5.30; 20 cases or over at $1 00 per case. Half-pound size, $1.00 per case; $5.70 for 6 cases, or 90 cts. per case in 20-case lots.

Simplex Jar.



This is one of the handsomest jars we ever handled. The factory making them was wrecked last August, and we have been unable since to secure any more of the size, which holds one pound. We can supply the next larger size, which holds 18 oz. of honey. Packed in reshipping-cases of 2 dozen. Price $1.15 per case; 6 cases for $6.60; in 20-case lots or over at $1.05 per case. We still have at Philadelphia a few cases of the 1-pound size which may be had from there while they last, at the same price as above.

Sq. Hershiser Jars.

These jars were designed for use in the honey exhibit at the Pan-American Exposition in Buffalo, and are very neat and attractive. They have cork-lined aluminum caps which seal them tight. They are made in four sizes square and three sizes round. The 1-lb. size in each style is shown in the first two cuts at the left.

½-lb.	square	Hershiser	jars,	doz.,	50c;	$5.40	per gross
½-lb.	"	"	"	"	55c;	6.00	" "
1-lb.	"	"	"	"	80c;	9.00	" "
2-lb.	"	"	"	"	1.00;	10.80	" "
½-lb.	round	"	"	"	60c;	6.60	" "
1-lb.	"	"	"	"	75c;	8.40	" "
2-lb.	"	"	"	"	1.10;	12.00	" "

The ordinary square jar to seal with cork, similar to that shown in cut at extreme left, is very largely used for honey. They are made in four sizes. The 1 and 2 lb. sizes are packed ½ gross in a package; the smaller sizes one gross. Price including corks:

5-oz.	square	jar	.....	35c	per dozen;	$3.25	per gross
8-oz.	"		.....	45c	" "	4.25	" "
1-lb.	"		.....	60c	" "	5.75	" "
2-lb.	"		.....	75c	" "	7.50	" "

THE A. I. ROOT COMPANY, MEDINA, OHIO

PROMPT : SHIPMENTS

If you are in a rush for supplies at present, send us your orders. We have a

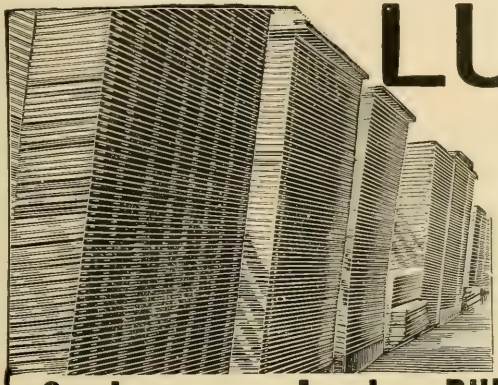
Large Stock of Root Company's Supplies

on hand to fill orders promptly. Also a

Fine : Lot : of : Italian : Queens : and : Bees

in one, two, and three frame nuclei and full colonies. Send for our 40-page catalog.

John Nebel & Son Supply Co., High Hill, Montgomery Co., Mo.



LUMBER

BARGAIN PRICES.

A wonderful opportunity is offered you to buy lumber and building supplies of every kind at ***Prices that will save you big money.*** Such a chance seldom occurs. Lumber for your house, church, barn, meeting house, crib, store, factory, and in fact, buildings of every kind. We can furnish absolutely everything needed in construction material. Have your carpenter or builder make a complete list of everything you require, including Lumber, Sash Doors, Nails, Roofing, Siding, Ceiling, in fact, anything you may need in building material or merchandise of any kind.

Send us your Lumber Bill for Our Estimate.

We bought at Manufacturers' Sale over 50,000,000 Feet of all kinds of Lumber and Finishing Material. We are making special concessions, to those who buy at once. Even if you have no use for this lumber at once, it will pay you to buy now. Our prices will save you 30 to 50 per cent.

We cheerfully invite inspection of our Lumber stock and will be glad to have you come to our warehouse and yards at Chicago, see the lumber we are offering, and you will recognize that it is all what we say of it; make your own selection and see it loaded. It is not necessary to come to Chicago; we can easily sell you by mail. We can quickly convince you of the wisdom of placing an order with us. Just send us your lumber bill, and we will easily ***"Show You."*** On application we will send copies of letters from customers who have bought. They saved money why can't you? Write us to-day. ***WE PURCHASED EVERY EXPOSITION, INCLUDING THE $90,000,000 ST. LOUIS WORLDS' FAIR*** ASK FOR OUR FREE 500 PAGE CATALOG, No. C. H.688. IT QUOTES LOW PRICES ON BUILDING MATERIAL, MACHINERY AND FURNITURE.

CHICAGO HOUSE WRECKING COMPANY, 35th and Iron Sts., CHICAGO.

SEND FOR OUR FREE STOVE BOOK

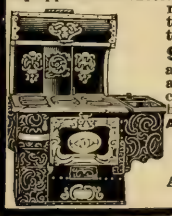
If you want a stove or range of any kind for any purpose, let us send

"A Kalamazoo Direct to You"

TRADE-MARK REGISTERED

at actual factory prices. You save from $5 to $40, because you keep in your pocket all the dealers' jobbers' and middlemen's profits. You run no risk, because we pay the freight and sell you on

360 Days Approval You not only save money but you get a stove or range of exceptionally high quality. Made of the best pig iron and steel of the highest grade, by the most skilled workmen, in one of the most modern and best equipped stove factories in the world. Every Kalamazoo is carefully inspected and we **know** it is right. If not, you get your money back without a quibble. You cannot get a better, no matter how much extra you pay. Why not save all the dealers' profit? Is it not reasonable to suppose that you can save money by buying direct from our factory?



Send Postal For Catalogue No. 416. Compare Kalamazoo Quality and Kalamazoo Prices with others—and save your money. Our line is complete, embracing stoves and ranges of all kinds for all domestic purposes,—for the home, school, church, halls, lodge rooms, etc. Hotel ranges for restaurants, boarding houses, clubs and camps. Gas stoves and ranges for cooking and heating

ALL SOLD AT ACTUAL FACTORY PRICES.

Kalamazoo Stove Company, Manufacturers, Kalamazoo, Mich.

All Kalamazoo cook stoves and ranges are equipped with patent oven thermometer which saves fuel and makes baking and roasting easy.

WE ARE NOT IN A TRUST

Bee-hives, Sections, Brood-frames, Extractors

Every thing that bee-keepers use at **Lowest Prices.** Quality the highest. We've been making them twenty-five years.

American Bee-keeper. A profusely illustrated practical bee-journal which we have published for 17 years, **50c Yr.**

Sample copy and our 1907 illustrated catalog and price list free. Address

THE W. T. FALCONER MFG. COMPANY
DEPARTMENT G . . . . . JAMESTOWN, N. Y.

NEW GOODS! BIG STOCK!

NEW WAREHOUSE ROOT'S GOODS PROMPT SHIPMENT LOW FREIGHT

Every Thing for the Bee-keeper at Savannah, Georgia.

We are now prepared to furnish promptly a full line of supplies; choice new stock just from the factory. **Bees** and **Queens.** We have large apiaries of fine stock. Book your orders at once, as there will be a heavy demand this season. Catalog sent free. Correspondence solicited.

HOWKINS & RUSH, 241 Bull St., SAVANNAH, GA.

DADANT'S FOUNDATION

We guarantee it absolutely satisfactory every way.

¶ Ask any dealer who handles our make along with any other, and he will say, "Of course, Dadant's is the best." Ask a bee-keeper who has used our make and he will tell you the same thing. WHY? Because we make the manufacture of foundation our SPECIALTY. We devote our time and energies to making THE VERY BEST COMB FOUNDATION that CAN BE MADE.

¶ It will cost you no more than any other make. Send for free catalog and prices.

¶ We work beeswax into foundation. We buy beeswax at all times. Prices sent on application.

DADANT & SONS
HAMILTON ILLINOIS

ROOT GOODS for the West

Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS.

My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

Write for estimate with liberal discount for orders sent in now.

JOSEPH NYSEWANDER
565-7 W. 7th St. Des Moines, Iowa

Gleanings in Bee Culture

The River Dart as it wends its way past the apiaries of the Carthusian Monks, Buckfast Abbey, Devonshire, England.

The A. I. Root Co., Medina, O., U. S. A.

Entered at the Postoffice, Medina, Ohio, as Second-class Matter.

Vol. XXXV October 1, 1907 No. 19

HONEY PACKAGES

OUR CASES are the non-drip "Root Quality" kind. Also can supply you with glass and tin packages for extracted honey.

BUY NOW FOR NEXT YEAR

and get 5 per cent cash discount for cash orders in September or October. We will quote you prices on the goods you will need for next season. Get your goods ready through the winter before the rush in the spring. ¶ We carry the Danzenbaker Hive, the Comb-honey Hive.

M. H. HUNT & SON

REDFORD, ~ ~ MICHIGAN

GREAT FIRE SALE

On account of a recent fire which slightly damaged our stock of goods, we are closing out all

POULTRY AND BEE SUPPLIES

AT A 10 PER CENT DISCOUNT.

It will pay you to order any supplies which you will need for next season's use. Make up your order and deduct 10 per cent. Goods guaranteed to be as good as new, except hives are discolored on outside. Don't delay, as they are going fast. Will exchange supplies for honey and wax

The Griggs Bros. & Nichols Co.

523 Monroe St., Toledo, O.

APICULTEURS

des pays de langue Francaise.
Nous vous informons que

L'Apiculture Nouvelle

Revue mensuele illustree,

est tiree de:

Gleanings in Bee Culture

augmentee et completee par des collaborateurs Europeens, reconnus comme Apiculteurs eminents.

L'Abonnement d'un an est envoye franco pour tous pays de l'Union Postale, contre l'envoi par mandat poste de 7.50.

Un numero specimen, ainsi que notre catalogue francais de tous les articles de la

A. I. ROOT CO.

est envoye gratuitement sur simple demande, adressee a

Emile Bondonneau,

Agent General pour l'Europe et les Colonies
de A. I. ROOT CO.,
142 Faubourg Saint Denis 142 Paris (10e)
France.

L'Edition Francaise de l'A B C de l'Apiculture est egalement parue.

C. H. W. WEBER

Headquarters for . . .

BEE-SUPPLIES

Distributor of Root's Goods Exclusively at Root's Factory Prices

GIVE ME your orders for the **Best Goods Made.** You will be pleased on receipt of them. You will **save money** by ordering from me. My stock is complete; in fact, I keep **every thing** the **bee-keeper** needs. **Cincinnati** is one of the best **shipping-points** in the Union, **particularly in the South,** as all freight now **goes through Cincinnati.** Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly **free.**

WANTED.

Fancy White Comb and White Clover Extracted HONEY.

Queens and Nuclei

Let me book your orders for queens. I breed the finest **Golden Italians, Red-clovers, and Caucasians.** Can furnish **Nuclei** beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White Sweet-scented Clover, Alfalfa, and Alsike.

C. H. W. WEBER

Office and Salesroom, 2146-48 Central Ave.
Warehouse, Freeman and Central Avenues.

CINCINNATI, OHIO, U. S. A.

Honey Markets.

GRADING RULES.

Fancy.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

The prices here quoted are wholesale, or what the honey brings on arrival.

Philadelphia.—The sales of honey have been quite active in this market during the past week. Bee-keepers seem to have a tendency to hold back reports as well as their stock, and, therefore, those who are sending honey to market are getting good prices. Later on, when the early demand is supplied, those shipping honey will be disappointed in not receiving better returns, as during September and October honey is higher than at any other time of the year. We quote: Fancy comb honey in this market, wholesale, 17 to 18c; No. 1 white, 15 to 16; amber, 14. Extracted honey, water-white, 7½ to 8; amber, 6½; dark, 6. Beeswax, 30.

We are producers of honey, and do not handle on commission. Wm. A. Selser,
Sept. 24. 10 Vine St., Philadelphia, Pa.

New York.—Demand good for comb honey, especially so for fancy and No. 1 white. As the season has been very late, arrivals have been slow, but quite fair lots are now coming into market. We quote fancy white at 16 to 17c; No. 1 at 15; No. 2 at 13 to 14. No price established as yet on buckwheat, nor has any arrived. Extracted also in good demand, with prices gradually stiffening up. Receipts are mostly from California, near by, and West Indies. We quote California white sage at 9c; light amber at 8; amber at 7 to 7½; white clover at 8 to 9. Beeswax plentiful, and somewhat off in price, selling at from 29 to 30c per lb., choice stock. Hildreth & Segelken,
Sept. 23. New York.

Zanesville.—Some comb honey is now coming in, but high prices are holding back the demand somewhat. Better grades of white comb bring 20 cts. wholesale. For finest white extracted I get 11 to 12½ in 60-lb. cans; pound jars, wholesale, $2.25 a dozen. For good yellow beeswax I offer 29 cts. cash or 30 in exchange for bee supplies. Wax wholesales at 40.
Edmund W. Peirce,
Sept. 19. 136 W. Main St., Zanesville, O.

Albany.—We are having an unusually early demand for comb honey. Receipts are lighter than for many seasons. It looks like a very short crop, and trade is accepting the situation. Prices are high, and we advise selling while the demand is on. We quote, and think we can sustain these prices: Fancy white comb, 17 to 18 cts.; No. 1, 16 to 17; No. 2, 15; buckwheat and mixed, 14. Extracted, quiet but firm, in sympathy with comb; white, 7½ to 8; amber, 7; dark, 6½ to 7. Beeswax, scarce at 32.
H. R. Wright,
Sept. 21. Albany, N. Y.

New York.—The movement in clover comb honey is now well under way, and stocks arriving quite freely. Fancy comb is bringing as high as 17. Buckwheat has not commenced to arrive as yet. California extracted is firm, and for the best quality as high as 9 has been paid. We quote: Clover, comb, fancy, per lb., 16 to 17; do. fair to good, 13 to 14; do. California, extracted, best sage, 8½ to 9; do. amber, 7¾ to 8; do. Southern, extracted, per gallon, 55 to 70. Beeswax. Market a shade easier under somewhat heavier receipts, and pure domestic wax is now steady at 30, with very little bringing any more.
Tribune Farmer, Sept. 19.

Indianapolis.—The demand at this market is principally for white-clover honey. A deluge of alfalfa honey is being distributed here, and dealers are nervous lest the deluge of Western honey should break the market. High prices thus far have not been a detriment to prompt sales. Fancy white comb sells to the retail grocery trade in lots of one to five cases at 19 to 20 cents per pound, actual weight. Finest extracted in five-gallon cans sells from 11 to 12 cents per pound. Alfalfa and sweet-clover honeys sell at slightly lower prices. Beeswax is offered freely, and sells for $35 per 100 pounds. Walter S. Pouder,
Sept. 19. Indianapolis, Ind.

Cincinnati.—The market for honey here for white-clover extracted is brisk, selling in 60-lb. cans at 10 cts.; in barrels, at 9 cts.; No. 1 white-clover comb honey, 17½ to 18; amber, 6 to 6½. Beeswax is selling at 32 cts. C. H. W. Weber,
Sept. 21. Cincinnati, O.

Kansas City.—The receipts of honey are more liberal, but the prices remain about the same. We quote: No. 1 white comb, 54-lb. section cases, $3.00; amber, per case; $3.25; No. 2, per case, $3.00; extracted, amber, per lb., 7½; white, 8½; beeswax, 25 to 28.
C. C. Clemons & Co.,
Sept. 19. Kansas City, Mo.

San Francisco.—Stocks of comb honey are very small in the San Francisco market, though extracted is in fairly good supply. Little has been arriving recently, though considerable quantities are held in the country, in expectation of higher prices, and occasional shipments to other markets are reported from centers of production. The market here shows no great activity at present. Amber, extracted, 6½ to 7½; new fancy white comb, 16 to 17; water-white, extracted, 7½ to 8. *Pacific Rural Press*, Sept. 21.

WHAT HAS MUTH GOT NOW?

Genuine Orange-blossom Honey. Genuine Black-sage Honey. Genuine White-clover Honey.

(All in crates of two 60-lb. cans each),

and Fancy Comb Honey in 24-section cases, averaging 22 lbs. to the case.

You better write for prices; this honey is too good to stay long on our hands.

THE FRED W. MUTH COMPANY,

51 WALNUT STREET. The Busy Bee Men. CINCINNATI, OHIO.

CLEVELAND.—White box, $3.75 to $4.00; amber box; $3.25 to $3.50. *Cincinnati Packer*, Sept. 21.

SPOKANE.—Box comb honey, $3.75 a case. *Spoksman-Review*, Sept. 17.

SALT LAKE CITY.—Comb honey, per case, $2.75; extra grade, per case, $3.00. Extracted, per lb., 7. *Deseret Farmer*, Sept, 21.

KANSAS CITY.—Comb honey (Missouri) per case, $3.85. *Cincinnati Packer*, Sept. 21.

WE WILL BUY AND SELL

HONEY

of the different grades and kinds.

If you have any to dispose of, or if you intend to buy, correspond with us.

We are always in the market for WAX at highest market prices.

HILDRETH & SEGELKEN,

265-267 Greenwich St. 82-86 Murray St.

NEW YORK.

Unusual good demand for

Honey

this season. We invite your correspondence, and your consignments of both Comb and Extracted Honey, and Beeswax. Commission 5 per cent. Liberal cash advances and prompt returns.

H. R. WRIGHT,

ALBANY, N. Y.

Estab. 1875.

Northern New York Bee-keepers.

10 PER CENT DISCOUNT.

We have a large stock of shipping-cases and feeders, and all orders for same will be filled promptly. Beeswax and old combs wanted; cash or trade; 10% discount during the month of Oct. on every thing but cases and feeders. Comb honey wanted; write stating how put up, kind, and lowest cash price deliver'd in Watertown, N. Y.

A. H. REEVES & CO., 17 Morrison St., WATERTOWN, N. Y.

CUTS USED IN THIS MAGAZINE ARE FROM THE MUGLER ENGRAVING CO. MUGLER BLDG. CLEVELAND, OHIO.

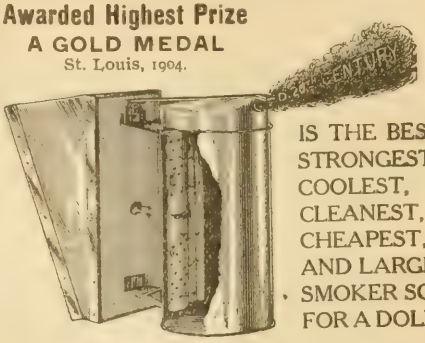
The Danzenbaker 20th Century Smoker

Pat. Oct. 3, '05, June 4, '07.

Awarded Highest Prize

A GOLD MEDAL

St. Louis, 1904.



IS THE BEST, STRONGEST, COOLEST, CLEANEST, CHEAPEST, AND LARGEST SMOKER SOLD FOR A DOLLAR

It has a side grate that strengthens the fire-cup and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to **CLOG WITH SOOT**.

ALL THAT IS CLAIMED.—N. E. France, Platteville, Wis., General Manager of the National Bee-keepers' Association says:

I have given your 20th Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best.

SURPASSES ALL OTHERS.—Mr. Grant Stanley, Nisbet, Pa.—"After giving the Danzenbaker 20th Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until the fuel is all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker."

BEST IN TWENTY YEARS.—M. D. Andes, Bristol, Tenn.—"I have used the 20th Century Smoker one season. It has given me entire satisfaction. In my twenty years of bee-keeping I first used the old stand-by Clark smoker, and I believe I have tried all the different makes, as I am always looking for the best, and will say that your smoker beats them all up to date."

NEVER TOO HOT TO HOLD.—Dr. Reginald Munson, Washington, D. C.—"I am well pleased with the 20th Century Smoker. It keeps fire well without getting too hot to hold on continuous use, and makes smoke enough to satisfy the most critical."

Price Dan-ze, Large 3½-inch Smokers:

Postpaid—one, $1.15; two, $2.10; three, $3; five, $4.50.

By Express or freight—one, $1; six, $4.20.

"Facts About Bees," a sixty-four-page pamphlet, sent free on request. Send also address of your bee-keeping friends for same.

F. DANZENBAKER, NORFOLK, VA.

(Jamestown Exposition Sta. Money-orders on Norfolk.)

IT IS JUST OUT

Root's A B C in German

We have just been informed by our printers that the work of printing the A B C of Bee Culture in German has been finished, and that in a few days 1000 copies will be in our hands for distribution. The price is $2 postpaid. Send in your order now if you wish a copy hot from the press.

A. I. Root Co., Medina, O.

AND ALL AGENCIES

Established 1873
Circulation 32,000

72 pages, semi-monthly
$1.00 per year.

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

Published by
THE A. I. ROOT CO., Medina, Ohio

J. T. CALVERT, Business Manager

POSTAGE IS PREPAID by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian postage is 30c per year. For all other countries in the Postal Union add 60 cents per year postage.

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DISCONTINUANCES.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

HOW TO REMIT. Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of The A. I. Root Company, Medina, Ohio. Currency should be sent by Registered Letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

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Made by O-HI-O Cooker Agents in 1905 selling the

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combination
Steam Cooker-Baker.

We have many agents making $5 to $10 daily. Write us and we will give you names of agents near by who are making at least $5 daily. We can easily prove that the "O-HI-O" is the best money-maker you ever heard of, and will make you more money than any thing you ever sold or are now selling. *Write us at once and we will prove it.*

Guaranteed to save 50 per cent in fuel, labor, time, and provisions. A whole meal cooked over one burner on any style stove. It assures you deliciously cooked hot meals; *30 days' trial.* No intermingling of odors or tastes. Fine for use in summer cottages. A necessity every day of the year. The only healthful way to cook foods and breadstuffs.

Handsomely illustrated catalog free.

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908 Jefferson Av., Toledo, O.

The HAND SYSTEM of Divisible-Brood-Chamber Hives

WE have received so many inquiries with respect to **MR. J. E. HAND'S SYSTEM** of bee-keeping we desire to say that we list a divisible-brood-chamber hive in our regular catalog which is intended to work on Mr. Hand's plan. It does not have the side-opening feature, but the yielding super-springs answer every purpose. It has the advantage that the regular 4x5 section is used. If you do not care to continue the new system you can, with this hive, go back to the old methods, using the sectional chambers as supers. We are prepared to furnish it in eight or ten frame widths at the following prices:

AED882M-8	Sectional hive, eight frame, nailed and painted,						$3.00	each.	In flat,	$2.30;	five,	$10.50;	ten,	$19.00
AED994M-8	"	"	"	"	"	"	3 50	"	"	2.70	"	12.00	"	22.00
AED001M-8	"	"	"	"	"	"	5.00	"	"	3.40	"	16.00	"	30.00
AED882M-10	"	"	ten	frame	"	"	3.20	"	"	2.50	"	11.50	"	21.00
AED994M-10	"	"	"	"	"	"	3.70	"	"	2.90	"	13.00	"	24.00
AED001M-10	"	"	"	"	"	"	5.35	"	"	3.75	"	17.50	"	33.00

We can supply sections split on three sides for receiving full sheets of foundation at 10c per 100 extra, or 50c per 1000 extra over regular styles.

Prices of split sections: 100, 85 cts.; 1000, $5.25.

The A. I. Root Company

Medina, Ohio

Gleanings in Bee Culture

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DEADFALLS AND SNARES.

This book is one of the publications of A. R. Harding & Co., the well-known publishers of the *Hunter-Trader-Trapper*. It is in line with Mink-trapping and Fox-trapping. It is graphically illustrated with 232 cuts so that the various traps will appear clear the understanding of interested readers. All kinds of deadfalls and snares are mentioned, so that either a squirrel or a bear may be captured by following instructions. It will make fine reading for the country boy who wants to learn the different ways of capturing fur-bearing animals of all kinds. Even the veteran trappers will be interested. North America is a land of hunters, and many a country boy will add to his income by carefully studying this book. Read our offer elsewhere for this book, together with GLEANINGS for one year.

TELEPHONES IN RURAL DISTRICTS.

We have just received a series of very interesting booklets gotten up by the Stromberg-Carlson Telephone Mfg. Co., of Rochester, N.Y., which would doubtless interest quite a number of our readers in a very practical way. These booklets throw considerable light on the whole matter of telephones, and are so prepared that any intelligent person can, with a little attention to the detail, gain quite an insight into the practical operation of rural telephone exchanges.

It is hardly necessary for us to say any thing in praise of the telephone for farmers, since it does so much to make life in the country far pleasanter, more particularly during bad winter weather, or sickness in the home. To be able to call a doctor at any minute is a wonderful consolation to many. Then the saving of time, particularly when work is very pressing, is extremely important.

These booklets are very practical, and easily understood. The first one we note is, "How to Build a Rural Telephone Line," and without doubt a careful study will show a reader just how this is done. Next we note "Telephone Troubles," which shows how the line can be kept in good working order at all times. "How the Telephone Helps the Farmer" shows how to interest the neighbors in a telephone project, and just what to do to get the thing started; shows the first cost, and the way to finance the undertaking. It gives the advice to buy a good telephone system while you are about it, in which we all agree. It also shows how telephones are made—good ones. Then it gives a model constitution and by-laws for the guidance of parties desiring to inaugurate a local system. "Telephone on the Farm" gives some of the latest ideas on the subject. Last, but most important of all, comes the price-list, and this is well worth studying. Write to the company with respect to these booklets, as we understand they give them away to those who are really interested in having a telephone on the farm. This is a large reliable concern that has done much to make the telephone cheap and popular. Look for their advertisement elsewhere, and send to the address which suits you best for the booklets and any further advice you may require.

BONE-CUTTERS FOR WINTER EGGS.

Most bee-keepers are poultry-keepers both from choice and convenience, so that they are pretty well posted on the various appliances used in the scientific management of the modern poultry-yard. But we wish to say a word in favor of the bone-cutters made by an old reliable firm, Humphrey, of Joliet, Ill., who now advertise in this journal. We hope those who require a bone-cutter will remember this firm before placing an order. Send for their catalog any way; it is worth while sending for.

Some Good Offers for You

The American Bee Journal, on July 1, 1907, was changed from a 16-page weekly to a 32-page monthly, at 25 cents a year. September 1st the yearly subscription price was placed at 50 cents, which is very low indeed when you consider what the Journal is. It is now in its 47th year—the oldest bee-paper in America. We want *you* to see a copy of it; if you have not already seen it, send us a postal-card request at once and we will mail it.

A Few Special Combination Offers

1. One Untested Standard-bred Italian Queen (in Sept. or Oct), with the American Bee Journal one year—both for only one dollar. (Queen alone, 60 cts.)
2. An Ideal Hive-tool (postpaid) with Bee Journal one year—both for only 60 cents. (Tool alone, 30 cents.)
3. One Queen-clipping device (by mail) with Bee Journal one year—both for only 60 cents. (Device alone, 25 cts.)
4. Ten Bee and Teddy Bear Souvenir Postal Cards (by mail) with Bee Journal one year—all for only 60 cents. (10 cards alone, 25 cents.) Address

GEORGE W. YORK & COMPANY,

118 W. Jackson. Chicago, Ill.

Deadfalls and Snares.

This book gives all known methods of making deadfalls and snares. It is just the thing for trappers, hunters, and woodsmen generally.

Deadfalls and snares is edited, printed, and published by A. R. Harding, who is an experienced trapper, also the editor of *Hunter-Trader-Trapper*. The book is nicely bound, and has 232 illustrations.

It is composed of 28 chapters as follows:

Building Deadfalls,
Bear and Coon Deadfalls,
Otter Deadfall,
Martin Deadfall,
Stone Deadfall,
The Bear-pen,
Portable Traps,
Some Triggers,
Trip-triggers,
How to Set,
When to Build,
Where to Build,
The Proper Bait,
Traps Knocked Off,
Spring-pole Snare,
Trail-set Snare,
Bait-set Snare,
The Box Trap,
The Coop Trap,
The Pit Trap,
Number of Traps,
When to Trap,
Season's Catch,
General Information,
Skinning and Stretching,
Handling and Grading,
From Animal to Market,
Steel Traps.

Deadfalls and Snares, together with a year's subscription to GLEANINGS, $1.30.

The A. I. Root Company, Medina, O.

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Our Advertising Rates.

Twenty cents per agate line, flat.
Fourteen lines to inch.

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One-half page..... 21.00
One page..... 40.00

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Preferred position, inside cover pages 50 per cent additional.
Outside cover page, double price.
Reading notices, 50 per cent additional.
Cash-in-advance discount, 5 per cent.
Cash discount, if paid in 10 days, 2 per cent.
Bills payable monthly.
No medical or objectionable advertising accepted.

"A Square Deal."

We believe that every advertisement in this paper is backed by a responsible person. But to make doubly sure we will make good any loss to paid subscribers sustained by trusting any deliberate swindler advertising in our display columns, and any such swindler will be publicly exposed. We protect subscribers against rogues, but we do not guarantee to adjust trifling differences between subscribers and honest responsible advertisers. With regard to the classified columns, we can not protect our readers from what they consider bad trades, where there is room for a good deal of difference of opinion. This would be impossible; but we do protect them from all deadbeats and swindlers. Of course we are not responsible for the debts of an honest bankrupt sanctioned by the courts. Notice of the complaint must be sent to us within one month of the time of the transaction, and you must have mentioned GLEANINGS IN BEE CULTURE when writing the advertiser.

How to Keep Bees

By Anna Botsford Comstock

228 pages. 32 pages of illustrations.

A charmingly written manual describing clearly and in detail the outfit, first steps, and methods. The author's well-known literary ability has combined with her enthusiasm for a subject to produce a very unusual volume. It is a handbook for those who keep bees for happiness and honey, and incidentally for money. It serves as well as an introduction to the more extended manuals already in the field. "Finally with all due deference to the authors of the excellent books on bee culture which we have already, my opinion is that this new book, 'How to Keep Bees,' is the best one for a beginner, or one who does not wish or expect to keep more than a dozen colonies, that has yet come before the world."—*A. I. Root, in Gleanings, July 1, 1906.*

Chap. 1, "Why Keep Bees," urges honey, perhaps money, recreation, love of nature study, and the need of bees in "a perfect garden," as good reasons for keeping bees. The second chapter tells "how to begin" in a small way, and we may get all the necessary detailed information for management from later chapters, arranged in order of demand for information.

Price $1.00. Postage 10 cents extra.

Money refunded to any dissatisfied purchaser.

The A. I. Root Co., Medina, O.

ONLY A SIMPLE TUBE!

See that tube in front of the lower hive that stands at the right? It is a simple thing, yet see what it does: In an article in the *Bee-Keepers' Review* for August, entitled "Bees, Brood, and Supers Kept Together by a Dudley Tube," Mr. E. F. Atwater starts out as follows:

"We will now describe the Dudley-tube method, which gave us such fine results last year, with no dividing (unless we want increase), no shaking, no absconding, no sulking, no scattering to nearby hives, and *big results*. In this not only do we go with Mr. Gill in keeping bees, queens, and supers together, but we actually keep the *brood* and *emerging bees* on the old stand also, so as to secure the best results in the supers. Yet we have no swarming, nor need we wait until they are preparing to swarm before treating the strong colonies, unless we wish. Yet a weak colony, properly treated, may do super work when otherwise it would not."

Mr. Atwater then goes on and describes the construction of the tube and the different ways in which it may be used. This is the kind of information that you find in the *Review*. Send me $1.00 and I'll send it to you from now to the end of next year; or I'll send you the August number and two other late issues for only ten cents, and the ten cents may apply on any subscription sent in during the year.

W. Z. HUTCHINSON, **FLINT, MICH.**

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RIGHT SIDE UP

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10-in. 4-row "	30	25	2 00	17 00	16 00	15 00	360
12-in. 2-row "	20	15	1 30	11 00	10 50	10 00	225
10-in. 2-row "	20	15	1 20	10 50	10 00	9 50	200
16-in. 2-row "	25	18	1 50	12 00	11 50	11 00	300
8-in. 3-row "	20	15	1 30	11 50	10 75	10 00	225
6¼-in. 3-row "	20	15	1 20	11 00	10 25	9 50	200
7⅛-in. 4-row for 4x5..	30	22	1 80	16 00		14 00	300
7⅛-in. 3-row " ..	25	20	1 40	12 00		10 50	250
9¼-in. 4-row for 3⅝x5	30	22	1 80	16 00		14 00	350
6¼-in. 3-row "	25	20	1 40	11 50		10 00	200

In order to facilitate prompt shipment, please order in either ten or fifty lots.

The A. I. ROOT COMPANY

SYRACUSE, NEW YORK

W. H. Laws says, If there is a queen-breeder who can boast of better stock let him trot out the proof. Testimonials enough to fill this book. Will give you only one. Mr. J. C. King, Washington, D. C., writes, "For two years I have had one of your queens in my apiary. Each season she has given me over 200 lbs. comb honey; last season she actually stored while other colonies starved. I have over twenty strains in my three apiaries, but yours is the best."

Now is the time to get a fine breeding queen; stock up this fall and double your crop of honey the coming season. Single queen, $1.00; 6 for $5.00. Extra select breeders, $5.00. Safe arrival and satisfaction guaranteed.

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MEDINA, OHIO

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and go well together

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Are the World's Standard

This is the season for Roup and the sneezing, wheezing, swollen headed fowls should be quickly restored to health, usefulness and profit. You cannot afford to experiment, so use

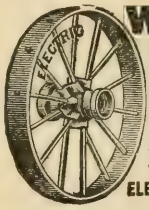
CONKEY'S ROUP REMEDY

Just a thimbleful in the drinking water and they cure themselves. Onr absolute guarantee goes with it, and it means your money back should it disappoint you.

Conkey's Book on Poultry Free for 4c in stamps and names of two others interested. It solves the whole poultry problem and is worth dollars to any poultry raiser. **GET IT TODAY.**

THE G. E. CONKEY CO.
315 OTTAWA BLDG , CLEVELAND, O.

Conkey's Poultry Remedies are carried by A. I. Root Co. at their branches, New York, Philadelphia, Washington, Chicago and Medina.



WAGON SENSE

Don't break your back and kill your horses with a high wheel wagon. For comfort's sake get an

Electric Handy Wagon.

It will save you time and money. A set of Electric Steel Wheels will make your old wagon new at small cost. Write for catalogue. It is free.

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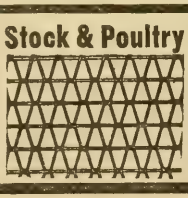

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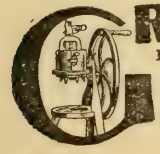

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GLEANINGS IN BEE CULTURE

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STRAY STRAWS
by Dr. C. C. MILLER

ON BEHALF of honey-producers in general, I arise to move a vote of thanks to GLEANINGS and Messrs. Pouder and Peirce for doing their part toward getting prices out of the ditch.

YOU ADVISE my encouraging farmers near me to sow buckwheat, Mr Editor, p. 1188. Rather not. Just now, Sept. 13, I'm having a fine flow of very light honey, and I should not like buckwheat mixed with it.

REPLYING to a correspondent, I don't use shipping-crates. If I shipped in smaller quantities I would; but I wouldn't make the crates; I'd buy them. No, the Root Co. does not list them. I don't know why, but they make them.

A QUEEN which has been regularly occupying seven frames will have contained in them the proportion of about one frame of eggs, two of unsealed brood, and four of sealed brood. [This is about the proportion as we find it.—ED]

BEG PARDON, Mr. Editor, I didn't say drone-cells were invariably narrowed at the mouth before worker-eggs were laid in them. I only said I had never seen them otherwise, and raised the question whether others had. Have you? Page 1189.

FRIEND A. I. ROOT, you ask, p. 1093, that some one with "experience in getting rid of bees where there was no sale for them" would tell how to get the honey and get rid of the bees. I'm afraid very few have had such experience; and, although I don't come in the prescribed class, I would suggest doubling up in fall or spring. That will reduce the number of colonies, and perhaps secure more surplus than "taking up" in the fall.

THE *Schweiz. Bztg.*, p. 269, reproduces from GLEANINGS the cut of the extractor run by power by E. D. Townsend, and also a picture of one that has been run five years by a Swiss bee-keeper, Herr Bracher. The multitude of mountain streams in Switzerland favors cheap water-power, as also electricity. [Where water under pressure is available it affords the nicest power.—ED.]

DOOLITTLE is quoted in *Schweiz. Bztg.*, p. 245, as saying that he has tried all the plans for prevention of swarming, and concludes that swarming is natural, and so he will make no further effort to prevent it. That must be ancient history. Nowadays I think Doolittle is in the band-wagon with the rest of us. [You believe, in other words, that Doolittle now believes that swarming can be kept under control. Indeed he does; for he has written a treatise on that subject.—ED.]

AN ESTEEMED correspondent wants a Straw about keeping a few hundred sections. Keep them where salt will keep dry—any dry warm place, the warmer the better. High up in a kitchen's a good place. If afraid of worms, pile them in supers, an empty super on top, in that a saucer in which you pour two or three tablespoonfuls of bisulphide of carbon, and cover up without breathing it. Look out for fire—highly explosive. [Good advice, every word of it.—ED.]

WM. MCEVOY says, *Canadian Bee Journal*, p 245, that it is more important that every bee-keeper should know the dark stain-marks of foul brood on the lower side of the cells, where it is dried down in dark scales, than that he should be familiar with the stringy character of the brood. In treating diseased colonies he never starves them—always feeds well. [McEvoy is pretty nearly right. It *is* important to know whether an old comb is disease bearing, and therefore unfit to go back into a hive.—ED.]

THIS YEAR I killed a few queens for no other reason than that they were born in 1904, and so had already past through three winters. I never did a thing of the kind before, and I'm not so dead sure of the wisdom

of it. Some of my 1904 queens did excellent work, and you couldn't tell from their appearance whether they were one year old or three. If I had allowed the bees to supersede them, don't you believe it would have been favoring longevity in their successors? As Mr. Beuhne, an Australian bee-keeper, says, "We can't have short-lived queens and long-lived workers." [While *some* more than three-year-old queens are better than some yearlings, is it not true that the *average* of those more than two years old should be replaced by younger queens? It is a well-recognized fact in the poultry business that it does not pay to keep a hen after the first year. She does her best work in egg-laying the first season. The same holds true to a certain extent with queens. While admitting this, we can not deny that some three-year-old queens are worth keeping for honey alone, another year. Conversely, it is true that many three-months-old queens ought to have their heads pinched. The fact is, the practical producer must use judgment in applying the rule of replacing his queens every two years.—Ed.]

Those two queens in the same hive in the out-apiary. One was a 1904 queen with all wings clipped; the other a 1905 queen with wings clipped on one side. August 19 they were put into a hive in the same cage, with a splint in the candy. Aug. 24 the 1905 queen was out, laying; the 1904 queen still in cage. Let 1904 out on comb. Aug. 27, saw 1904, but could not find 1905, nor could I find 1905 at any time since. Now, was that not strange that the younger queen should be rejected, especially after being first accepted? [This seems to support the old rule that, of two normal queens in one colony, one will be missing in a short time—not because the bees put one out of business, but because there was a duel between the two queens, and one was killed. Perhaps the 1904 was the more vigorous, and hence the victor.—Ed.]

So far I had experimented with old queens—thought I'd try young ones. I put in the same cage two that had been laying two or three days. Pretty soon they showed fight, and I separated them. It might have been different if each had been in a separate cage. [We are getting a little light. Perhaps *old* queens won't fight when *young* ones will. We should like to hear from others on this point.—Ed.]

Prof. Cook, I don't see but you and I are pretty nearly agreed on hive-entrances and openings for ventilation. You believe in an upper opening for ventilation sometimes, p. 1076, and I believe the same, only to a greater degree. You speak on that page as if I advocated making two regular entrances to be used by the bees. Look again at Straws, p. 755, and you will see that in some way you have misread. I there objected to your saying, when speaking of ventilation, p. 312, "It is, without doubt, best to have only the one opening to the hive." But I don't have two entrances. Almost never do the bees use an entrance any other than the regular entrance; and my bees don't glue shut the ventilating openings. In 1000 cases I never knew one so closed unless too narrow for a bee to pass, and a bee will always glue a crack it can't get through. Even if they always tried to glue up the openings, I would not consider that conclusive against such openings. Closing them helps toward swarming. The bees favor swarming. I don't.

I wonder if you wouldn't like better the plan of sliding the upper story backward to make an opening instead of your plan of raising the upper story, which, by increasing space, favors burr-combs.

Something out of whack about quotations in "Honey Markets." A difference of 6 or 8 cents a pound between places so near together, and a higher quotation in Frisco than New York don't look right. Fact is, the dictum of those men who make quotations has almost every thing to do with settling the price, and those 16-cent men are not doing the square thing by us producers. With the advance in prices in general, and a shortage in the supply, any thing like 16 cents for comb honey is out of all reason. Talk about honey being a luxury, and any thing more than 16 cents being prohibitive! The fact is, honey is an economical article of food, and with our pure-food laws there's no reason why it may not take its proper place as a staple article—at 25 cents much cheaper than butter, even if you call it a luxury. Years ago 25 or 30 cents was not a prohibitive price, and it wouldn't be now. Luxuries are cut out when pinching hard times come, but times are not pinching. Never, perhaps, was there a time when people in general were more able to indulge in luxuries than now—never more willing, and they're willing to pay the price. The whole thing is, that a few men set the pace and we producers stand it. Gentlemen who do the quoting, please give us a square deal. [That's right, doctor. These men mean to give us a square deal; but they do not appreciate the fact that the crop is very short; that fruit is scarce; that adulterated honey can not pull down the price of good honey as formerly. There has been a marked advance in all food products except honey. While it has advanced in some markets to a fair price it has made only a slight gain in others. This is not as it should be.—Ed.]

Mr. Geo. W. Bercaw, formerly of Ohio, but now a resident of California, paid The A. I. Root Co.'s factory and Gleanings office a friendly visit in the early part of September. Mr. Bercaw is the proprietor of the Aliso apiaries at El Toro, Cal., and reports the honey crop on the coast as somewhat short, but that in other respects conditions were good on the Pacific Slope. Now that prices are higher, the western bee-keepers, when they do get a good crop, will make a small fortune, and they ought to after waiting so long.

THE middle of September has been characterized by a peculiar hot spell of weather. The hot wave has extended throughout the South as well as the North.

SECRETARY OF AGRICULTURE WILSON recently said that one man owned 30,000,000 acres of timber lands in the Western States. This largely explains the present high price of lumber.

BY the peremptory order of R. M. Washburn, Dairy and Food Commissioner of Missouri, oleomargarine has been barred out of that State. We are hopeful he will soon get to work and bar out glucose for the same reasons that oleo has been prohibited.

SWISS bee-keepers' convention took place this year at St. Gallen, a beautiful Swiss city, around which are quite a number of bee-keepers. Switzerland is now well to the front, as befits the native land of Huber, the prince of bee-naturalists.

THE *American Grocer*, following up a Los Angeles report, says California honey—the best in the land—will be conspicuous by its absence this season. If any person doubts this statement let him read the San Francisco honey-market reports or any other reliable reports.

A RECENT trip of the editor down to the Jamestown Exposition has shown an unusual amount of goldenrod in bloom along the route. The frequent rains have made them unusually vigorous. So much goldenrod as well as other bloom this season ought to give the bees a nice stimulus for winter. Indeed, we already have reports of some nice fall flows.

WE have received the May, June, and July numbers of the new Italian bee journal, *L'Avvenire Apicolo*, published at Rome, Italy, by Professor Josty. It is considerably larger than GLEANINGS, and has 16 pages of reading-matter well printed on excellent paper, and bound with red cover pages. It is a very ambitious journal, and we hope it will succeed. Italy already possesses two bee journals; but Rome, once the mistress of the world, surely ought to be able to sustain a good one. W. K. M.

IN connection with the Uncompahgre irrigation project in Colorado, already referred to in this journal, we note that there will be six beet-sugar factories started on this project alone, each one costing not less than a million dollars, or $6,000,000 in all. The estimated total cost of the whole project is about $5,200,000, so that the beet-sugar factories alone exceed the entire cost of the project. This will give an onlooker some conception of the beneficent effects of Uncle Sam's policy in reclaiming the arid lands, for beets will form only a fraction of the crops raised. There will certainly be quite a number of bee-keepers on this same project, and fruit-growers by hundreds. W. K. M.

THE Chilean government has just authorized and subsidized the construction of a railway the entire length of that country from the Peruvian border southward to a point far south of the city of Valparaiso. The total length of the line will be 2000 miles, running through a country very similar to California, and probably as good for bees. At the present time Chile is a heavy exporter of honey and beeswax; but the new railway will serve to increase greatly the production. A recent letter to GLEANINGS from a Florida correspondent visiting Rio Janeiro stated as a fact that one steamer—the one previous to his—brought 2000 barrels of honey through the Straits of Magellan *en route* to the European markets. Beeswax in large amounts is also shipped. W. K. M.

THE national irrigation congress at Sacramento cordially endorsed President Roosevelt's policy with respect to public lands, irrigation, and national forests. We are glad to see this, as there has been some strong adverse criticism of his policy in the West, more particularly in Idaho. Whatever others may think, we think bee-keepers all over the country will agree with the irrigation congress, as the government policy seems certainly the very best from the bee-keeper's standpoint. Forest reserves where no fires are allowed ought to be in most sections an excellent range for bees, and certainly the great irrigation projects give the bee-keeper a chance to keep bees under the very best conditions imaginable. We are done with the era of reckless spoilations of our natural resources to suit a few individual promoters. This is the age of home-building. W. K. M.

THE FOOD CHEMISTS OF GERMANY ON SUGAR HONEY.

VERY recently the Food Chemists of the German Empire held their sixth annual convention at Frankfort-on-the Main. Professor von Raumer, of the University of Erlangen, gave a lecture on honey, laying particular emphasis on the different methods of its adulteration and the special means adopted for detecting the same. Prof. Raumer is an expert in this line of research.

In this same connection the German and Austrian Bee-keepers' Association at its meeting held in the same city was unanimously of the opinion that the feeding of bees with saccharine substances for the purpose of increasing the production of honey, and not from necessity, should be considered a clear

case of adulteration. It may be explained that in Germany the prices obtained for comb and even extracted honey are so very high that it pays to adulterate in this way provided the pure-food authorities do not catch the offender. W. K M.

A CHEAP WINTER CASE.

We believe that a very good serviceable winter case can be made out of ordinary light building-paper or even a heavy grade of manilla if oiled. The top of the hive should first be covered with several folds of newspaper, and then this manilla or building-paper of suitable size should be laid on top, neatly folded around the ends and sides, and tied. Be sure to make the folds so they will shed water, not catch it. We will have an illustration showing the right and the wrong way in our next issue.

SEASON REPORTS.

We give below a brief summary of the crop reports lately received. These do not necessarily represent conditions for the whole States named, as they come from the producers, and are, therefore, merely local in character.

Enough for winteringr..... Central Station, W.Va.
Light early flow; good fall flow, Nashville, Ill.
Fair flow.....Roswell N. Mex.
Very light flow..... .....Paxico Kan.
Very light flow ....Attica, Ohio.
Good fall flow..... .....Akron, Ohio.
Fair fall flow..... ..Hopedale, Ohio.
Crop almost entire failure.....Nova, Ohio.
Good flow.....Edmore Mich.
Fair fall flow.....Bradshaw, Neb.
One-fourth crop.....Hull, Iowa.

FLORIDA'S PURE-FOOD LAW.

The *Florida Agriculturist* was, after all, in error, and it is a fact that the legislature of that State did pass a pure-food law in conformity with the national law.

I am sending you a copy of the "pure-food" law passed by the last legislature. Please correct your statement (on page 1129, Sept. 1), as copied from the *Florida Agriculturist*. They made a bad break.
Bradentown, Fla., Sept. 5. E. B. Rood.

Many thanks, friend Rood. The new law was approved by the governor June 3, and went into effect on September 1. We understand that Arkansas, Texas, South Carolina, West Virginia, Tennessee, and Oklahoma can now be included among the pure-food States. It will not be very long before eveey one of the galaxy of States will join the column of the pure-food advocates.

A NATIONAL PURE-FOOD CONGRESS AT WASHINGTON, AND WHAT DR. WILEY IS DOING.

Dr. Wiley, the pure-food expert of the United States Department of Agriculture, has recently returned from France, where he acted as judge of the pure-food exhibits at the Bordeaux exposition. While in France he sounded the government on the subject of a universal standard for foods, with favorable results. In England also he had a favorable response, so that it is probable a world's congress of pure-food officials will be held in Washington at an early date to fix a standard for all foods. This congress may have far-reaching effects on the trade of the world, and in its life-saving aspects may be regarded as one of the most beneficial moves made in the economic history of mankind The movement can not be otherwise than a benefit to the person who produces purely natural foods. Probably the best feature of it will be the stability given to the prices obtained for natural products, as it will be no longer possible to depress prices by resorting to artificial products or imitations. Not only is it dishonest to sell inferior products for the real goods, but quite frequently the substitute undermines (slowly) the health of the persons who have to consume them. W. K. M.

PARCELS POST ONCE MORE.

The following, by the Oklahoma *Farm Journal*, puts the whole argument for a parcels post in a nut-shell:

In this issue many references are made to the desirability of a parcels post and the advantage it would be to the farmers. Possibly all may not understand what is meant by the parcels post. An illustration will make it clear.

If you lived in Colombia, Costa Rica Guatemala, British Columbia, Honduras, Mexico, Nicaragua, Salvador, or Venezuela, a package with a length and height combined of less than six feet, and weighing not more than eleven pounds would be sent to you from the United States for twelve cents per pound.

But since you live in the United States, and the express companies are better represented than the people in Congress of this land of the free and home of the brave, you can't send a package weighing more than four pounds by mail, and you must pay sixteen cents per pound, even if the package is to go only to the next postoffice.

It doesn't take any argument to convince farmers that they need the parcels post, and that they need postal currency. They will get it when they go after it. The everlasting right is on their side; but the right doesn't count for much unless you get it into action. But with action to enforce the right, things may be made to happen.

THE REASON WHY CAGED QUEENS ARE SMALL.

M. A. Wathelet says, in *Le Rucher Belge*, that if a queen is removed from a colony where she was laying, and with abdomen expanded with eggs is placed in a cage, the abdomen will, by degrees, diminish in size as the eggs are dropped. After a few hours, as she no longer receives the digested and stimulating food produced by the workers, she becomes very small, and, after 24 hours, is no larger than a virgin queen, and is incapable of recommencing egg-laying until she has passed some days in a colony. If in the spring a laying queen is replaced by a queen that has been confined in a cage, the bees easily notice the change, and her introduction will be difficult. It is quite different if the queen to be introduced is taken out of a colony where she is laying. In such a case the change is hardly noticed; and, with the precaution of guarding against the robbers, a little smoke and powdering the bees with flour, the introduction is easy.

Queens reared in nuclei in the same apia-

ry are always accepted, whereas those from another apiary are not always, notwithstanding all the precautions taken. From this it will be seen that the best time for introducing a queen that has come in a cage is when the queens have ceased egg-laying, say after September 15, because the size of the stranger will be about the same as that of the queen which is to be replaced, and the bees will not be surprised at her not laying eggs.—*British Bee Journal*, by NEMO.

WHY HIGHER PRICES ARE BOUND TO PREVAIL.

ONLY three or four years ago cotton sold in our southern cities at less than 7 cents per pound; to-day the cotton-growers are actually expecting their product to reach shortly the 15-cent mark. This condition is largely due to intelligent and concerted action on the part of the southern farmers, who for three years have fought a determined fight for higher prices, chiefly through two strong organizations backed by public opinion. This causes *Farm and Ranch* to remark:

Labor is cheap if it holds itself cheap. The spirit of democracy looks higher constantly. The laborer of the cotton-field can never secure more than a bare existence for himself and family until he holds his labor at a premium. This he may do in pricing his cotton. His decision will determine the plane of his living. Our great trouble in the South is to get people, white people, to put a proper value on their labor, and demand a fair daily and yearly wage as represented in the price demanded for raw cotton. . . . . This journal has, therefore, cast in its lot with the man and against the dollar, and will use its influence against the breaking-down of the higher prices for farm labor now obtaining, and will continue the fight for higher prices of farm products Along this road lies the future greatness of the South and America. Higher living and nobler thinking are not possible for those who are dumb brothers to the ox. Let us uphold the American standard of living, and continue to be the world's greatest civilizing power.

For years we have had cheap honey from the South to keep down Northern prices; but it is reasonable to believe this will no longer be the case, and we hope the Southern bee-keepers will not again allow themselves to sell honey at a lower figure than their Northern rivals. There is nothing to be gained by it. W. K. M.

THE TROUBLES OF MOLASSES-MAKERS.

As we have already hinted, the cane-syrup producers of Louisiana are very much dissatisfied with the decision of the National Board of Food and Drug Inspection to insist on the proviso that cane syrup offered for human consumption shall not contain more than 350 milligrams of sulphur dioxide per kilogram (.035 per cent), and as a result a conference of the parties concerned was arranged for on Sept. 6. Prof. Blouin, of the Louisiana Experiment Station; Congressman R. F. Broussard, and D. D. Colcock, of New Orleans, represented Louisiana at a meeting in the offices of the United States Department of Agriculture, when Dr. Wiley, Secretary Wilson, and the Board of Food and Drug Inspection were all present.

The Louisiana delegation argued their case well, instancing the case of the molasses squad, already referred to in GLEANINGS, as proving the present-day molasses was first-class human food. They were unable, however, to convince the officers of the government that an increase of the amount of sulphur dioxide was desirable, and the decision of the Board will be allowed to stand. The Louisiana people are not at all satisfied with this decision, and apparently intend to ignore it.

Beet-sugar manufacturers make no attempt to sell their molasses, preferring to convert it into alcohol, and the New Orleans folks could do the same, so that the financial loss can not be very great. There is no difficulty in making fine syrup from the juice of the sugar-cane stem; but the molasses here referred to is a by-product of the sugar trade. Bee-keepers are greatly interested in this controversy, as three-fourths of all the molasses sold in this country is practically barred by this decision, and it would be several years before the independent syrup-makers, who produce syrup as we do maple syrup from maple sap, could satisfy the demand. Dr. Wiley, backed by Secretary Wilson, holds that syrup can be made from cane which has none of the undesirable sulphur dioxide, and *syrup* is superior to molasses in any case. It looks to us as though the government will win this controversy. If it does, the honey market will be better than it has been for many years, as the chief competitor of the honey-producer will be taken off the market to a great extent by this action of the pure-food officials of the national government.

W. K M.

VARIABLE FLAVORS OF HONEY; WHY BEE-KEEPERS SHOULD PLACE MORE EMPHASIS ON THE FACT.

IT is not generally known by the consuming public that there are as many honey flavors, and just as distinct, as flavors to apples and pears, grapes, and other kinds of fruit. The average consumer seems to have the idea that any honey that does not taste like what was produced "off from the old farm" is bogus. A person reared in a basswood-clover district regards as impure a honey that is mild in flavor, like the mountain sage of California; indeed, he very often will class it as nothing more nor less than sugar syrup. The unsophisticated in a buckwhat district feel a suspicion toward any honey that does not have the characteristic taste and color of that section. Another, who is accustomed to the delightful, minty taste of alfalfa can scarcely be persuaded to believe that a willow-herb or a palmetto honey is the genuine product from the hive.

Throughout this broad domain we find that bee-keepers have been catering to the peculiar flavor to which the locality is accustomed to such an extent that the consumer thinks there is but one flavor to honey. Mr. Selser says that he can not sell for his bottling trade any thing but a clover honey; indeed, he will reject any thing that has any basswood or other flavor in the clover, "because," he says, "my trade won't have it."

It is obviously impossible to sell all alfalfa in an alfalfa district, or mountain sage in California, a mesquite or guajilla honey in Texas, a palmetto in Florida. Necessarily these honeys will be exported to other territories. The duty, therefore, devolves upon bee-keepers to educate the public that there are as many flavors of honey as there are of the various kinds of fruit. Would it not be wise for every bee-keeper to obtain samples of the different table honeys where his prospective customers can taste and see them? It not infrequently happens that a brashy, unpleasant flavor of honey which one has and can not sell will tickle the palate of some one customer, and, by letting them all test these honeys, we may be able to find an outlet for some undesirable stock, and at the same time educate the whole community to the fact that honeys have flavors like candies and fruit. The sooner the consuming public recognize this general fact, the less difficult will it be for us to dispose of imported honey in times when our own stock gives out.

For example, suppose there is a scarcity of white clover in the locality, and it is difficult to purchase any of it elsewhere; and suppose, again, that plenty of good alfalfa can be obtained at a fair price. If the locality had already been educated to the fact that there is a variety in flavors, the consumers would readily take the alfalfa when offered.

The fact is, the public needs to know that all pure honeys are not alike. It ought to know that there is good honey and poor honey, and some bad-flavored honey. It ought to know that there is such a thing as alfalfa, mountain sage, and mesquite, etc., as well as clover and basswood. Perhaps one says he doesn't like any honey, when the fact is he has never had a taste of mountain sage or alfalfa. Give him these and we might make a consumer and a customer.

PREPARATIONS FOR WINTER.

Those who live in the Northern States should look over their colonies and see whether they have the requisite amount of stores to pass through the winter, An eight-frame hive ought to have at least six combs well filled, or the equivalent of stores scattered through the eight. If not so filled, the colony should be fed a mixture of granulated sugar and water mixed cold in equal proportions The sugar should be gradually poured into the water, stirring vigorously until all cloudiness disappears. The process may be hastened somewhat by using hot water.

If you have not already made arrangements for wintering outdoors you should do so at once. While double-walled hives stand at the head for outdoor wintering, a single-walled hive may be practically as good by using an outside winter case large enough to telescope down over it. Folds of old newspaper should be laid on top of the hive, then the case slipped down, making a snug close fit. It is desirable to leave off the regular hive-cover, because the majority of them project over at the front and rear. A thin board cover should then be substituted, the same width and length as the hive itself. The entrance should be contracted down to $\frac{3}{8}\times 8$ inches, and when cold weather comes on it should be narrowed down to about two inches. Occasionally the entrance should be raked out to remove any dead bees that may have accumulated; for if it should become clogged it would be almost sure to result in the death of the colony.

It would be well to lean a board, *a la* Doolittle, against the front of the hive (leaving openings at both ends), and keep it there during the winter. Mr. A. J. Halter, of Akron, O., has tested the principle, and finds it to work admirably in keeping bees from flying out on days with an alluring sunshine, but with a temperature so low that thousands of bees would be chilled to death.

Mr. C. H. W. Weber, of Cincinnati, has a device to accomplish the same purpose that looks as if it might be a good thing.

NATIONAL CONVENTION TO BE HELD AT HARRISBURG.

General Manager France has sent us the following notice of the convention of the National Association:

The National Bee-keepers' Association will hold its annual convention at Harrisburg, Pa., Oct. 30 and 31. Low railroad and hotel rates are promised, fuller information in regard to which will be given later.

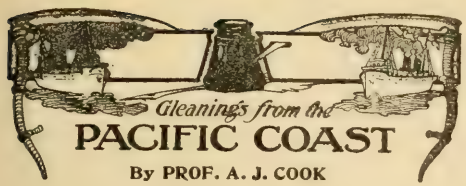
It is expected that a special feature will be made of the question-box, and all members are asked to send questions which they would like to have discussed. If they wish, they may state whom they would like to have answer their questions. Questions may be sent to the secretary, J. A. Green, Grand Junction, Colo., or to General Manager N. E. France, Platteville, Wis.

Space will be provided for exhibits; and those having apparatus, supplies, or products they wish exhibited may, if they wish, send them to Prof. H. A. Surface at the State Capitol building, who will see that they are installed properly.

In another letter Mr. France writes that, on account of the Jamestown exposition, tickets can be bought at very low rates, with stop-over permits, including that at Harrisburg, Oct. 30 and 31. The round-trip fare from Chicago to Jamestown Exposition for a ten-day ticket, with stop-off at Harrisburg, is $17; and for a fifteen-day ticket $22.25. The rates are much cheaper by way of the exposition than to Harrisburg direct.

The National Association is becoming more and more national in character as well as in name. According to the annual report for 1906, the membership in four States exceeds the 200 mark. Wisconsin has 308 members; Illinois, 285; California, 217; New York, 210. Four more States have over 100 members each—Pennsylvania, 164; Minnesota, 125; Missouri, 123; Texas, 112; Michigan and Iowa have 96 and 76 members respectively. Ontario, Canada, has 53. The rest of the membership is distributed among 34 States. These figures are doubtless exceeded at the present time, as Mr. France's list on May 18, as reported through the *American Bee Journal*, was 2346—a substantial increase over the number given in the last annual report.

Pennsylvania is one of the great States for bee-keeping, and it is to be hoped that there will be a good attendance at the convention.



THE SEASON.

California, like the whole country, had a very cold backward spring. We had reason, from the generous and timely rains of the winter, to hope for and to expect a great honey year. The cold weather kept both bees and plants from work. The bees were often held to the hives, and the nectar-glands refused, in the chilling atmosphere, to produce the coveted sweets. Later the warmth was more in evidence, and we shall get some honey. I find that several of our bee-keepers have secured about half a crop. I presume that we may claim about that for our State. We were wont in the olden time to say that, with good rains in winter, we were sure of a good honey year; but we now must add that these must as surely be followed by warmth and sunshine as the honey-plants burst into bloom.

THE OLD BOYS.

I wish to thank most heartily my good friend A. I. Root for the kind words regarding my friend and old student, Prof. P. G. Holden. Our old students are, like our children, ever dear to us, and few things touch us so pleasantly as words of commendation of their lives and work. I have often thought with the greatest satisfaction of the splendid services of many of our old Michigan Agricultural boys—men like Holden, of Ames, Iowa, who has done such fine work in breeding seed corn of high value; and of Davenport, of Champaign, Ill., who has done masterful service of the same kind; and of Bailey, of Cornell, New York, whose grand researches in almost all lines of horticulture have brought to him and to his *alma mater* honor and praise from all parts of the world. I might name many others who have done admirable work and are greatly honored.

Why is it that these men have done so well? It is due in large part to the great earnestness, ability, and enthusiasm of those first grand teachers—men like Abbott, Miles, Thurber, and Kedzie, who threw their whole being into their work, and inspired their students to like hard work. In those early days the students had all to work three hours daily on the farm or in the garden, and this gave or helped to give habits of industry, a spirit of thrift, and a practical trend that has helped powerfully to win success as they stepped forth into the world. We may all rejoice at the interest that the public is now taking in technical studies and work, in our grammar and high schools, for it will do much to help the boys and girls after they step forth into the work-a-day world. If we could add to this good wholesome employment mornings and evenings and in vacations, such as is found on the farm, we would give to our young people, the boys and girls, that for which I have ever devoutly thanked God was a part of my early boyhood and youth.

The Michigan Agricultural College, the first of our agricultural colleges which were to push for the newer and better study and training, was most fortunate in its men and in its methods, and the whole country owes it a debt of gratitude which I think is recognized the country over.

THE EUCALYPTS.

I am pleased to report that there is an increasingly large number of the various species of eucalyptus-trees being planted in our region from year to year. It is being found that there is good money in a good plantation of this kind. I saw the statement the other day in one of our reliable papers that it was thought it paid as well to grow the eucalypts as to grow oranges. This is, indeed, high praise, as the orange has been surprisingly profitable the last few years. The bee-keeper may well rejoice at this favorable consideration of the eucalypts in our rural economy. We are more and more impressed with these trees for honey. It is well known that we get all of our gums from Australia. They bloom there, of course, in summer, which comes in December, January, and February. When we bring them here, north of the equator, they are sorely perplexed, and hardly know how to behave. Their hereditary instincts say blossom in winter, but their feelings are favorable to pushing out the bloom in the warm days of early spring. The result is we find them blooming at all times of the year. There is hardly a month when we may not find these trees (some species) in blossom. The honey from these trees is of good quality; and, coming at such varied times, it is splendid for stimulation, as our bees can fly at all seasons, and they are likely to find a banquet spread in the eucalyptus groves at any and all seasons. As we are likely to have good warm and even hot days in midwinter we see that all conspires to help the bee-keeper. I am led to this expression from seeing bees swarming on eucalyptus bloom the last few days.

THE RUST FUNGI.

We are all more or less familiar with the various fungi that produce rust. We have seen it on the wheat and other grains, and have seen the deeply colored shirtsleeves of the old-time harvest-men as they came from binding the sheaves of grain. The grain rusts were remarkable for living on different kinds of plants, while many rusts live in all the several stages of growth and development on the same kind of plant. The asparagus rust is a late comer into our country, and is so serious that it has banished asparagus-growing in many sections of the country. It is found by Prof. Ralph Smith that this rust can not thrive in a climate where there

is little on no dew. In the famous Coachella Valley, contiguous to the great Salton Sea, where I believe bee-keepers will find a region unrivaled for their business, the atmosphere is so dry that asparagus will thrive in face of this rust. This, then, will make asparagus growing very popular in this valley. This is the more true as there are few crops that pay better.

It is an interesting fact that our bees utilize these rusts, as they collect the spores, for food. Like the pollen of flowers, these spores are rich in proteid food, and so are just what the bees require. In the Coachella Valley the bees will not be able to gather rust spores from asparagus; but in the great plantations of asparagus and alfalfa, where ten crops are raised in a season, they will be able to get abundance of both pollen and honey. I know of few flowers from which the bees gather pollen more abundantly than from the asparagus. I feel sure that in the Coachella and Imperial Valley bee-keepers are to find localities that will leave little to be desired. The new county (Imperial) has voted that no liquor may be sold in its limits —another recommendation.

SECURING BEES IN TIME FOR THE HARVEST.

"I wonder if Doolittle ever had some of his colonies of bees give him a much better yield of honey than did other colonies."

"Certainly he has; and in turn I wonder if Brown ever had things turn out that way at the end of any honey season."

"Yes, Brown has, and that is the reason I am over here to-day to have a little talk with you. I ran across Smith yesterday, and in our conversation he made this remark: 'All practical observing apiarists know that much depends on having control of the bees and concentrating their efforts toward honey-gathering while honey is to be had.' This set me to thinking, and resulted in my coming over to see you."

"Did you believe what he said?"

"I did not know just what to believe. Do you believe that there is truth in such a statement?"

"Well, yes, perhaps so; but if all practical observing apiarists do so know, the most of them are as silent as the tomb regarding the matter."

"What makes you say that? Smith spoke right out about it."

"I said it because one thousand words have been written on wintering bees, feeding bees, uniting bees, preventing after-swarms, clipping queens' wings, etc., to where one word has been on the subject which Smith tells you all practical apiarists know about."

"That does seem a little strange, I admit."

"It certainly does If they had known about these things why have they not told the world about them, and not been writing all the while about something of lesser value?"

"But what do *you* say in the matter?"

"I contend with Smith that the control and concentration of bees with an eye on the honey harvest not only has much to do with the success or non-success of any apiarist, but I go still further and say that it has *nearly all* to do with the matter of success or failure of the person keeping bees."

"That is a strong assertion, and I should like to know how you can figure it out."

"Do you remember where we started?"

"Yes—about a part of our colonies giving a greater yield of honey than others."

"Correct. And if you had been a close observer you would have ascertained that those colonies which did the best for you in honey the past season were those colonies which controlled and concentrated their bees toward the *honey* end of the hive rather than the bee end."

"What do you mean by that expression?"

"I mean that it so happened that the bees which gave you your best honey yields came up to a condition of control and concentration equal to the occasion, of their own accord; and had you known about these matters *you* could very largely have brought *every* colony up to where it would have done as well as the best."

"Do you mean it?"

"Yes. And I go still further, and say that Mr. Smith left out one of the *great big* factors in the matter by not including, in his talk with you, securing the bees in time for the harvest, coupling that with the control and concentrating; and the securing the bees in time for the harvest should lead the other two in the bargain."

"This matter is leading out into broader fields than I expected when I came."

"Indeed the field is broad; for unless we secure a full and overflowing working force *just in time for the harvest*, control and concentrate as much as we will, we shall fail of securing *first prize* from the harvest."

"But Smith claimed we should always have our colonies strong."

"Undoubtedly. And that is much better than never to have any of them strong; for if all are always strong, surely they will be strong at time of harvest. However, had you carefully examined those colonies which gave you your best yields in honey you would have found that they were those which were not the strongest during the whole of the season, but that they were such colonies as come up to their maximum strength *just* at the beginning of the honey-flow, and then in addition saw fit to control and concentrate during the whole of the flow."

"What do you mean by that, 'control and concentrate,' the way you now put it?"

"Just this: If a colony of bees with the maximum number arrives in this condition with the swarming fever on just as the honey-flow commences, they will, as a rule, give less in results than will a colony with fewer bees without the swarming fever; but with the swarming instinct held in abeyance, or under control, this mighty army of bees will roll up a great record for themselves and their keeper, especially if their energies are concentrated on the securing of honey rather than in a still further spreading of their brood with a view of a still further increase of bees."

"But what harm does a still greater increase of bees do?"

"It would do no harm if you lived in a locality where there was a continuous flow of nectar from the time white clover commenced to give the bees a supply till the end of fall flowers; but *you* are living in Central New York, where we have a dearth of nectar after clover, or after basswood, where either of these gives the white-honey crop; and if the bees are allowed to spread themselves for bees, or they do so spread themselves, rather than for honey, much of the honey gathered during the flow will be used in feeding an extra amount of brood, which, in turn, will become only consumers of the gathered and stored honey which would otherwise go on the ledger account of the keeper."

"Well, surely this *is* a broad subject. I had not even thought of some of these things before I talked with Smith. But how can these things be accomplished?"

"Quite largely through the race of bees we keep."

"What race is best?"

"The Italians are the most easily controlled."

"But that is only one factor."

"I know. But after their control by the apiarist till the flow of nectar is on, then it is their disposition to concentrate toward the honey part rather than toward the rearing of more bees."

"Are not the Carniolans equally good?"

"I have not found them thus in this locality, for the reason that, with the flow of nectar, they will go to breeding more largely instead of concentrating toward honey. In fact, some of the colonies of these bees which I have had consumed the larger part of the honey they gathered in brood, so that, when fall came, I did not have a pound of surplus; and, still worse, I had to take, from the Italian colonies, frames of stores to give to the Carniolans so they might not starve before spring."

"But how do you manage the Italians so as to have all colonies in the condition you desire at the time of the honey-flow?"

"To tell you this would take more time than is at my command just now, as I have an appointment I must meet at two o'clock this afternoon. Have you GLEANINGS for 1906?"

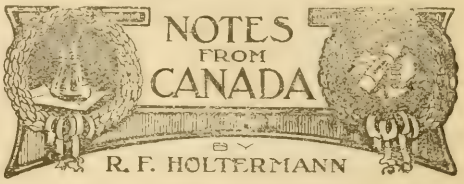
"Yes."

"Well, you will find what I consider the best plan that I know of given in the serial running through many of the numbers for that year."

"But a part of these numbers are lent out, so I do not have it all together."

"If you can wait a little time, the serial is to be published in book form this fall or early winter, so I am informed, and then you can procure it of The A. I. Root Co."

"I am glad to hear this, for I have wanted it in book form ever since the serial was published."



WINTER STORES.

In localities where there has been a light flow of honey, and, in consequence, the bees have gathered a great deal of pollen with the honey stored in the combs for winter, it would be well to feed the bees sugar stores, say not less than 8 or 10 lbs. to carry them through all or at least the early part of the winter. Feed as soon as the brood-chamber is free from much brood, and the date is Sept. 20, or, at the latest, Oct. 1.

TWO ENTRANCES TO THE BROOD-CHAMBER.

Not considering that every one else should take the same interest in my views that I do, I will forgive Prof. Cook for writing in GLEANINGS that I advocate two entrances to a hive. I may enter an action against him for so slandering my character as a bee-keeper (unless he makes a full and public retraction). He probably thinks of the ventilation in the super, which the bees do not use as an entrance unless there is brood in the super.

NO QUEEN-EXCLUDERS.

This summer, owing to having more colonies than usual I have had to run some without queen-excluders between the brood-chamber and super. For years I have considered this objectionable. My views are unchanged upon this matter, but some others in the apiary who before thought otherwise do not now want to run bees without the excluder.

ONTARIO BEE-KEEPERS' CONVENTION.

The next annual meeting of the Ontario Bee-keepers' Association will be held in Toronto at the time of the fruit, flower, and honey show, Nov. 14 to 18. The exact date has not yet been fixed. We expect to have with us Mr. L. A. Aspinwall, Jackson, Mich., President of the National Bee-keepers' Association, and Mr. S. D. House, Camillus, N. Y. We shall, of course, be very much pleased to have as many of the United States frater-

nity as are willing or can even be compelled to come. An active interest is being taken in the convention by Ontario bee-keepers.

CALIFORNIA HONEY.

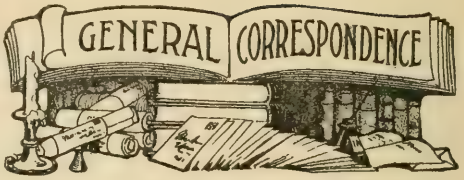
Why is California honey 7½ cts. per pound when other good honey is 11 and 12? Is the quality so much different, or did the light not shine upon our western friends quite as soon? During the last ten years honey has been getting down to an absurd price, and it is to be hoped bee-keepers will not allow the price to get down to the same figure again. *Keep up the retail price.* As soon as you drop the retail price the wholesale must follow. People will not push your goods for nothing. Paste that in your hat.

THE PRESENT POSITION OF BEE-KEEPING.

In my twenty-seven years' experience in bee-keeping I have never seen so remarkable a season in many respects as the past. After two winters and two honey seasons very adverse in Canada, and probably a considerable portion of the United States, we have only one colony where, three years ago, we had four. In Ontario, probably two thirds of the apiaries visited by the six foul-brood inspectors have been found to be diseased. Some found a less percentage, others a greater. It is well that the change came no later than it did, or some sections would not have had any bees left to inspect. The ground is very far from being covered yet, and it will take all the energies of the six inspectors next year to cope with the disease. The two foul-brood diseases have been discovered; but, happily, the disease Dr. Phillips calls European foul brood has been rare, or at least not much has been discovered. Where, however, it has broken out its spread and ravages have been much worse than the well-known and more common foul brood.

Honey prices have been so peculiar that it would take any one all his time guessing the outcome. Honey has been sold in August in many cases at as low as 7 to 8 cts. per lb. in 60-lb. tins; then it went up in price until it reached the price recommended by the committee of the Ontario Bee-keepers' Association. A great deal of the honey has been retailed by bee-keepers at home; and jobbers who held back from paying high prices have been left with but a limited stock. Canadian trade is very particular, and the *low-priced* foreign honey has not been able to make much headway on our market, although the duty is only 3 cts. per lb.

Our Danish contemporary, *Den danske Biavls-Tidende*, contains the J. E. Hand article on catching the queen without moving the frames, which appeared in our issue of June 15. The illustrations, though copied, are very good. Our contemporary always gives us full credit for all copied articles; and so long as this is the case our friends are welcomed in helping themselves to the good things of Gleanings.



HONEY-EXTRACTORS.

The Value of the Gasoline-engine to Run Them; Time, Honey, and Money Saved.

BY E. W. ALEXANDER.

In telling of this particular part of our business the writer finds himself embarrassed by drifting continually to the personal pronoun; so, let me say at the beginning that I have no desire for notoriety, and I have often wished that I had never signed my name to any thing that I have ever written on the subject of bee-keeping. But the past is as it is, and we can use it only as a schooling to help the future.

I now wish to write a few lines direct to my brother competitors of extracted honey. The ever increasing demand for this product of our apiary is inducing many to turn their attention toward its production; and I hope to see you all so situated that you can produce it in the future cheaper than it has ever been in the past; for this reason, and this only, I write this article. If you have read the advertising columns during the past year in our bee-journals as you should, you must have noticed descriptions of an outfit for doing the most laborious part of producing extracted honey by gasoline power. Many people naturally hesitate in regard to investing their money in new implements, preferring to let (if I may be allowed to use some street slang) the other fellow invest his money first, then if it is all right they are ready to invest also. Now, my son and myself were just that other fellow that was ready to test this outfit to its very core. With three first-class extractors in perfect working order standing in our extracting-room we bought an improved eight-comb extractor and a gasoline-engine, to do our extracting.

Well, as to results, the first test we gave it was to extract about 3000 lbs. of last year's capped candied honey. The combs were mostly new and brittle, having been foundation last year, had never contained any brood, neither were they wired in their frames, as we have not a wired comb in our apiary. When the extractor was started and the comb-baskets began to hum like a buzz-saw, I at once knew that the old candied honey would have to leave the combs, which it did quite clean; but I expected that the combs and their frames would then and there dissolve partnership; but, not so. They were so well supported by the comb-baskets that we could not find a cracked or broken comb in the lot. The reversing of the reel is so perfect that you don't have to stop either engine or extractor in order to do this part. Taking it

as a whole, it is certainly one of the most advanced steps in relieving us of laborious work ever made in modern bee-keeping.

Now the question is, in your mind, "Can I afford to buy this outfit?" Well, I will tell you what it is doing for us, then you can answer that question yourself. One year ago, with about the same number of colonies, we employed two men during the season, and a third man part of the time. Now we can do the work much better and easier with one man. You can figure out the amount here saved. During the extracting season we usually extract our combs six times, and we now find that such sets of combs, when taken from the extractor, are about 2 lbs. lighter than they have ever been before. Here we gain at least 10 lbs. per colony during the season. I leave this also for you to figure out—the many dollars' worth of honey saved on nearly 700 colonies.

Now, my friends, I think if you are running 100 colonies, or even less, for extracted honey, you can not afford to be without this outfit. The total expense to run the engine is less than 1½ cents per hour; and it is a willing laborer, always ready, and never tired. It can be used at any season to furnish power for running the cream-separator, churning, sawing wood, grinding bones for poultry, or any other work requiring one horse power. The directions sent with it are so plain that anybody can use it. Two men can carry it to any convenient place to work, and in a few minutes it can be leveled and ready to commence.

As I now recall to memory my first extractor, of some 37 years ago, which was a Peabody machine, the can as well as the combs revolved, and they had to be removed from the extractor and reversed by hand, the honey running out through the bottom into a small-sized milk-pan; and the waste and muss were dreadful. I can hardly realize the great improvements that have been made in honey-extractors.

Some time ago I called your attention to the importance of producing honey with comparatively small expense; but then the work was all done by hand. Now, when the most laborious part can be done with gasoline power, it reduces the cost of production to a still lower figure.

Why, I would as soon think of mowing a large farm with the old scythe as now to attempt to do our extracting with that poor right arm. No, that day is past and it will never return. We are surrounded with an element of progress, and every thing connected with the life of man is improving. The greatest achievements of the past are but milestones marking his progress to the sublime structures of to-day. There! I wish I could keep my mind on my subject.

Some may think that it is of little importance if one and a half or two pounds of honey is left in a set of extracting-combs, with a few colonies that are extracted only once or twice during the summer. I admit it is but little; but in our apiary it amounts to more than three tons in a season. This is saving enough in one summer to pay for several of these new outfits. You may think, "Well, if I don't get it all this time what is the difference? I shall get it the next time around." Yes, but you don't get it, and you never will get it. Under the excitement caused by disturbing them it is mostly eaten by the bees, and you are just that amount out; so I advise you to save every particle you can, every time you extract. It will all help to fill the barrels in the fall.

BEE-SMOKERS.

Still another much improved implement is a bee-smoker. Since father Quinby invented the bellows bee-smoker and gave it to the bee-keeping world we have had many different kinds of smokers on the market—some very good ones; but the latest and most practical of them all is an aluminum-coated smoker. It is light to handle, and the draft is all that can be desired. There certainly will be a large demand for them in the future.

LARGER DRIVING PULLEY NEEDED ON THE ENGINE.

In justice to the purchaser of these extracting outfits, as well as the manufacturer, I must speak of two defects in the engine as they are now sent out. The fan for cooling the cylinder should always be sent with the machine It is very necessary to have when in use. The other is, the driving-pulley should be of three-inch diameter instead of 2¼. This is necessary to acquire sufficient speed to run the comb-baskets of the extractor so as to throw out thoroughly all the honey.

In regard to the extractor, I can not see how it could be improved. It is the best-made, most practical extractor I have ever seen. Its reversing arrangement is perfect, and you need not be afraid to put the most frail combs you ever have in its baskets, then start the machine so the combs will travel nearly 50 miles an hour, which is about the right speed to throw out all the honey; then slow a little, but do not stop, and the baskets will reverse themselves, when you can again let it hum, and the combs, when taken out, are as nearly perfect as when put into the extractor.

In the above I have briefly stated the merits and demerits of this recent acquisition to our extracting-implements; and, my friend, it now rests with you to take your place in the ranks of extracted-honey producers, either well in the front with modern methods and these useful implements, or in the rear with all the hard labor and discouraging features of the past.

If you choose the latter, I am afraid that the inexorable law of competition will sooner or later drive you to the wall. It will be only a short time before thousands of these new outfits will be in use, and no man can use his muscles to compete successfully with this convenient inexpensive motive power.

Delanson, N. Y.

[It is possible that a larger driving-pulley on the engine-shaft might be an advantage; but in our work with the engine we had

thought that, if the belt could be kept from slipping, the 2½-inch pulley would give the proper speed. But if the combs will not break, a higher speed would be desirable, and the three-inch driving-pulley would have the advantage.

Gasoline-engines run most economically when they are hot, and the high temperature is a decided advantage; therefore, unless the cylinder should become so overheated as to cause self-firing or burning of the lubricating oil, it is our opinion that the fan is not needed except when the engine is working continuously at the limit of its power.—Ed.]

QUEEN-EXCLUDING HONEY-BOARDS.

Do they Obstruct the Passage of Worker Bees? Sizes of Perforations; Upper Entrances; No Excluders Needed in the Production of Comb Honey.

BY S. E. MILLER.

The article by G. C. Greiner, p. 107, Jan. 15, last, and your editorial comment and call for reports, inspires me to express myself on queen-excluding honey-boards.

This article deals mainly with the size of perforations; and while I wish to discuss queen-excluders in a general way I will first reply to the query in the latter part of the editorial comment as to whether the perforations as now made are too small.

I wish to go on record as saying they are not. I want a queen-excluder to exclude queens.

Mr. Greiner admits that he used the old-style excluders (those with the larger openings) on the more advanced and stronger colonies, and those with the smaller openings on colonies that did not require surplus room until later. He does not express it in these words, but it amounts to the same. Is it any wonder that the colonies having the old-style excluders outstripped the others?

Again he asks, "Why do queens so seldom start brood in our section-cases, although a case well supplied with bait-combs offers a tempting inducement?" Mr. Greiner, it seems to me, could easily have answered this question himself, for he certainly knows that queens will not of choice select a comb as small as a one-pound section to deposit eggs in.

A little further on he asks: "Is it such a terrible affair that, to prevent it, we have to compel our bees to crowd themselves through these sharp-edged strainers?" This was in reference to finding brood in the extracting-combs. To find combs which we supposed were full of honey, and honey only, containing large patches of brood, is not exactly terrible, but it is a nuisance, and quite a lot of bother and time lost in putting the queen back where she belongs, and adjusting things to prevent her from again entering the surplus-chamber, for my experience does not exactly agree with Mr. Greiner's, where he says, in reference to allowing her to run in at the entrance, "In all probability she will remain there." With me, in all probability she will be back up in the surplus-chamber in less than 24 hours unless I find the opening she has passed up through and close it.

In my opinion the great effort required on the part of a worker to pass through perforated metal, as told by Mr. Greiner and others, is very much overdrawn.

The thing is very easily tested, thus: Place a drone-guard over the entrance of any populous colony when they are working strong. When first placed there it will cause considerable confusion, and apparently some effort on the part of the bees to pass through; but if you will take notice a few hours or half a day later you will see that they have acquired the knack, and pass through with little or no trouble. It's easy when they know how.

I will here mention one objection to a drone-guard or trap; and that is, that much of the pollen is scraped off the bees' pollen-baskets in passing through the metal. I have seen times when I believe I could have gathered up a teaspoonful of pollen from the alighting-board of a single hive. This can not be considered a serious objection, however, for it is only at certain times and on certain colonies that we need use drone-guards or drone and queen traps; and when it comes to queen-excluding honey-boards this raking-off of the pollen may be considered an advantage rather than the contrary, for we do not wish to have pollen stored with the surplus honey.

A queen-excluder should be what its name implies; and when we intend to confine a queen to any certain part of the hive by means of an excluder there should be no doubt about her remaining there.

Producing extracted honey without queen-excluding honey-boards is practiced by many expert bee-keepers, and I should like to have one of them come to my locality and show me how it is done. With me the queens will insist on occupying the upper story, frequently deserting the combs below entirely. If two stories only are used she will take to the upper, or second one. If the third is put on she will then enter it; and if honey is not coming in sufficiently to keep the hive full, the lower set of combs will be found clean and dry, for the workers seem to enter into the spirit of the thing and conspire to abandon the lower combs.

This is not in exceptional cases, but is the rule with my bees. Is it the bees, the locality, or the keeper that is to blame for this state of affairs? If some one who knows how can tell me how to overcome this difficulty I may try to dispense with queen-excluders in the production of extracted honey; but so long as I know no better I must keep on using excluders, and believe that the great majority will do well to do likewise. To extract honey from combs containing unsealed brood is an abomination.

While I would not attempt to produce extracted honey without queen-excluding honey-boards, I am at a loss to know why many learned bee-keepers still use honey-boards of the queen-excluding type in the produc-

tion of comb honey. Probably their bees are trained differently, or the locality has something to do with it. I have practically no use for a honey-board between a comb-honey super and the brood-nest. The cases of the queen entering the sections are so rare that it is not worth considering.

If queen-excluders are so much in the way, why not make an entrance above them? In fact, I have several hive-bodies with holes of ⅜ or ¾ inch. These are frequently used as supers for extracting-combs, and the bees seem to use these holes very little, appearing to prefer to pass down through the honey-board and out at the regular entrance. It seems to me that, if the bees have such an aversion to honey-boards, they would use such upper entrance almost entirely in preference to crowding, squeezing, and struggling (as some would express it) through the perforations in the honey-board.

Bluffton, Mo.

[There will soon be on the market a queen-excluder that will overcome entirely the objections that have been urged against the ordinary perforated metal with its more or less rough edges, that thus far do not seem to be entirely avoidable. The new product we shall illustrate shortly in these columns. Experts who have examined it pronounce it perfect.—Ed.]

HONEY-PLANTS NEAR DR. MILLER'S HOME.

Plenty of Goldenrod, but no Goldenrod Honey.

BY DR. C. C. MILLER.

The region round about Marengo is not noted as one abounding in a variety of profitable honey-plants. So true is this that bee-keepers have said to me, "Why don't you pull up stakes and settle in some good honey locality?" Well, I'm here; and after one has settled in any locality the ties that bind him to that locality are likely to become stronger as the years go by. When I settled here, more than fifty years ago, it was not as a bee-keeper, but as a physician; and I never dreamed of having any thing to do with bees until I had been here five years, and not till years after that did the thought of making a business of bee-keeping enter my head. If I had known in the first place what I now know, very likely I should have trekked to some better locality, even after fifteen or twenty years of peaceful residence here.

For some time after becoming a bee-keeper I didn't care whether it was a good locality or not; and after I did care it was some time before I knew enough to know how poor a locality it was. Possibly I'm not gifted in that way. I suspect that G. M. Doolittle would nose around here for half a day and tell me much about my locality that I never knew before.

There's goldenrod. Some bee-keepers upon seeing it here just before breaking into bloom would say, "Why, with all that mass of goldenrod you ought to have your hives filled for winter, and at least a little surplus, even if you have no other honey-plants," for it's well scattered, and wherever it has a chance it thrives. Just in front of the home apiary, where for four or five years the ground has not been cultivated on account of the bees being there, goldenrod has taken possession. I wish you could see it. Last summer it was a mass of goldenrod, and the center was solid yellow, making a beautiful sight.

But goldenrod is of no value here except for its beauty. On Sept. 7 more bees were on it than usual, but generally only flies and beetles frequent it. Why it should be valueless here and valuable in some localities, I don't know.

FIG. 1.—A LARGE BASSWOOD-TREE NEAR MARENGO, ILL.

Then there's basswood, one of the very best honey-plants that grow—generally reliable as to yielding, and yielding enormously when it does yield. Fig. 1, a beautiful specimen which grows right in front of our house, shows how well suited to it are the soil and climate here; and when the bees are busy on its blossoms the sound is charming. But the woods are not full of such trees. Probably there isn't a spot in the county where they're as thick as on my place, and they were mostly planted; and you can't get a plantation of basswoods into full bearing in a day. This tree was planted 25 or 30 years ago, and it's only 16 inches in diameter

a foot above the ground now. Only two or three times in 45 years have I detected the taste or odor of basswood honey as gathered by my bees.

Fig. 2 shows another tree, horse chestnut, that ought to be a great yielder, judging by the sound of the bees among its blossoms when the tree is in full bloom. But there are two reasons why I don't get surplus from horse chestnuts. One is that there are no trees to speak of, and another is that all the bees that work on it are bumble-bees. Perhaps that last is reason enough. I may as well 'fess up that I wanted an excuse to show you the pretty picture. That tree makes a delightful place of the piazza, and sometimes on a hot day I enjoy sitting at work at my typewriter under its shelter.

To offset these sources upon which I can not depend is the one plant, white clover. Wipe out white clover and I'd have to quit. But the sad part of it is that, while some years, perhaps most years, white clover yields liberally there are years like 1906 when it blooms bountifully with never a yield. There is, however, a saving on sections, for the stock that was ready for the crop I didn't get in 1906 will be all right for a crop another year.

If I were a young man looking for a honey location I'd take my time to learning about it, but not enough time to fall too much in love with the place and the people until I knew for certain the honey was there.

Marengo, Ill.

FIG. 2.—DR. MILLER'S HOME, WITH A HORSE-CHESTNUT TREE NEAR THE PIAZZA.

THE WIDE FRAME—WHAT IS IT?

How to Make it; the Construction of the Super.

BY F. GREINER.

It would seem almost needless to write an article on wide frames and wide-frame supers; but several inquiries have come to me of late, one from across the water, and I have been asked to describe the wide-frame super in GLEANINGS if I could not answer by private letter, so I have gathered the courage to ask the editor to allow me the space to do justice to the inquirers, although I well know that the wide-frame super is the oldest good practical super in existence, and every bee-keeper ought to know what it is.

It would be difficult to tell just who invented the wide frame. Mr. Doolittle, who uses it exclusively, I think, told me that Mr. J. S. Harbison first introduced it. Mr. A. I. Root brought out the double-tier wide frame adapted to the regular Langstroth or Simplicity hive. I am too modest to mention some other inventors who constructed single-tier wide-frame supers that have not been improved since in principle, except, perhaps, making use of a fence or screen separator instead of the plain wood separator and adding the double bee-space, so that the first comb will not face the side of the hive directly. I will mention this latter feature again to make it clear. When saying that the wide-frame super is the oldest *good practical* super I concede that there are other good supers in use such as the Ideal super, T super, slotted-section super, etc.; but I think the wide-frame super is the oldest, and a little the best for me, which, however, does not preclude the fact that I am biased in this matter. It is not my object to argue the question as to which is the best super, but to describe what the wide-frame super is and what it looks like.

The width of the frames which are to hold the honey-boxes, commonly called sections, depends, of course, upon the width of the sections used. Suppose we use the $4\frac{1}{4}\times4\frac{1}{4}\times1\frac{7}{8}$ regular section, then the end-pieces must be $1\frac{7}{8}$ inches wide, and a hair's breadth longer than the section is tall. It is most important that this be not overlooked, otherwise the sections will not go in easily; and, worst of all, when crowded in they will spring the bottom-bar down. If these end-pieces are made $\frac{1}{8}$-inch thick there is a good opportunity furnished for nailing the frame

so it can not easily give out. I have many wide frames with end-pieces $\frac{7}{8}$-inch thick. They have been in use many years, and are good now. I suppose that the top and bottom of a $1\frac{1}{4}$ section is $1\frac{3}{8}$ inches wide. It would be better if it were $1\frac{5}{8}$ inches. I can see no disadvantage in this, and we would have a wider and therefore stronger bottom-bar, for this as well as the top-bar of the frame will have to be the same width as the top and bottom of the sections. Perhaps $\frac{5}{16}$ inch would be best for thickness, both of top and bottom bar, or possibly $\frac{1}{4}$ inch might do. I have but little trouble with bottom-bars of $\frac{1}{4}$ inch sagging, but $\frac{5}{16}$ would be safer. There is a little kink about nailing these frames, worth knowing. In the first place we need a little machine for holding the end-pieces of the frame in just the right position, and so arranged that the top-bar will fit in its proper place, projecting alike at both ends. This top-bar should be perfectly straight, and securely nailed to the end-bars with three cement-coated wire nails $1\frac{1}{2}$ inches long, 14 wire. If the end-pieces are as thick as stated, and of medium-hard wood (I utilize chestnut, whitewood, or sometimes the red (heart) of basswood, if it seems hard), the three nails at each end will hold the top-bar very securely.

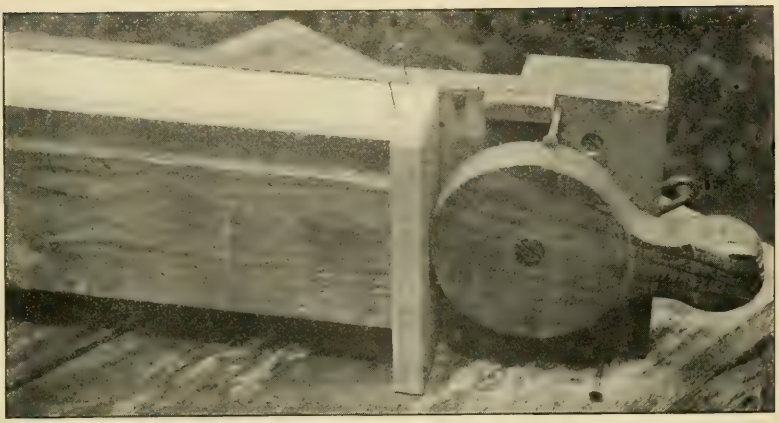


FIG. 1.—F. GREINER'S RACK FOR NAILING WIDE FRAMES.

The bottom-bar need not be nailed as strongly. Two $1\frac{1}{4}$ nails, 16 wire, will hold it in such timber as mentioned. It should curve slightly upward, and here is where that kink comes in. Fig. 1 shows where and how the nails should be driven. If they just hit the inside edge of the end-piece, and are set slanting as shown, then driven home so the head is sunken into the wood, the bottom-bar will spring in or have the upward curve needed. The top-bar may be manipulated in the same fashion—that is, should it have an upward curve. By proper nailing it may be drawn down so it will become straight or even curve downward This needs some experience, but is not difficult to learn. We ought to take a good deal of pains in nailing these frames, for it is expected that they will last a lifetime at least.

As I make my wide frames, the last thing done is nailing on the separator, a plain thin board a scant $\frac{1}{8}$ inch narrower than the section is tall. It can be properly spaced by eye, and six smooth wire nails $\frac{3}{4}$ inch long hold it well. The shell which is to hold the frames is just like a shallow hive; in fact, by substituting, regular shallow frames may be used for a brood-chamber or extracting-super.

If the super is roomy enough it will be well to provide a double bee-space at one side of it as can be seen in Fig. 2, showing hive, super, and wide frame as

FIG. 2.—GREINER'S SUPER PROVIDED WITH WIDE FRAMES.

J. H. MILLER'S APIARY NEAR LOS ANGELES, CALIFORNIA.

used in my yards. When the wide frames are filled with boxes they are placed in the super, commencing on the side where the double bee-space is provided and then wedged up. I never learned the knack of using the little springs to hold the frames and sections snugly together. Wedges do not entirely satisfy me, although they are cheap, and easily applied and removed. I believe tightening-screws would be better. These ought to go through the side wall of the super opposite the side with the double bee-space. It would require three for each super. I should be glad if they could be procured.

The wide frame protects the honey-boxes most perfectly on all sides against being besmeared with propolis by the bees, but is at the same time the most expensive method.

Naples, N. Y.

BEE-KEEPING IN CALIFORNIA.

A Successful Apiary just Outside of Los Angeles.

BY B. S. K. BENNETT.

Were you ever at work in your apiary and wished to be in the city? Have you desired to see the busy streets and life of a large city, and still be among a hundred cities of your own? Most California apiaries are noted for their isolation, situated mostly in the wild-brush hills for best honey production; and, to say the least, it is so lonely that a sight of the city would be a real pleasure.

Mr. J. H. Miller, a furniture-polisher, was fortunate in locating his apiary on a hillside a few miles north of Los Angeles, at such an altitude that one can readily see the fine buildings and the results of activity of a busy and growing city, and still have his apiary among the best of honey-yielding flora.

Mr. Miller, having business to attend to in the city, desired a near location, and holds the honor of the nearest producing apiary here. He started with some 30 colonies and increased to 100, all in Dovetailed 8 and 10 Hoffman-frame hives, laid out in terraces or steps on the hillside, and produced both extracted and comb honey of excellent quality.

His honey-house, as shown, is 14×14, constructed of framework covered with burlap. The floor forms a platform even with the first terrace, and thus makes a cellar for his honey-tanks below.

Mr. Miller has since branched out — has sold this location, and now has an apiary more distant from Los Angeles, where he keeps 300 or more colonies, and devotes his whole time to the business.

Los Angeles, Cal.

BEES BURIED IN PITS.

Why no Extra Ventilation is Necessary in a Sandy Soil.

In an article entitled "Helpful Hints in Extensive Bee-keeping" in *Bee-keepers' Review* for March, Mr. E. D. Townsend says, "The pits have no ventilation; and when the bees are removed, the hives and combs are quite damp and moldy." I have seen other accounts of the same condition of the bees, and, I think, the same lack of ventilation. Will you please explain why it is that so

many, in building bee-cellars, insist that they be dry and well ventilated. An answer in GLEANINGS would be very much appreciated. E. MEAKER.

Auburn, N. Y.

[As the above question was addressed to Dr. Miller, his reply follows.—ED.]

It does look a little contradictory to have ventilated dryness on one hand and unventilated dampness on the other, and yet each considered all right for wintering bees. No wonder you want the two things reconciled.

I don't believe bees can live without air. The importance of fresh air for the human family—and abundance of fresh air at that—is only beginning to be understood properly, and it is doubtful if many bee-keepers correctly estimate the importance of pure air for their bees.

On the other hand, the ill effect of dampness, *per se*, upon bees in winter is probably overestimated. More than one bee-cellar has water running through it, the effect being helpful rather than harmful. It is quite true that, when a cellar is damp and moldy, the bees do not winter well in it—not *because* the cellar is damp, but because the air is poor, and the dampness shows that the cellar is not well ventilated.

At a certain temperature, somewhere in the neighborhood of 45 degrees, bees are very nearly dormant; and at that temperature they require only a small amount of air. That amount of air will work through the walls of a bee-pit in any reasonably porous soil. The pit keeps the temperature quite even, and, if arranged to keep near 45, the small amount of air will suffice. When Mr. Townsend says there is "no ventilation" he probably does not mean that, strictly speaking, there is no change of air, but that he has made no special provision for ventilation. There may be such a thing as a pit with no ventilation, as where the soil is a stiff, impervious clay; but, if I am rightly informed, bees sealed up in such a pit will die.

The special advantage of a pit is that it keeps at an *even* temperature, bees wintering in spite of the dampness, because kept constantly at the point where the least ventilation is needed. Set such a pit against a cellar that by any means is kept just as even in temperature (hard thing to have such a cellar), and at the same time well ventilated, and I'd choose the cellar. Guess I'd take the cellar anyhow, even if not quite so even.

C. C. MILLER.

[If we are correct, successful wintering in clamps or pits is possible only in sandy soils that are porous in their nature, letting water drain away and more or less of air to percolate through them. If there is any case where successful pit wintering has been secured in a heavy clay soil we should like to hear of it. This may explain why some can get along with no ventilation and others not.

A uniform temperature of 45 degrees induces a quiescent sleep bordering on a semi-hibernation where very little air is consumed and very little food as well. If the temperature can be maintained at this point not much air will be required; but where the thermometer varies considerably, then a great deal of ventilation is needed.—ED.]

BEE-KEEPING IN FLORIDA.

A Visit at the Home of O. O. Poppleton.

BY FRED W. MUTH.

The picture of Mr. O. O. Poppleton among his bees gives one an idea of his migratory apiaries, and at the same time portrays an excellent likeness of our old friend when working with his little pets the honey-bees.

When the honey-flow at his home yards proves a failure, or even if it does not come up to his expectation or his liking, he invariably shifts his apiary either up or down the Indian River, often for a distance of 100 miles, until he reaches a spot in that beautiful country that he considers suitable for him and his bees. For this part of the work he is well equipped, having a large launch that will hold some 60 hives of bees, as well as a barge that will tow an entire apiary at a time. Mr. Poppleton is an efficient pilot. I shall never forget the trip I made with him on his launch Thelma, from Fort Pierce to his home at Stuart, Fla. We called upon

O. O. POPPLETON AMONG HIS BEES, AT STUART, FLORIDA.

our friend Harry E. Hill, of Fort Pierce, who generously invited us to stroll with him through his pineapple plantation; and after I had been more than satisfied with some of the finest of that fruit, Harry loaded us down with the fruit, which was laid in the stern of the boat. Those pineapples afforded the finest refreshment on our trip; and I will say here that the pineapples we buy in this section of the country, that have been shipped from the South, can not begin to compare with that delicious fruit as it is taken from the plant when ripe.

We prize that picture of our friend Popleton very highly, for it is so natural to see him among his bees, just as one might find at any time when calling upon him.

Cincinnati, O.

HIVE-MAKING.

A Beginner's Experience in Getting Bees Out of Trees; a New Bee-veil.

BY E. C. BRITTON.

The photograph shows some hives which I made last week. The one in the foreground is made of straw. It has a bottom-board 20 inches square, a wood frame inside of the hive, with a hole in top and a stand to place over the hive, so as to put a bee-space board on top for the super. I made it all, just for the pleasure of having an old-fashioned straw hive. I will put it in a small house with open front and the back on hinges, so as to let down in summer. I bought ten Dovetailed hives in the flat. I made one myself, but would not advise any one to do it unless he has plenty of time and would be contented with a poorer hive. The parts can not be made as accurately as those in the machine-made ones, and the frames will not hang alike—some nearer than others, and so on.

HOME-MADE DOVETAILED HIVES AND STRAW SKEP.

The tall hive in the background is an old box hive, which I found at "the old home." It was there when I was a boy. I found two of them there, and both would have had bees in them if it had not been for the wax-moths.

I captured my first swarm on a neighbor's apple-tree last June, and have taken two from houses and two from the inside of other trees, making five in all. I have divided some, so you see I have been making quite an increase in the last six months—for a beginner.

The last colony, in an old apple-tree, had 30,000 bees and 70 pounds of honey. It was a lovely day, and we began work on them about 11 A.M., after paying $1.25 for them to the man who owned the land. They were Italian bees, and great workers. The entrance was about a foot from the ground, and I took an ax and cut a hole about three feet high and six or eight inches wide. It was a great sight. The tree was hollow, and the comb was about 2½ feet high, and over a foot wide.

After taking out two combs and wiring them in the frames I put an old bag over the top of the comb inside of the tree, so the queen would not escape, for I lost the queen in the other tree because she went away up through a hollow where I could not find her. After putting all the comb in the frames (and we had a pailful of pieces besides) I pulled out the bag, and the queen dropped down on the ground. I took her and put her on the hive, and she crawled down between the frames out of sight among the bees. We used a smoker all the time, and what bees didn't get on the comb we put into the hive by the handful. The last bee—the queen—in the hive, I put on the cover and placed all in my automobile, and was at home by 6 P.M.

I want to tell about my bee-veil. I took an old straw hat, sewed a strip about four inches wide, of mosquito wire netting, around

it, then cotton netting below that, to tuck under my coat. The advantage of the wire netting is, the wind will not blow it against your face or ears. I then took a piece of plain glass, $2\frac{1}{2}\times5$, put a strip of wire netting around it for a border, and cut a hole, just large enough in front of the netting on the hat to allow me to sew the glass into it. Just slip on the hat, any time you wish to go among the bees, and you will see better through glass and not have to look through the netting all the time, which is bad for the eyes.

Canton, Mass.

[But don't you have trouble with the glass getting coated with vapor from the breath? That has been our experience, and others have reported the same trouble.—ED.]

A LARGE EARLY SWARM.

A Veil with a Rubber Cord to Draw up Around the Collar.

BY M. L. BREWER.

The engraving shows my first swarm, May 17, with my five-year-old helper, Master Harold Hazen, of Jonesville, Mich., holding them steady, as it was blowing, and they were suspended from the clothesline for the picture after they were brought down from the tree where they clustered.

In the May 15th issue, page 705, Dr. Miller describes his veil, the invention of his sister-in-law. We have used one of that style for years, but with an improvement which we think the good doctor will find to his advantage as well as convenience, doing away with safety-pins. If he will notice, the veil our helper wears is after his pattern, but with a rubber cord at the bottom that draws snug around the collar, which is easily spread with the hands to put over the head. When fitted around the collar, no difference which direction the bees come from, they do not enter.

Philo, Ill.

[It would seem as if the tight band around the neck would be less comfortable than Dr. Miller's arrangement, but we may be mistaken.—ED.]

M. L. BREWER'S FIRST SWARM, IN CHARGE OF HIS 5-YEAR-OLD HELPER.

ALFILARELA, OR PIN CLOVER.

Erodium Cicutarium.

BY W. K. MORRISON.

This very useful bee-plant has received comparatively little notice thus far, though it is one of the most valuable forage-plants in the United States, covering a wide extent of country, including all of Arizona, California, Nevada, Utah, New Mexico, Oregon, and parts of Washington, Idaho, and Texas. It deserves more notice than it has hitherto received. Though classed as a weed by some, it is greedily eaten by stock, and compares favorably with red clover in nutritive value. It is not cultivated at all anywhere, therefore we do not know what it would do under intensive culture. The seeds stick to the fleeces of the sheep, and by this means have been carried far and wide over the West. No one seems to have tried it in the South; but as it grows well in Central America and Mexico it might be expected to do well in Florida. The Spanish introduced it accidentally into Mexico from old Spain, and the Mission Fathers of California probably brought it with them sticking to the hides of their cattle or in the wool of their sheep.

MAKING HAY FROM ALFILARELA.

Alfilarela is particularly interesting at this time now that the Secretary of Agriculture has undertaken to improve some of the Western ranges which have been overcropped, for the cattle-raisers have a high opinion of it as a forage for all kinds of stock.

The Arizona Experiment Station has issued a very good account of this plant in the shape of a special bulletin (No. 52) from which we derive our illustrations and some of our facts as regards its history.

The bee-keepers of the West would be glad to see Secretary Wilson do something to help this plant to survive on the ranges, and possibly its area might be extended. It yields considerable honey, but it is more valuable still for the pollen it yields.

Despite its names it is not a clover at all, but has been assigned by botanists a place with the common geranium. In California and Arizona the inhabitants regard it as a native plant, and naturally so, as it is as much at home there as on the shores of the Mediterranean Sea.

A SEASON'S WORK WITH SECTIONAL HIVES.

Swarm Control and Comb-honey Production; Cellar Wintering of Bees.

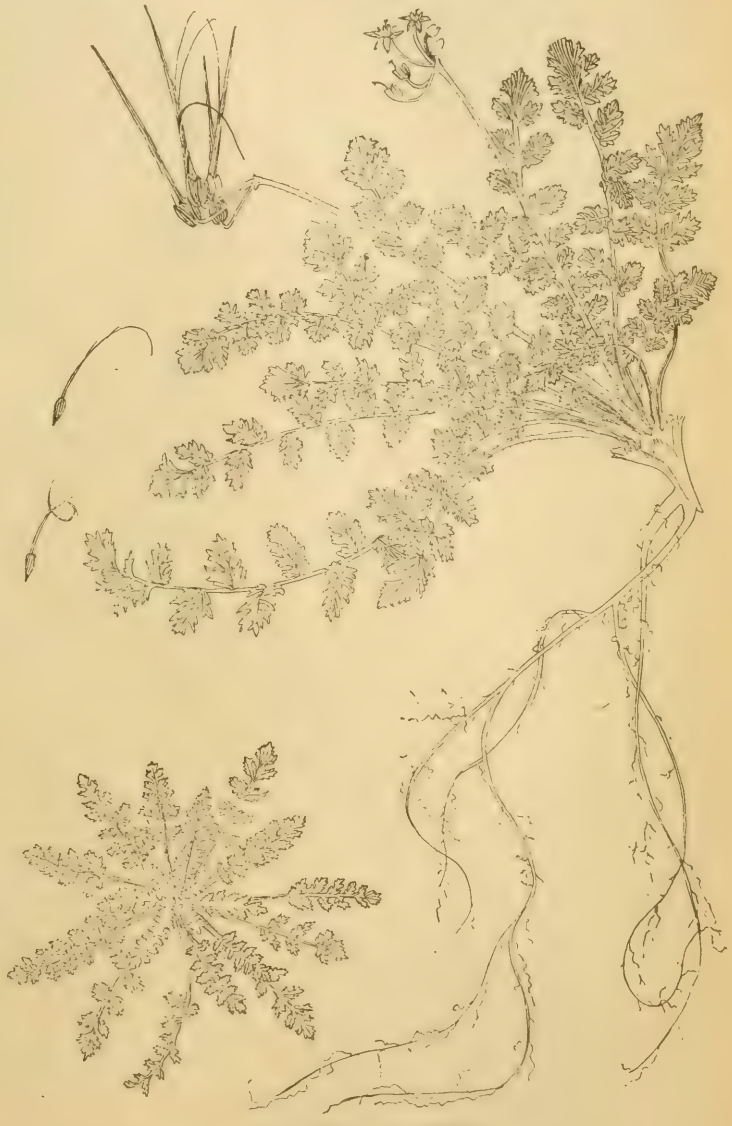
BY J. E. HAND.

Having our strongest colonies snugly tucked in their winter nest we will next turn our attention to the lighter colonies that were chosen for cellar wintering. Experience has taught us that it is not safe to attempt to winter a colony of bees out of doors that is light either in bees or stores; however, such colonies will winter as well in a dry warm cellar as will a stronger colony. We will first place under each colony to be wintered in the cellar an empty super 5 inches deep, with a tight bottom, and the sides well ventilated with wire screen. This furnishes an air-chamber for ventilation, and at the same time prevents the bees from flying out of the hives and perishing on the cellar bottom, and does away with the nuisance of having the bees fly out of the hives at the least jar, as they have a habit of doing while carrying them in and out of the cellar. It is also a safeguard against the depredations of mice, which often annoy the bees in the cellar, causing many to leave the hives only to become lost and perish on the cellar bottom.

The advantages gained by this method of confining the bees to the hives while wintering in the cellar are many, and no one should take the risk of allowing his bees to leave the hives while confined in the cellar during winter. Bees that are kept so long in confinement have a strong desire for flight in order to enable them to discharge their feces, and will leave the hives in great numbers. Colonies are often greatly weakened from this cause, and the bee-keeper can ill afford to lose bees at this season of the year.

Having a ventilated air-chamber under each hive we will next proceed to carry them into the cellar and tier them up one above the other as high as we can reach comfortably. This job is quickly done, and, with a perfectly dry cellar, with a temperature ranging between 40 and 45°, with plenty of ventilation, we have every reason to expect every colony to come out in the spring in a perfectly healthy condition, especially since their winter stores are composed largely of sugar syrup, as bees endure long confinement much better when wintered on stores of sugar syrup than with stores of honey. However, bees that are wintered in the cellar should have at least one flight during February if the weather is suitable. With our bees all in their winter quarters our season's work with them is ended, and it is with a certain degree of satisfaction that we look backward over the past season's work in the apiary, knowing that we have done the very best we could; and in closing our series of articles on the subject of comb-honey production and swarm control we will say that, while we perhaps derive more real pleasure from the pursuit of bee-keeping than from any other branch of rural industry, yet we have to confess that profit has been the actuating principle with us; and how to obtain the greatest possible amount of profit with the least possible expense has been our study for years. Our motto has been, not how can we get the largest individual yield per colony from a few colonies of bees by expending a great amount of labor, but at how little expense for labor and capital can we exhaust the honey resources of our location? This is the paramount issue that should appeal to the judgment of every honey-producer of to-day. At the present time labor cuts a greater figure in the cost of honey-production than capital, therefore every labor-saving method reduces the cost of honey-production and merits the careful consideration of every producer of honey.

Our improved methods of hive manipulation not only reduce the cost of honey-production fully a half, but they enable the apiarist to keep twice as many bees with the same amount of labor expended, thus doubling his income from his bees.



ALFILARELA IN ARIZONA.

Regarding the hive-lifting device, too much can not be said in favor of this labor-saving invention, as it does away with the disagreeable backaching work of lifting hives, and hives can be handled more rapidly than by

hand. To give the reader something of an idea of the ease and rapidity with which hives can be handled by this device we will take a pile of five sections of our hive, weighing 125 lbs., and with our machine we will separate each section in the pile and place a honey-board between each two sections in less than thirty seconds.

We would especially call your attention to our rapid system of perfectly filling the sections with foundation, which holds the foundation always in the center of the sections regardless of whether the hive is level or not. When we say "perfectly filled" we mean that the sections are so nearly filled with foundation that no bee can ever get hold of the edge to gnaw it out and cause popholes in the corners of the section of honey; and the foundation will not buckle, even though the sections are out of true. By this method one man can do the work of four with any hot-plate machine, and it insures a section of honey firmly fastened on four sides; and last, but not least, supers filled with foundation by this method may be safely shipped by freight or hauled to out-apiaries, for the foundation can not be jarred out by rough handling. We have a good hot-plate foundation-fastener which we will give to any one who will ask for it.

Our system of finishing all our sections over a feeder insures a uniform filling of them, and eliminates the nuisance of lightweight sections that are capped at the close of a short honey-flow and before they are perfectly filled out. We could not produce fancy comb honey in our location by the usual methods in vogue.

Again, our method of using two queens in a hive up to the time of putting on the sections, together with a super of extracting-combs above the brood-chamber forces the bees to store all the honey that may be gathered previous to the main honey-flow in the extracting-combs, since the fertility of the queen is in excess of the room in the brood-chambers. Taking advantage of the instincts of the bees to store all their honey above the brood, we place these extracting-supers, full of honey, below the brood-chamber after the bees have begun work in the sections, thus compelling the bees through their instincts to store practically all the honey in the sections. By our system of manipulating the sections of the brood-chambers of our hives, taking from and adding to the same as occasion requires, thus at all times giving the queens plenty of room, and by removing the top brood-section whenever any considerable amount of honey shall be stored therein, and always placing such honey directly under the brood-chamber, where it will be quickly removed and stored in the sections, we are able to keep the brood and bees together, giving us strong colonies that are constantly becoming stronger as the season advances. Compare this with other methods of so-called swarm control.

Imagine an artificial swarm made June 10 to 15, without any hatching brood in the hive for the next three weeks; what kind of condition would such a colony of bees be in for best work in the sections during basswood bloom. They would be mere nuclei compared with our mammoth colonies; and yet the advocates of this system make the broad claim that they get stronger colonies of bees by this method of artificial swarming than it is possible to get by any other system. In applying our system to out-apiaries the home yard is used to draw out and finish the sections, and the out-apiaries furnish the extracted honey to finish off the sections at the close of the honey-flow.

The object of these articles is to eliminate all the uncertainties pertaining to the pursuit of bee-keeping, and place it on a solid basis as compared with other business ventures.

There is no such word as "luck" as applied to bee-keeping, since every effect has its preceding cause; and the same careful attention to every detail of your business will as surely result in success in honey-production as it will in any other branch of rural industry. It is a mistaken idea that bees can not be wintered with the same degree of certainty that attends the wintering of any other farm stock.

A careful observance of every detail as set forth in these two articles on wintering bees will enable any bee-keeper to winter his bees with the same assurance of success that there is in wintering his poultry or sheep. Every writer is supposed to write from the standpoint of his own location; however, since the manipulations of the sectional hive can be varied to suit the requirements of any and every location where bees are kept, they should be governed by location, time, and duration of the honey-flow. There are, indeed, few locations so poor that comb honey can not be produced at a handsome profit by the methods set forth in this series of articles. "Freely ye have received, freely give," is our motto; and if our methods as described in these articles will prove as helpful to others as they have proven to ourselves, which we doubt not, then we shall indeed feel that our labors have not been in vain.

To my bee-keeping friends and colaborers along the lines of solving the intricate problems of apiculture, I bid you a hearty Godspeed and extend unto you one and all, of whatever race or nationality, the right hand of fraternal fellowship and good will, believing that, in a multitude of counselors, there is wisdom.

Birmingham, Ohio.

HOW BEES ARE WINTERED IN A COLLEGE DORMITORY.

BY GEO. W. PHILLIPS.

The wintering of bees was always an interesting problem to me. I was born in the tropics, and lived for 22 years in Jamaica, the country of my birth. There we have no winter, nor any thing corresponding to it; but for twelve months in the year the sunshine of summer beams upon us. We do, however, have a continuous rainy spell, com-

ing somewhere about the month of November, and often whole apiaries will succumb to the unfavorable conditions. This was one of the strong arguments my friends urged against me when I decided to launch out into the bee business. But I knew that something was wrong somewhere, and that if this "something" could be found and remedied, the bees would not die. When the November rains began to fall my bees were in good condition for the experiment. Rather than run any risks I removed some weaker colonies right into our house, and I lost not one colony during that rainy spell. The problem had been solved.

Now, the subject of wintering has always appealed to me in much the same way. As manager of the Root Co.'s apiaries a few years ago I often racked my brain to find some expeditious plan by which bees could be tided through the months of cold weather. Outdoor wintering is ideal in that the bees have always Nature's provisions of air and sunlight — ideal, because on every warm sunshiny day they may get the advantage of one of those cleansing flights so necessary to the sanitary conditions of the hive—ideal, because the colonies are not removed from their summer stands, and there is no danger of a mix-up in the spring. But in other respects outdoor wintering is far from being satisfactory. The rigor of the northern winters and the consequent effect upon bees wintered outdoors, the excessive amount of stores required — these and other detrimental effects of the system are too well known to need elaboration.

On the other hand, cellar wintering also has its distinct advantages: Weaker colonies may be pulled through; a smaller amount of stores consumed; the northern icy blasts evaded, etc. But cellar wintering has its severe disadvantages too: The foul dank air; the enforced and prolonged confinement of the bees; the fecal exudations rendering the hives well nigh untenable; the bushels of dead and dying bees strewn about the hives and floor—all these are grave features attendant upon indoor wintering.

Now, is it not logical to seek out a system whereby the best features of the above methods might be brought together? Is it possible to find such a system? And if so, then are we not ready to cope successfully with the winter problem? Such a system I think I have hit upon. May be I have not. Any way, the idea needs perfecting, and amid the stress of my college life I can but give the idea to the bee-keeping fraternity, and trust that others will give it the time and thought necessary for its development.

I live on the fourth floor of a college dormitory, and for two years have kept bees near the desk in my study. One of the colonies is in a Root ten-frame observatory hive (I may mention here that Prof. C. W. Chamberlain, of our physics department, has an outfit exactly like my own, and has been conducting like experiments at his private dwelling. Our results are in precise accord). I need not say that the presence of bees in a dwelling-room caused universal comment. Indeed, in the interest of the common good the curator demanded that they be removed at once; but by respectfully asserting that I knew a little more about the thorny creatures than did the learned gentleman, and by assuming the responsibility for any damage that might be inflicted upon the student public, I was permitted to retain my pets. No damage has yet been inflicted, although I have had as many as six interested feminine spectators at a time — and destitute alike of smoker and veil.

In such a room, for the second year I have wintered my glass hive of bees. The hive with its entrance contracted is placed on a stand the same height as the window-sill, and the window is then drawn down so as to rest firmly on the alighting-board. This alighting-board is so built that the egress is absolutely outside the room, and no stray bee can enter the apartment. The window is wider than the alighting-board. This leaves a space on either side which must be blocked in order to keep the draft out of the room. My rooms are heated with hot water. This year I had extra radiation put in so that the temperature has frequently been as high as 80°. See, then, the results effected: The body of the hive has been kept perfectly warm and cosy, and thus all the finest results of cellar wintering have been attained, while the entrance of the hive has been in direct communication with the open air, and thus all the benefits of outdoor wintering have been enjoyed. Didn't the bees suffer from the unorthodox heat? No, sir; they enjoyed it — at least. they seemed to, for they were enabled from time to time to leave the cluster and stroll about the outside combs. Did they not become excited and indulge in midwinter flights? Not a bit. The chilly currents of air blowing across the entrance produced a restraining effect. Anybody can see that the arguments against heat in cellar wintering will not apply here. In the cellar the air is warm and fœtid. The excited bees rush out into a flying temperature. Here, while the hive is warm and comfortable, outside is the cold fresh atmosphere of winter But it is a pleasant sight to see those bees fly when a warm day comes.

Let me say that, after having worked with bees in different countries and under varied conditions, I am fully convinced that some sort of practical house-apiary is a thing entirely feasible. In the tropics I have had my veranda upstairs straining beneath the weight of three-story sixteen-frame colonies. I could work with these colonies when floods of rain were deluging the apiary outdoors. And in this northern region, where bees and bee-masters are continually at the mercy of shifting climatic conditions; where the work of the apiary is constantly being hindered by heat and cold, and wind and rain, would it not facilitate matters to adopt artificial measures — somewhat after the manner of the greenhouse men—for bringing about as nearly as possible the normal state of things?

Denison University, O.

[This article was written late last spring; but as it was then a little out of season we have held it as we have held other articles on wintering.

We saw Mr. Phillips a few days ago, and he reported that this colony, while he was away on his vacation, gathered $5.00 worth of honey, and that the colony Prof. Chamberlain had in his room gathered 75 lbs. of fine comb honey while his other five colonies, wintered outdoors, barely survived the shock of last winter, and gathered absolutely nothing.

Perhaps thirty years ago A. I. Root tried a similar experiment on a larger scale by putting a stove in a house-apiary; but he now says he did not keep up a *continuous* fire; that the building was not frost-proof. Well, the wintering was not of the best. It is probable that the occasional fire stirred up the bees—possibly started brood-rearing. Mr. Phillips emphasizes the importance of a *regular* heat at somewhere living-room temperature.

A few years ago a bee-keeper in Michigan reported that a colony he had in his house with an entrance to the outside wintered perfectly, and he secured a big yield from that colony. We desire to inquire whether there are others who have tried the experiment described by Mr. Phillips.

By the way, he reports that the consumption of stores was not large, and that the bees seem to be dormant—almost in a state of sleep, except when it warmed up, when they took a flight.—Ed.]

BEE-CELLARS.

Can the Atmosphere be Too Dry? The Relation between the Size of the Entrance and the Condition of the Atmosphere.

BY ALLEN LATHAM.

Nothing else in the last January 1st number of Gleanings impressed me so strongly as what Mr. Alexander had to say on p. 27 about a cellar that was too dry for the good of the bees. If some person of less experience and mental capacity than Mr. Alexander had offered that experience we should be inclined to think that some error had crept in somehow. As it is, we assume that Mr. Alexander gave the phenomenon careful and discriminating study, and that he rightly eliminated every thing but dryness as a possible cause for the uneasiness of the bees in that dry cellar.

Indeed, the fact that the bees rushed for water as soon as they had opportunity shows that something was wrong; and this fact, coming as a supplement to the statement that the honey left in the hives was *gummy* lends strong credence to all Mr. Alexander's reasoning. These two facts of observation are the only ones with which we are furnished whereby we can judge the case for ourselves, and decide that the cellar was too dry. And, even with these, something tells me that the cellar was simply too dry for the hives as they were left, but not too dry for them as they might have been left.

It is surely a revelation to most of us that a cellar, in the natural course of things, can be too dry, though an artificially too dry cellar might be easily possible. But recognizing the possibility of such a thing as a cellar naturally too dry, it now remains to ask ourselves how much the fact is worth. Surely, against this one instance of a cellar too dry, we can easily name many of cellars too wet. Against this one instance of bees wintering poorly in a dry cellar we can place hundreds of cases of poor wintering in a wet cellar; and, therefore, we are forced to conclude that in most cases, and for the majority of us, a dry cellar is the best place for our bees, and is a friend rather than a foe.

My own cellar is extremely dry in winter—so dry that lumber seasons beautifully in it; so dry that vegetables and fruits become desiccated and shriveled beyond use unless protected from the cellar atmosphere. In spring the atmosphere changes so as to become sufficiently humid to keep sections in good condition to fold without wetting. In winter the air is so well ventilated by the draft of the steam-heater, though no window nor door nor ventilator is open, that bees falling to the floor become dry and brittle.

Last fall I placed in this cellar six colonies which I had in single-walled hives, and which I did not care to protect for outside wintering. They were placed some twenty feet away from the heater, in a dark corner, with entrances turned to the wall. When taken out late in March they were in excellent condition—bees healthy and combs clean. Two of these colonies were furnished with an entrance only 3 inches long by ⅝ inch deep, and not one of them had an entrance nearly as ample as I furnish the colonies left outside.

Now, I feel almost certain that, if the cellar had been damp, those bees would have suffered from dampness in the hive, and been restless from overloaded abdomens long before March. The momentous question is, what would they have suffered if the bottom-boards had been removed and the combs exposed to the free circulation of the cellar atmosphere? Whatever be the possible facts, we can see here the desirability of knowing something definite about the humidity of our cellars and of governing the ventilation of the hive interior accordingly. In the case of a damp cellar we had better leave bottoms off or give ample entrance. In the case of a dry cellar we had better curtail the entrance.

That bees manufacture water in digesting or burning honey is beyond question. That this water is sufficient to enable the bees to dissolve gummy honey, sugar candy, etc., is also beyond question. That if the atmosphere robs the bodies of the bees of this water more rapidly than it is replaced through the burning of honey, bees must suffer, and perhaps starve, I concede. I have myself seen them starve in a dry cellar on sugar candy, leaving the candy as hard and dry as a brick.

Allow me to state the results which I had

with baby nuclei in this same cellar the past winter, since they offer more facts bearing on the matter. The readers of GLEANINGS will recall that, during the past year, an article was published which depicted my method of wintering baby nuclei. Last fall I placed 9 (where the year before I set in 24) of these nuclei in the wintering-case. I did not raise the little hives from their bottom-boards as was done before, and I did not set them out for any mid-winter flights as was done before. Otherwise they were treated as were the 24 from which I set out 21 live ones mostly in perfect condition. Of these nine only two were in even fair condition this present spring, and five were absolutely dead. The little hives were damp and fearfully moldy, though this cellar is so dry. The food was of poor heating quality, and more was consumed than on the preceding winter, nearly every little hive being almost if not entirely devoid of honey or syrup.

A tenth baby nucleus was treated as follows: A burlap sack was laid on the concrete cellar-bottom, and on this was placed a shallow dish with half a pound of chloride of calcium above it on a wire cloth. Over this dish was set a hive-body with a horizontal partition of wire cloth upon which the nucleus rested. Then another dish of chloride was placed on the hive. Over all was laid another sack, and above that a flat board with empty hive-bodies holding the same down. It will thus be seen that this little hive was shut away from the cellar air except as it could find its way through the pores of the wood and the fibers of the cloth. The dry air of the cellar was made still drier by the presence of the dishes of chloride.

Incidentally I might mention that, in the empty hive-body, above this arrangement I placed a somewhat larger nucleus with my best breeding-queen. Cover was placed on this hive-body, shutting in the nucleus with only natural entrance of hive-bottom to furnish air to the bees of nucleus which had entrance ⅝ by 5. This nucleus was set out for one flight in January, and wintered without the loss of ten bees so far as I know.

I wished to test with the tenth nucleus whether bees need air in winter beyond the small amount necessary to burn or oxidize the honey, aiming to take up excess of moisture with the calcium chloride. The air about this nucleus was so dry that bees were easily powdered to dust, and during the course of the winter the chloride all dissolved, and fully a pint of water was absorbed thereby. In January the chloride was about half dissolved, and the bees very quiet, and apparently in fine shape.

Well, I fully expected to take out those bees in April in perfect condition; but I must state the facts. When I found in March the other nuclei in such awful condition, I had, perforce, to open up the tenth. I found 90 per cent of the bees dead outside the hive. About half a dozen bees in the hive showed signs of life. The queen was sluggishly alive by herself, and her I introduced to another nucleus without a queen. The food left in the combs was not at all gummy—was rather watery in fact. None of the dead bees had distended abdomens, and the hive was sweet, and entirely free from mold. This tenth nucleus offered a striking contrast to those others, whose hives were rankly filthy to both sight and smell.

Here we have a problem. Did those bees desert their hive for water? Scarcely possible, yet they had evidently become uneasy some time in the winter, and left their hive to perish. Their food showed no need of water. I shall try this winter to discover the cause of the failure. I made no provision for disposal of carbon dioxide; and as this sluggish gas gathered about the lower part of the hive-body, in which part the entrance of the nucleus was, it is quite possible that the bees suffered from that cause—too much nitrogen, too little oxygen to burn the honey, etc.

Two other baby nuclei were wintered perfectly, placed in hive-bodies, no attempt being made to ventilate beyond the cracks under and above the bodies, which were not stopped with burlap as in the case of the tenth.

I realize, as I offer this article, that it settles no question with definiteness, and that the whole matter is yet to be solved. But I would urge the fact that few bee-keepers need worry about their cellars being too dry. I would assert here, as I have elsewhere, that a cellar is wet or dry according as the air in it is wet or dry. A cellar may have running water in it, and still be a very dry cellar. Another cellar may not have a drop of water in it, and yet be a damp cellar. Do not judge a cellar by the condition of the cellar-bottom, but judge it by the action of its atmosphere. A wet-bulb and dry-bulb thermometer may be worth the money of any apiarist who winters his bees in the cellar. In lieu of such thermometer a person can judge a cellar largely by the effect of its atmosphere upon fruit and vegetables. It can be laid down as a safe rule that a cellar in which apples keep crisp, and in which turnips and potatoes hold their weight, is a damp cellar; also that a cellar in which apples shrivel, potatoes and turnips lose weight, is a dry cellar. The rapidity with which the desiccating of the vegetable takes place marks the degree of dryness of the cellar air.

I am not an expert in cellar wintering of bees, having always practiced outside wintering. I have, however, tried a colony or two at various times, and have done more or less experimentation. I think it will be safe to say that a bee-keeper whose cellar is good to keep potatoes in will do well to give his colonies large entrances, or even to remove the hive-bottoms; that, on the other hand, a bee-keeper whose cellar is poor for keeping potatoes openly exposed to the air would do well to allow the bees a small entrance. If the cellar be extremely dry there can be no harm in sprinkling the floor occasionally with a garden-pot. Surely, a dry cellar is more easily controlled with a garden-pot or sprinkler than a wet cellar can be controlled.

The best remedy for a wet cellar is a steam-heater or furnace—not to heat the cellar, but to heat the house above. This heater will draw about fifteen tons of air for every ton of coal burned, and all this air must enter the cellar and finally pass up the chimney. It will enter in spite of closed windows and closed doors, and it will keep the cellar sweet and dry. Note, all who use heaters and furnaces, how quickly the cellar feels damp after the fire is allowed to go out in spring.

Do not follow the fool advice that some one, I don't now remember where it was, offered, of setting an oil-stove in your cellar in the hope of drying it. The drying will be but temporary; and after the stove is put out, the air will be damper and more foul than it was in the first place.

Norwich, Conn.

SELLING HONEY.

The Importance of Retaining the Aroma.

BY R. A. BURNETT.

It is becoming better understood among the consuming classes that unripe honey is not palatable; therefore the chief thing now in selling honey is to get the aroma as well as the appearance. Especially is this true when Wisconsin dealers, or those in any of the States east of the Missouri River, seek to put their honey in competition with that west of them. The trade is beginning to discriminate more and more each season with regard to flavor of honey. If the producer is known to manage the product of the bees so as to get this aroma to the utmost he will stand a better chance of marketing at a little higher price than his neighbors—certainly it will be taken in preference; and when there is an abundance of honey this is quite an advantage. People buy honey because it is more than a sweet—they buy it for the relish; therefore the ripening of honey, and not exposing it to the atmosphere in such a way as to eliminate this delicate aroma, is essential in getting a honey that the market wants. This volatile oil, distilled by the blossoms which secrete the nectar, is, therefore, the chief factor in selling honey produced in the middle States. This fact applies equally to extracted and comb honey.

We are of the opinion that it is more difficult to retain this aroma in the extracted form than in the comb, perhaps because so many bee-keepers remove the honey from the comb before it has gone through the necessary curing process, and then again exposing it to the atmosphere to remove more of the water and thus prevent the honey souring.

It is well to remember that merit in the article for sale is the chief factor. When the salesman finds that he has something that pleases the people he becomes enthusiastic, and this causes those seeking for a similar commodity to be influenced by his statement; and, if the goods warrant, he has little difficulty in making a second sale to the same party. Honey without the desired flavor has had more to do with its own undoing than any other one thing that it has to contend with. We have had many instances of this in our business by people buying a nice-looking case of comb honey for their own use, and, finding it very different from what they had reason to expect, have either returned the greater portion of it or refrained from buying any more, sometimes for years. Let them get pure extracted honey of a tasteless nature and they will not buy any more. It is an easy matter, as a rule, to sell to people what they want, and there are a great many people who desire honey that has that fine old-fashioned flavor that they used to get, but which now they seldom find in the market.

Chicago, Ill.

[R. A. Burnett & Co. are an old standard commission house that has made a specialty of honey for many years. Producers would do well to follow their suggestion in regard to retaining the aroma of honey.—Ed.]

TARRED PAPER.

Its Value as a Winter Protection; how it Hastens Brood-rearing in Early Spring.

BY H. E. CROWTHER.

Last winter I examined a few colonies that were wrapped in tarred paper, and found that they were considerably in advance of those not so protected. I found in every case sealed brood and some young bees, while in colonies not protected by paper there was scarcely any thing beyond the egg.

I also noticed that comparatively weak colonies were progressing very well with brood—having more, I believe, in proportion to their size than the larger and stronger colonies, which is, if I am correct, an unusual state of affairs, but by no means an unfortunate one; and if the extra warmth afforded always advances them to the extent that it has in this case, a few cents invested in papering them would be well spent.

Tarred-paper protection is especially adapted to this climate with so many sunny days. My experience with black paper has been entirely favorable, for in 1905 we prepared the most of our bees for winter by wrapping around the sides long rye straw and covering over the top with black paper, the south end (entrance) being left uncovered by the straw. That was in Northern Ohio, and every colony so prepared came through well. We wintered 64 without the loss of one, and the major part of them were fixed in this way.

It would be interesting to read some reports on this subject, for, without regard to expense, I believe that there is no better way to winter bees in any reasonably mild climate.

Parma, Idaho.

[We believe that a wrapping of roofing tar or heavy manilla paper, around a hive,

forming a tight hood or cap affords excellent protection to a colony of bees, particularly if several folds of newspaper or old sacking be placed under the outside roofing-paper hood. The experience above given is quite in line with that given by several others who have tried these paper hoods. They are so cheap that there is really no excuse for one to let his colonies go unprotected. We shall shortly illustrate several methods for wrapping hives in paper.—ED.]

THE ALEXANDER PLAN OF BUILDING UP WEAK COLONIES; TWO QUEENS IN A HIVE.

I put two weak colonies over strong ones, on the Alexander plan. One did all right. I then put both queens and all the brood in a ten-frame hive, zinc between. They have the hive so full of brood that I put a hive on top with full sheets of foundation. I know of three other hives in my yard with two queens in—mother and daughter. I went into these hives every day, and saw the cells hatch with the old queen laying.

TOADS KILL BEES.

Now about those toads of Jay's. This valley has more toads than there are in Ohio. Several years ago, when I had my hives on the ground, I missed my bees, and I took a lamp and went out to look. In front of one hive sat two toads, and another one was at the side bumping his head against it. When the bees came to the front to see what the fuss was the two would lick them up. They actually took turns in bumping the hive; and when they would lick up a bee they wouid wink one eye at me. I got a club and killed 125 that night in front of hives, and 75 the next; then I got boxes and put the hives up high. JOHN L. SHERROD.

Fruita, Colo.

A QUEEN TAKING A PLAYSPELL WITH THE BEES IN THE MONTH OF JANUARY.

Some time after the first of January last, I was watching my bees, and one colony seemed almost in the act of swarming. There was a great confusion, and I soon discovered a golden queen flying in front of the hive enjoying herself fully as well as the workers. So far as I know, that colony has a good queen about 1½ years old. There was no mistake, for I got a good look at her entering the hive. I don't understand this case. Who does? W. T. DAVISON.

Velpen, Indiana.

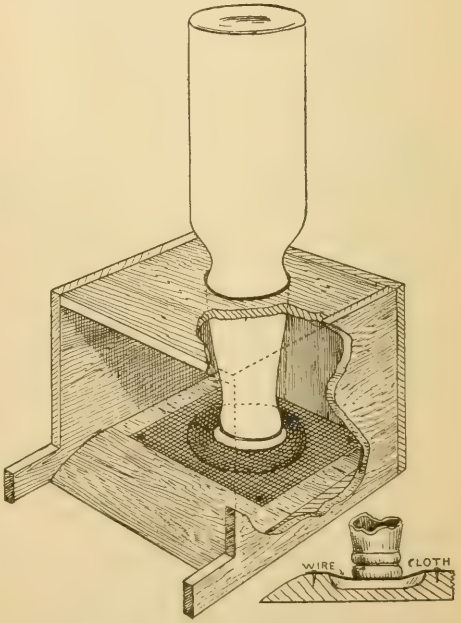
[This was a freak performance if she was a laying queen; but are you sure about this? If she had been a virgin, there would not have been any thing so very strange about it. We should be inclined to think that the old queen had been superseded, and that a virgin late in the fall had taken her place. ED.]

A HOME-MADE ENTRANCE FEEDER IN WHICH A BOTTLE IS USED INSTEAD OF A FRUIT-JAR.

I have been using Boardman entrance feeders so constructed as to permit the use of a bottle instead of a fruit-jar. I find them excellent for stimulating early brood-rearing. I usually gi e each colony one on taking them from their winter quarters.

As I am engaged in other business, and have to do the feeding in the evening, with prospects of snow, rain, or sunshine the next day, or possibly in a week, you can see the advantage of this feeder to me and to others so situated.

When the weather is warm enough for the bees to fly, the feed is warm enough for them to take. I have used milk-bottles, both quart and pint, with good results. It is very important that the wire screen be used for the bottle to rest on, to prevent bees from being drawn in when the bottle is taking in air and letting down the feed.



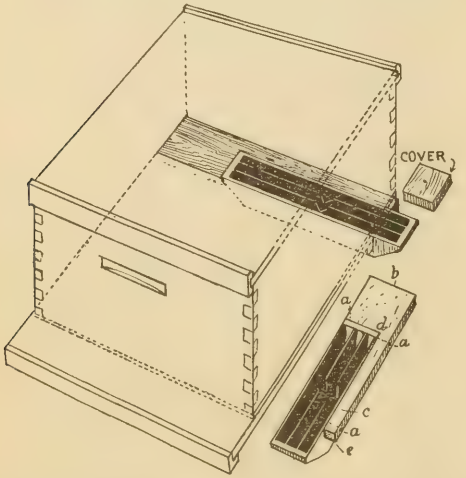
To the bee-hunter who has not yet found his tree, and wants to hold his line over Sunday, or for other reasons, he will find it very convenient, by arranging it so only two or three bees can get feed at once.

Bradford, Pa., Feb. 11. J. S. BROWN.

[It is possible that a bottle with a small-diameter mouth would work better than one with a wider mouth like a Mason jar. At all events, wire cloth could not be used with the wide mouth.—ED.]

SIMPLICITY FEEDERS ADAPTED TO THE ALEXANDER PLAN OF FEEDING.

I have been using the Simplicity feeder as a bottom-board feeder. The addition necessary (see drawing) is a piece of wood ⅛ by 2½ in., the same length as the width of the hive. Part of the piece is cut away to make it fit across the end and along one side of the feeder, except that there should be two inches of the feeder projecting from the end. The piece is fastened flush with the top of the feeder by three nails, *a*, *a*, *a*. In putting on this feeder, slip the hive back 2½ inches, past the bottom-board, and secure the feeder



by driving one point of a crate staple in each side of the hive so the lower point will slip tightly under the ⅛-inch strip at either end. This holds the feeder securely. It only remains to put a small block of wood on the part of the feeder that extends past the side of the hive, and it is ready for service.

West Va. K. C. A.

[The suggestion here given is entirely feasible. As there are many old Simplicity trough feeders in use the Alexander idea can be carried into effect very easily and with but little expense.—Ed.]

GOGGLES INSTEAD A BEE-VEIL.

I have wondered you do not make cheap spectacles with gauze or cloth around the outside protecting the face an inch or so around the eyes. A veil is a bother. A sting anywhere else than the eyes is of little consequence. I get it on or near the eye about once each year, and then I must hide away from society for a day or two—rather awkward sometimes. If there are such glasses anywhere I should like to get a pair.

Granby, Que. John D. Ellis.

[We would suggest that you use the ordinary goggles that thrashers use to keep chaff out of the eyes during the harvest season. If you want something a little better and more expensive, the automobile goggles that are sold at the automobile stores would probably meet your requirements more satisfactorily. You can get these in all shapes and styles, prices ranging all the way from $1.00 to $5.00 a pair.—Ed.]

KING BIRDS NOT PESTS ABOUT AN APIARY.

Mr. Doolittle, on page 90 of the Jan. 15th issue, last, gives the king bird a rather bad name. What he says is probably true; but this is only one side of its character, and may do the noble little bird a great deal of needless harm. I think the readers of Gleanings should be informed of the other side of its character. When one is shot on suspicion its stomach contents should be examined to make sure that the suspicion is well founded.

I would not be without a pair of king birds in the summer for more than the price of a hive of bees. They drive away the crows and hawks which would make sad havoc among the small birds' nests and chickens, and I also notice that what few English sparrows have escaped my gun immediately decamp on arrival of the king bird in spring, greatly to the relief of the eave swallows.

Of 281 stomachs collected by the United States Biological Survey, only 14 contained remains of honey-bees. In these 14 stomachs there were in all 50 honey-bees, of which 40 were drones, 4 workers, and the remaining 6 were too badly broken to be identified as to sex. The larger part of its food consists of injurious insects, among which are robber-flies, which is one in its favor for bee-men, as robber-flies kill large numbers of honey-bees.

All bee-keepers who are interested should get Farmers' Bulletin No. 54, entitled "Some Common Birds in their Relation to Agriculture," U. S. Department of Agriculture, or "Birds of Ontario in Relation to Agriculture," Ontario Department of Agriculture, Toronto. Either one, I think, can be had in their respective countries for the asking.

A. K. Whidden.

No. Bedeque, P. E. Island.

A GOOD FLOW FROM HONEY-DEW; SHOULD IT BE USED AS A WINTER FOOD?

The honey-dew has been a continuous flow all this season. It drips on the sidewalk every night in large quantities. I never saw the like. It commences June 1. It gets stronger as the season advances. Is it the same there? J. W. Baker.

Stevensville, Mont.

[Some seasons and in some localities honey-dew is very abundant—so much so that it falls in a spray on the sidewalks under the trees. The bees will work on it strongly. For brood-rearing it is as good as any sweet; but it is hardly safe to leave it in the combs for winter. If your bees are storing it you had better take the combs containing it out and use them for brood-rearing next spring. In the mean time, feed sugar syrup after giving other combs. This should be done at once. —Ed.]

OUR HOMES

by A. I. ROOT

And the Lord God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living soul.—GENESIS 2:7.

CONSUMPTION—IS IT CURABLE?

From the book referred to elsewhere, entitled "Uncooked Foods," I learn that a distinguished doctor, in addressing a gathering of one hundred physicians in the city of New York, spoke as follows:

"There is nothing dawning upon the profession with more certainty than that medicine as a curative agent is passing. The most learned men are depending less and less each year upon drugs as a means of combating disease. The best men in the profession are changing both their views and their practice. For many hundred years consumption has been treated with drugs, and nobody has ever been cured by them. To-day we send patients into the open air, where they are kept winter and summer, sleeping in tents, and they get well."

I believe the above is correct. We find our physicians talking it; magazines are full of it; our daily papers and periodicals of every sort have more or less to say in regard to "God's medicines." With this preface I wish to submit to you a letter from a gentleman who was cured of a bad case of consumption more than thirty years ago. As he is alive and well to-day we shall have to decide he knows something of what he is talking about:

Friend A. I. Root:—It is a long time since I wrote you, but I read your journal just the same, and keep in touch with your sayings and ideas. We are in intense harmony in many things. Keep up your crusade against rum and vice and fake advertisements.

Some thirty years ago I had the consumption, and I am sure my experience will be of much benefit to you. You know nothing succeeds like success, and I surely have that to offer you. I had a severe attack of pleurisy; and when still ailing I was imprudent enough to oblige a friend (Mrs. Judge O. C. Pratt of California) by donning my "glad rags" and going to a ball at the Academy of Music in company with her and my wife. She wished to see some of the sights of New York city, and get introductions to Jim Fisk and Wm. M. Tweed—persons she knew I was acquainted with. There were thousands there. It was one of the Americus Club's most brilliant efforts. It did not save me from an attack of pneumonia, however, which came on with great severity some three hours after we reached the Academy. I kept my bed in a sitting position for weeks, and when I did get up and out my friends thought my days were surely numbered. I will give you one incident for you to judge by.

Dr. Gilbert H. Todd, a dear friend, a man of extremely robust build, vigorous health, and kind heart, when I went to his office to have a tooth filled said:

"I will simply prepare it and fill it with a temporary filling, and you must come when I am not so *very* busy, and I will carefully fill it with gold then."

It was nearly two years before I went there again. I saw he did not recognize me. When his patient left I spoke and he immediately recognized my voice and said, "Why, I did not know you. Where have you been?" I told him. He then told me when I last came to him he was desirous of saving me pain and misery, as he thought I could not possibly live more than a few months. I left my business in New York city and went to Portland, Ct., to take charge of a factory there. My city doctor was willing I should go—fresh air, etc., you know. I made the acquaintance of a doctor there named Hammond, a man about 50 years of age. I consulted him as to my case. He said I would have to follow his instructions to the letter if he doctored me. His examination disclosed the fact that my left lung was in a badly tuberculous condition, and my right lung affected slightly. At the time, I was clad in porous chamois under-clothing, and my neck and chest in much the same condition that I imagine your sister's is after treatment such as you describe in GLEANINGS, which induced me to write you. I was using various valuable ointments and internal medicines my city doctors prescribed, and which I then believed were infallible as to selection, and was shocked when he informed me I was *dirty*, and that such medicines were not suited to my case. Consumption is a disease that causes one to think he is not so dangerously ill. *I* did not. I could not speak a word without its causing me to hack immediately afterward. It was then cold weather; and as I was all bundled up in furs Dr. H. said I could not go without them at once, which he much regretted. He said I should not have put them on early in the fall. "Oh, my! I thought I *must* bundle up and not catch cold," I said. He thought otherwise.

Now for his treatment, and the only true one. *You* will believe it because of your baths and the vigor derived from them as described so graphically by you.

He said, "Take off those chamois and substitute good warm flannel under-clothing, first using plenty of warm water and *soap* to cleanse your skin and remove the ointment, etc., from your pores. Now, every morning when you get up have a large basin of *cold* water and a sponge provided, then bathe thoroughly your arms; raise the 'goose flesh,' then use a coarse towel until they are warm and red; then repeat the same formula with your chest, then the back, etc., until the whole body is gone over. Do this by *installments*, as I describe, and not in a bath-tub."

He said that, in my weak condition, I could not stand the removal of the amount of heat from my body that a bath of fresh cold water would take. As to diet he said I might eat almost any food I craved, but he wanted me to *try* to eat all the fat food I could. He wished me to show a gain in flesh, even if but a slight one. When I gained the first pound, he told me if I followed his instructions to the letter I would *get well*, and I did. I ate as much as I could of the hard white fat in roast beef. He prescribed a good quality of pure cod-liver oil, a tablespoonful after each meal, and I was to follow it with a pinch of salt, as that removes all unpleasant taste, and you can take it much longer before it goes against you (and you stop taking it for a week or two). I asked him if cod-liver oil was good to cure consumption. He said *no*. "Then why do I take it?" "To make blood, even if it is poor blood at that, into which it is converted by the system in three or four hours."

This poor blood is to supply matter readily (which it will do); then when you cough there is but a slight effort required to "raise" this matter, and the lungs are not strained, and can heal. You know those exhausting coughing-spells consumptives have. Another reason for taking it was, I had a meal in me in case my appetite was light. He furnished me with a tonic, which he changed from time to time, to stimulate my appetite, as he informed me. The bowels were to be kept free. I used daily a nasal douche. The liquid was a small quantity of crystal carbolic acid put in water. A good portion of this will remain up the nostrils until you lean over, when it will run out. I left this there for several minutes to cleanse the air-passages in the head. My throat was in such a bad condition (irritated) he said I would have to stop shaving, and wear all my beard, which I did for a number of years. As I could not do justice to bathing and a vigorous use of the coarse towel at first, which he was desirous of *my* doing for the exercise and great benefit he claimed I would derive from so doing, I had a strong attendant do it for me at first. I asked Dr. Hammond how it was that he was so skillful in the treatment of consumption. He said he had a large practice in New York city, and was sent up to Rocky Hill, Ct., to die. His arduous duties in attending to his patients had about exhausted all his vitality. He was a stout vigorous man when he treated me so successfully. I am now over 68, *and have no lung troubles.*

My daughter, A. R. Austin, is one of your customers. I am no apiarist. I get stung now and then, so you see I do know something about bees, and I read her journals and find them good instructive reading.

Dr. Hammond said that, in pulmonary complaints, the pores of the skin must do the work of the lungs, and nothing must be done to interfere with their natural functions. You know the darky said, when the minister was reading his marriage ceremony, and came to "honor and *obey*," "Jus' read dat ober agin'

to de lady." This will apply to this last paragraph of my letter.

Hoping you will continue your good work and interesting writings, also vigorous health, I remain

Yours truly, THEO. P. AUSTIN.

Egypt, Me., Sept. 4.

T. B. Terry, in a recent issue of the *Practical Farmer*, says:

Letters like the following make us thankful we can tell the story of simple, wholesome living to so many. It is from a friend living in Chester County, Pa.: "I feel that I can not better celebrate my sixty-first birthday than by writing thee a letter of thanks. Six weeks ago I was visiting friends where the *Practical Farmer* was a part of their household. While looking over its columns I became deeply interested in 'Health Hints,' especially the one telling about intestinal indigestion. I was at that time under the care of a doctor for this trouble. I resolved I would try thy simple advice. It proved effectual, and I can not express in words my thankfulness for what it has done for me. I am now entirely well. I have always been an advocate of fresh air, pure water, etc. But since reading thy articles I am carrying all these things out better. I would rather miss my breakfast now than my morning cool bath. If many more would follow thy plain teachings what help they might obtain! By the way, what evil air there is breathed in the house of worship! I have come to the conclusion I will not ask my lungs to endure such air. I can worship God without in a measure committing suicide. Without multiplying words, I wish to say I can endorse every word thee puts in print. Go on with the good work. I rather prefer not to have my name given, but publish it if thee thinks best." Thank you, my good friend. There is no question that much harm is done by the impure air in churches. I have avoided it for the most part during the last four years; this, of course, for the season when windows are closed. Much sickness is caused and many lives prematurely snuffed out by church and schoolhouse air, where so many people are collected together and so little attention is paid to ventilation.

Now there is something in regard to this matter of pure air in churches that troubles me. Those who are well and strong, perhaps do not mind the bad air in many churches. Possibly they are not injured to any great extent by it; but it is one of the great trials of my life to be obliged to remain in a crowded audience with insufficient ventilation, or, worse still, no ventilation at all. Even in California or down in Florida, with large trees laden with orange-blossoms right near the church, all windows would be closed, and the minister would be preaching, or trying to preach, to a drowsy audience. Of course, this is not always the case, and I think a reform is coming. Many of our churches and public buildings are not planned so as to permit a perfect ventilation; and where they do admit of it, the managers, in their endeavors to save fuel, keep the windows closed, or nearly so. Please consider, friends, that there are more or less old people in every Sunday audience; and there are more or less people with poor health there—perhaps disease among them. If there are any who ought to be on hand to listen to a message from the man of God, it is the older ones and the ailing ones; and these, of all others, need an abundance of fresh air. I hesitated somewhat about talking up this subject, because I feared it might encourage some, who are looking for an excuse, to stay away from church. God forbid. I think I should prefer to take my chances of dying a little sooner than to stay away from church. Although he does not exactly say so, I am afraid our good friend T. B. Terry, notwithstanding the great influence that his presence or absence might exert in any community, has been staying away from church because the ventilation is bad.

Attention has already been turned to this matter of ventilation in our public schools; and I hope and pray that the time is fast going by when these little ones shall be scolded for getting restless and uneasy, and wanting to be out in the open air, when intelligent ventilation might not only quiet them, but help them to be well and happy. Dear friends, will you not make it your business to do all you can to have good ventilation, both in the schools and churches in your neighborhood?

UNCOOKED FOOD—SOMETHING MORE ABOUT IT.

While I am quoting from T. B. Terry I wish to make another quotation from the *Practical Farmer* of Aug. 10. It answers the question that a good many of us have been asking, whether T. B. Terry is *still* living on grains, nuts, and fruits, uncooked:

It is quite possible that the great point is that one must chew the dry flaked wheat, with a little butter, far more than people do chew soft cooked wheat. A great deal more saliva is mixed with the starch as a result, and digestion is therefore more perfect. Personally I now like the dry wheat better than the cooked, and certainly as well as I do the best of bread and butter. It is better than the best whole-wheat bread, because it is absolutely pure wheat and nothing else, the simplest and most natural food. Eaten with unsalted butter I like the wheat, enjoy my meal greatly, and there is no danger whatever of overeating. With salted butter one must use judgment, as the salt stimulates the digestive juices and appetite unnaturally. For a long time I have eaten dry wheat and butter and fruit only for breakfast when at home. The results have been entirely satisfactory. I never enjoyed meals more or was in better shape for a hard day's work of brain or muscle. These are facts, not theories. In February I bought a case of Pettijohn's flaked wheat, 36 boxes of a pound and a half each. The cost was $3.75.* It will last about a year. No expense for fire to cook it. Takes about a minute to get breakfast.

IS CANCER CURABLE?

This matter came up because several have written me asking my advice in regard to the treatment of cancers. I made inquiries of several friends who have been thus afflicted, and I began to think there was no remedy I could *recommend* except a surgical operation; and many times this seems to offer only temporary relief. While considering the matter the following came to hand in a private letter from a friend in whom I have

*Now, look here, friends, do not go over this matter too hastily. Mr. Terry tells us about buying Pettijohn's flaked wheat, *enough for a year*, for $3.75, or practically one cent a day. Will people who have found it a hard matter to furnish provisions and "make both ends meet" take notice of this? And that is not all. "It takes about a minute to get breakfast." I know this is true, for I have got many a breakfast of that sort myself. How about the saving in time of the good housewife? or, if you choose, saving the expense of a hired girl? Just now the hired girls are coming pretty near to a strike that may be almost as far-reaching as that of the telegraphers If the girls will not work for reasonable wages, and be decent while they are about it, can't *we* get on a strike and live on wheat, and get along without hired girls—at least until they begin to be "hungry" for a job? Are we as a people ready to learn the lesson the great Father is striving to teach us?

great confidence. Read it and see what you think of it:

Friend Root:—Just a little more while I am about it. Some good people have cautioned me, thinking I was assuming that man could do too much. But I believe the human soul is a little spark of the Almighty. If we only do our part God will not fail to do his. Now, I am enthusiastic from many experiences too strong to tell of. But I can't keep them from making my words quite positive. Let me give you one case quite briefly.

A poor woman had cancer in the breast. She kept it to herself too long. At last she went to a specialist who told her an operation was her only possible help, but it had been delayed too long, and he couldn't promise success. In mortal terror she wrote me, saying she would do just what I advised. It was a hard situation, but I did not hesitate an instant. I told her I would see her safely through, even if I had to give up all other work—not to have another fear. She is bright, and her faith was absolute. At once I put her on a diet that by no possibility could have any thing impure in it—two quarts a day of pure rain water; exercise of the muscles of the breast, etc. In three months I sent her to the specialist in the city, whose surprise was great, and he frankly said that the cancer for *some reason* was fading away! But not a word did she tell him. How I used to dread to open her letters! I was certain, but so afraid she would not stick to the course that put no more bad in, and helped nature to *work* out what *was* there. But she was more than faithful. In her last letter she says she can't report any more, as there is nothing left to report about. This was after about fourteen months, and she is a happy woman. Of course, you know I never took a cent from her. But this isn't the reason that this report is strictly private. I can't stand the strain of such individual responsibility at long range. We have such cases in nearly all lines now, where bright people have worked out their own salvation. Do you wonder I am in deep earnest?

July 29.

On receipt of the above I wrote at once, asking permission to use the letter in print. Below is my friend's reply:

Dear Mr. Root:—I have been busy, so please pardon delay. Use my letter to you, if you please, but only in a way that I may remain unknown, and please do not refer any readers to me for personal advice. My hands are full. I have no clerks, you know, and no help. I need all my strength for leading people generally to improve on their ways of doing, to the best of my ability.

I had this woman, who had cancer coming, stop eating *all* meat, even chickens and eggs, as they might have eaten filth in droppings of horses, etc. Pork is most dangerous; but even beef *may* not be from entirely healthy animals, and I would take no chances. Butter was permitted made by herself, from tested cows that she knew were healthy. She ate pure grains, fruits, and vegetables; no tea or coffee; very little salt; drank only clear rain water, and two quarts a day at least. Cancer is an awful disease. It comes only as a punishment for serious violations of natural laws. Every trace of constipation was prevented by food and drink, and no eating when tired out was allowed, nor overeating—no possible chance for poisoning the system *any* more, and then every possible chance to help nature throw off the trouble already in the blood. This was the substance of the treatment; and, above all, she had entire faith that this was sensible and right, and that the result desired must come, and it did, thank God.

Aug. 9.

There, friends, you have in this Home paper two strong testimonials to the effect that God helps those who help themselves, and who avail themselves of the light that is now being shed all over our land in regard to how to get well and keep well. The testimonials I have given come from two parties who have been afflicted with what are generally termed "incurable diseases." May God be praised for what is being done along the line of making use of God's medicines that are all around, and within easy reach.

Temperance.

OUR GOD-FEARING GOVERNORS.

We have been repeatedly told that it is not best for even a good man who is a candidate for some great office to come out strongly against the liquor-traffic. Some good people, even ministers of the gospel, tell us that a man who occupies a prominent place can do *more good* by being careful about not going to extremes in any direction, etc. You have all heard this kind of talk, and no doubt there is much truth in it. God knows we need to exercise discretion in our zeal; but I think some great men are making a serious mistake in so carefully avoiding all reference to the revolt against the saloon business that is now going on; and we have quite a few governors who are not afraid to let every one know, right and left, what *they* think about it. I have several times referred to Governor Hanly, of Indiana, and to Governor Folk, of Missouri; and just now I am mightily stirred by a speech from the governor of North Carolina. I clip the following from a report in the *Missouri Issue:*

ADDRESS BY ROBERT B. GLENN.

I can, in a few words, tell you where I stand and how I feel on this subject. Whatever may have been my acts and course in the past, I have tried ever to be consistent. I say here and now that the last bridge is burned behind me, and I stand squarely with the great temperence forces to drive out this hideous monster from our fair State.

Not long since, I was making a speech; I told those people that I trusted the day would come when books instead of bottles would be in our men's hands, and schools and churches instead of saloons and gambling-places would be scattered the length and breadth of the State. When I finished my speech a man came up to me and said: "Look here; you attacked my business to-day. I voted for you, but I want to say I am sorry, and I will never vote for you again." I told him: "Well, my friend, I don't know that I shall ever ask for votes again. I don't know that I shall be a candidate for another office again; but I'll tell you that if I must secure votes by stifling my conscience, then, so help me God, I shall remain a private citizen for the rest of my days." The man seemed indignant.

"Don't you know that Christianity and my business can't stand together?" he said. "Won't you write that down over your own signature?" I told him, "I wish I had that statement to show to the people from one end of the State to the other, that they might see your own indictment of the traffic." Christianity and the liquor-traffic will *not* stand together. Choose ye this day whom ye will serve, God or mammon.

But some say that money derived from the liquor business is necessary to run our schools. I say it is not. The schools do not depend on blood money. Wipe out the liquor business, and, if necessary, the State can well afford to increase the tax on property and sustain the schools and save the boys and girls of this land.

I have seen prohibition that did prohibit. I have just returned from the New England States, the home of prohibition, and I tell you that, from my observation and inquiry, prohibition is a success. I traveled thousands of miles, visited the fairs in those States, and in all that journey I saw but three intoxicated men.

I thank God that North Carolina can not be called a whisky State. Already Greensboro, Charlotte, Durham, Goldsboro, Newbern Elizabeth City, and scores of other places where liquor was sold have voted for prohibition. The people are aroused.

The time is ripe. Submit the question of prohibition to the voters of North Carolina, and I believe it will sweep the State by from 75,000 to 100,000 majority. I pledge you my earnest aid in this great fight. I will canvass North Carolina; speak in every county, and use the strength God has given me to win this battle for temperance.

Well, friends, may we not all thank God that there is at least *one* governor in the United States who is not afraid that he will hurt his influence by coming out squarely against the saloon. Only a few days ago I congratulated the editor of our Medina *Gazette* because he came out so boldly and fearlessly against the rum business. From the fact that he was, years ago, one of a lot of boys in my Sunday-school class, I felt unusually proud in witnessing his boldness for the right. When I congratulated him on having the courage to come out squarely and fearlessly against the crowd that was displeased at his utterances, he replied something as follows: "Why, Mr. Root, I supposed I was right in with the popular and winning side. Am I not right about it?"

I replied, "Well, Harry, I thank you for the rebuke. I honestly believe that you *are* just now with the winning side."

Now, friends, are not Governor Glenn, Governor Hanly, Governor Folk, and all the rest of them, right in with the winning side, and far in advance of some of those who are afraid to mention the conflict now going on between total abstinence, if you choose to call it so, and the rum devil? Shall we not, as a people, stand back of them and hold up their hands by our *prayers* and our *votes?*

"LIKE A PRAIRIE FIRE, WITH NO HAND RAISED TO STOP ITS PROGRESS."

It is a little funny to notice what exceedingly interesting reading we find in many of the liquor papers. Below I give a quotation from a recent editorial in *Beverages*, the national organ of the liquor league:

The result in Georgia presents no pleasant outlook for any section of the business. That State, in its judgment, has treated all alike, and no false notion that beer is a temperence beverage and should be allowed to hold on has been entertained or brought forward. We dislike to acknowledge it, but we really believe the entire business all over has overstayed its opportunity to protect itself against the onward march of prohibition, which in some sections of the country is advancing like a prairie fire, with not a hand raised to stop its progress.

May the Lord be praised once more, and *especially* praised for the facts they furnish us, showing us that there is *really* "not a hand raised to stop its progress."

Here is something further from the Baltimore *News:*

ATLANTA NOT LOSING; STORES TAKING THE PLACES OF SALOONS, SAYS MR. LEVERING.

Banks, groceries, and furniture stores are fast taking the places once occupied by saloons in Atlanta, Ga., according to Mr. Joshua Levering. He says that all places made vacant by the closing of the saloons by State prohibition are being leased by the real-estate men as fast as they become empty. He said:

"There has been a good deal of talk about Atlanta suffering a real-estate loss because of the closing of the saloons. As a matter of fact, no such loss has been felt. The vacant saloons are being replaced by groceries, furniture stores, and, in some cases, banks. The real-estate dealers say that every building now occupied by a saloon will be rented by January 1, when the saloons must close."

THE STAINLESS FLAG AND HOW THEY HELP ALONG.

Dear Bro. Root:—I received the 100 copies of the Stainless Flag several days ago, and distributed them at once. They came in a good time, as we were in a hot battle over the saloon question. It was settled yesterday in favor of the Christian people. The report is that we gained the election by 84 votes. We have had two years of prohibition, and our county has enjoyed peace and prosperity. You would be surprised to see the records as to how the money has accumulated in Llano in this short time. The jailer has been put out of a job. In fact, it is much better than I expected. May the Lord bless you for the efforts you are making to get rid of the rum devil. It is sending more souls to perdition than any other curse that I know of. I can't see how any one of sound mind could claim to be a Christian and hold up such a curse. It is the most unholy fruit that I know of. I will do all I can to get GLEANINGS in every home of our Association. Trust in God and he will take care of us. L. L. SKAGGS.

Llano, Texas., Sept. 8.

HAVE THE SPOTS ON THE SUN HAD ANY THING TO DO WITH THE CHANGES IN THE WEATHER; SOMETHING DIRECT FROM THE CHIEF OF THE U. S. WEATHER BUREAU.

Mr. Root:—Referring to your letter of the 31st ultimo, inclosing a clipping from *The Woman's National Daily*, of St Louis, Mo., on the subject of sun spots and the weather, I beg to say that I doubt very much whether Prof. Garriott made the statements attributed to him. The Weather Bureau has for some years conducted a vigorous campaign against the publication of weather forecasts based on the position of the planets, the spottedness of the sun, the supposed influence of the moon, etc., but it has not been able to prevent the occasional appearance of articles such as the one you inclosed in your letter. It is needless, of course, for me to tell you that the Weather Bureau in its forecast work does not pay any heed to the condition of the sun; in fact, its forecast officials are in utter ignorance as to whether the sun spots are present or not. Numerous attempts have been made to correlate the spottedness of the sun with terrestial weather, with doubtful success. A single exception, however, may be noted—viz., there appears to be a connection between the periodicity of the sun spots and the number and violence of magnetic and electrical storms on the earth—that is, the greatest number of sun spots occurs simultaneously with the greatest number of electrical and magnetic displays on the earth; but whether the latter are the result of the former, or whether both result from a common cause, is not known. Very respectfully,

WILLIS L. MOORE,
Sept. 6. Chief U. S. Weather Bureau.

FAVORABLE LOCALITIES FOR PEOPLE AFFLICTED WITH RHEUMATISM.

Dear Mr. Root:—Please tell your rheumatic readers that the mild, dry, sunny climate you advise can be found in the Sand Hill section of Moore Co., N. C., and that there are seven towns within a radius of ten miles in that section where board, furnished rooms for light housekeeping, and cottages can be obtained with prices to suit the purse of the millionaire, the day laborer, and all between. JENNIE P. WELLS.

Roseland, N. C., Sept. 10.

Your answer to Mrs. Buchanan on page 1168, I think is a little strong. Old residents *occasionally* are afflicted, but I never hear of fishermen or those that are in salt water a great deal being afflicted. When Jesse leaves the coast he gets worse; if he is in the water about every day he doesn't feel the rheumatism. He is working on the dredge-boat now, and is getting fat and doesn't feel the rheumatism at all. Our nearest doctor is at Sarasota, and has been in this vicinity but once in two years. I. T. SHUMARD.

Osprey, Fla., Sept. 11.

KIND WORDS FOR OUR TRANSPLANTING-MACHINE AND STRAWBERRY-BOOK.

The transplanter came in due season, and it works like a charm. The plants keep right on growing, never knowing they have been moved, even in the hottest weather. I inclose $1.25. I wish to thank you and Mr. Terry for the many pleasant hours I have spent in reading and rereading the A B C of Strawberry Culture. It has been an inspiration to me in more ways than one. I have loaned it many times, and all express much pleasure. A. A. BENNETT.

Bainbridge, N. Y., Aug. 28.

IN THE HEART OF MICHIGAN

Did you know that within one hundred miles of me are over three fourths of the bee-keepers of Michigan? Are you one of them? If so you will find it to your advantage to write for my new catalog. A full line of Root's Goods at Root's Factory Prices. Hilton's double-walled hives are used more than any other in my State. It has stood the test of thirty years. I ship goods promptly. Wholesale or retail. Cash or exchange for beeswax at all times. Five per cent discount for all October orders.

George E. Hilton - - Fremont, Michigan

NOW is the Time to Order Your

BEE-SUPPLIES

AND SAVE MONEY

IT will cost you only one cent for a postal card to get our **delivered prices on Dovetailed Hives, Sections, Section-holders, Separators, Brood-frames, Foundation, Smokers, Extractors, Shipping-cases, etc.** It may mean a saving to you of many dollars. It is the natural advantage we have over others that enables us to make you the Best Price. There are no better goods than ours, and we GUARANTEE SATISFACTION or REFUND your MONEY.

We MANUFACTURE and keep in stock all standard Bee-goods, and can ship promptly.

MINNESOTA BEE-KEEPERS' SUPPLY COMPANY

NICOLLET ISLAND, No. 20. (JOHN DOLL & SON, Props.) MINNEAPOLIS, MINN.

BINGHAM BEE-SMOKER AND KNIFE.

What catalogs say:

The A. I. Root Co., Medina, Ohio: "The cone fits inside the cap so the liquid creosote runs down inside of the smoker."

Chas. Dadant & Son, Hamilton, Ill.: "This is the smoker we recommend above all others, and it has given universal satisfaction."

G.B.Lewis Co., Watertown, Wis.: "We have sold these for a good many years, and never a complaint. They include all improvements."

Marshfield Mfg. Co., Marshfield, Wis.: "The original direct-draft Bingham Smoker is the best smoker made."

The Bingham Smokers and Honey-knives have been the standard in America and every European country 29 yrs. There is no *smoker* so *old*, so *new*, so *perfect*. Accept thanks for 30 yrs. liberal patronage.

BINGHAM SMOKERS. Name.	Size of barrel.	Price of 1	Price of 3	Postage.
Smoke Engine	4-inch	$1 25	$3 45	25
Doctor	3½ "	85	2 40	25
Conqueror	3 "	75	1 95	25
Large	2½ "	65	1 65	25
Little Wonder	2 "	50	1 35	15

Three larger sizes in heavy copper at 50c ea. extra.

Bingham Uncapping-knife, 70c; postage 10c.

T. F. BINGHAM, FARWELL, MICH.

TO THE

BEE-KEEPERS OF CANADA.

WE are pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we do not offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

E. GRAINGER & COMPANY,

Deer Park,

Toronto, Ontario, Canada.

CANADIAN AGENTS FOR
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

Our discounts on **BEE-SUPPLIES** are still in effect.

WE furnish EVERY THING needed in practical bee culture, at lowest prices. We make the DOVETAILED, LANGSTROTH, and ALTERNATING HIVES. The most practical, *up-to-date* hives are the MASSIE HIVES. We make them. Have you seen them? Have you received our new 1907 catalog? It is surely the easiest catalog to order from you ever saw. It is so easy that you can not make a mistake in your orders; a child can order from it as well as an adult. It is something new and entirely different from any you have ever seen. Write us a postal card for it to-day. It is free.

Address Kretchmer Mfg. Co., Council Bluffs, Iowa.
Muscatine Produce Co., Muscatine, Iowa. :: Trester Supply Co., 103 S. 11th St., Lincoln, Neb.
Catalogs issued in German and English.

JOBBERS FOR
Central Pennsylvania
. . . for . . .
ROOT'S GOODS.

TRY THE DANZ.
COMB-HONEY HIVE

The Danzenbaker hives I got last season have given splendid satisfaction; in fact, I have kept my bees outside this winter, which is seldom attempted in Manitoba, and up to date they have come through in splendid shape. I think the hive did it.
Yours truly, LAURENCE C. CLARKE.
Morden, Man., March 5, 1907.

Send for catalog. Best shipping facilities in the State.

Frank W. Prothero
Dubois, : : : Pennsylvania

Northeastern and New England
BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine
MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

HONEY-JARS
No. 25, with burnished caps, $5.00 gross.
Several other styles of jars in stock.
HONEY!
We have some fine thick white honey, in cans, two in a case, 124 lbs., at 9c lb.; 5 cases, 8¾c lb.; 10 cases, 8½c lb. Catalog of supplies free.
I. J. STRINGHAM,
Apiaries: Glen Cove, L. I. 105 Park Place New York

"IF You want BEST GOODS QUICKEST, order of PEIRCE.
ROOT'S GOODS AND PRICES
EDMUND W. PEIRCE,
136 W. Main St. Zanesville, Ohio.

SAVE EXPRESS! SAVE FREIGHT! SAVE TIME! by ordering your supplies in Boston
H. H. JEPSON,
182 Friend St. Phone Haymarket 1489-1

Golden Queens!
By return mail, 75 cts.; select, $1.00; warranted pure and O. K. J. B. CASE, Port Orange, Fla.

ITALIAN QUEENS!
Golden and three-band stock; fine queens and fine honey-gatherers. Untested, 50 cts. each; six, $2.75. Safe arrival and satisfaction.
W. J. FOREHAND, FT. DEPOSIT, AL

Northwestern Bee-keepers!

We are headquarters for the ROOT supplies for the States of Montana, Minnesota, the Dakotas, and Western Wisconsin.

You can save freight by ordering from this branch. A complete line of bee-keepers' supplies always in stock.

Secure a catalog at once.

BEES and QUEENS.—Your orders will be attended to.

The A. I. Root Company
H. G. ACKLIN, MANAGER
1024 Mississippi Street, St. Paul, Minn.

At St. Louis

On a Line

to all points in the South and Middle West.

Send for our free illustrated catalog of

Root's Bee-supplies

We sell at factory prices.
Send us a trial order.

Beeswax Wanted.

Blanke & Hauk Supply Co.
DEPT. B,
202-204 Market St., **St. Louis, Mo.**

Manufacturers and Jobbers of Dairy, Creamery, Ice-cream, and Poultry Supplies.

NOW READY

to fill your orders for hives, supers, sections, and foundation of all grades. We now have a large stock of these goods on hand and can supply your wants for regular goods without delay.

We are booking orders for BEES and Queens, and to assure early shipment you should send in your orders now.

Price list free upon application.

W. W. CARY & SON, Lyonsville, Mass.

1884 **1907**

New 64-page catalog for the New Year now ready

FOR YOU

Twenty-two successful years manufacturing bee-supplies and raising Italian bees and queens. . . . . Root's Goods in Stock.

J. M Jenkins
Wetumpka, : : Alabama

North Texas . .

. . Bee-keepers

will find Dallas the best point from which to purchase supplies. We have a carload of ROOT'S GOODS IN STOCK, and sell them at the Factory Prices. Don't forget that we can furnish any thing in the way of Field or Garden Seeds, Plants, and Poultry Supplies. Our large illustrated catalog for 1907 free on application. Mention GLEANINGS when you write. . . . . .

Texas Seed and : Floral : Company
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ITALIAN

QUEENS

AND NOTHING BUT ITALIANS

A superior improved strain, Northern-bred, are hardy and vigorous; always come out strong in the spring. Our stock is well known, and not necessary to say more here. :: :: :: :: :: :: ::

Send for circular and list of testimonials.

Prices of Queens after July 1.	1	6	12
Select queens	$ 75	$4 00	$7 00
Tested queens	1 00	5 00	9 00
Select tested queens	1 50	8 00	15 00
Breeders	3 00	15 00	

Young queens from our improved stock is the best security against poor seasons. Requeen now and have bursting strong colonies in the spring. We employ 500 swarms. Queens sent outside of United States or Canada, 25 cts. extra.

QUEENS NOW READY!

SAFE ARRIVAL AND PURE MATING GUARANTEED.

Address all orders to

QUIRIN-THE-QUEEN-BREEDER

Bellevue, Ohio.

ROSE LAWN QUEENS

ABHASIANS: In order to distinguish our superior Caucasians of the genuine imported Abhasian stock from the common dark Caucasian, we have termed them "ABHASIANS." These are the YELLOW CAUCASIANS and possess all the valuable characteristics of the race in addition to their color, which commends them to the lover of bright color.

Untested queens, $1.50; tested, $2.00.

BANATS: Choice untested queens from imported stock, at $2.00.

ABHASIANS OR BANATS imported direct to customer, $6.00.

Golden and red-clover Italians ready for shipment.

ROSE LAWN APIARIES, College View, Neb.

Yellow from Tip to Tip!

My Adel bees and queens are very handsome. Every queen a breeder, and guaranteed to produce golden queens and beautiful bees; non-swarmers, very gentle, and hustlers for honey. Each queen, $1.00. Catalog ready. **H. ALLEY, Wenham, Mass.**

NONE BUT THE BEST

QUEENS

are sent out by our firm; should any prove unsatisfactory, we promptly replace them. Try our strain of three-band Italians; they will not disappoint you. Tested queens, $1 each; untested, 75 cts., $8 per doz.

J. W. K. SHAW & CO., LOREAUVILLE, IBERIA PA., LA.

Italian Queens

Fine young prolific three and five banded Italian queens by return mail. Untested, only 60 cts., or $6.00 a dozen; tested, 75 cts., or $8.00 a dozen; extra fine queen, $1.00. Directions for introducing go with every queen.

J. L. FAJEN, ALMA, MO.

Taylor's Strain of Italians is the Best

Long tongues and goldens are the best of honey-gatherers; 18 years a specialty, breeding for the best honey-gatherers. Untested, 75 cts. each, or $8.00 a dozen; tested, $1.00 each, or $10.00 a dozen; select tested, $1.50 each. Breeders, the very best, from $3.00 to $5.00 each. Carniolans same price as Italians. Try them. We sell nuclei and full colonies. Bees in separate yards. Safe arrival guaranteed. Send all orders to

J. W. TAYLOR & SON, Beeville, Bee Co., Texas.

QUEENS of MOORE'S STRAIN OF ITALIANS

Produce workers that fill the supers, and are not inclined to swarm. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Mr. W. Z. Hutchinson, editor of the *Bee-keepers' Review*, Flint, Mich., says: "As workers, I have never seen them equaled. They seem possessed of a steady, quiet determination that enables them to lay up surplus ahead of others. Easier bees to handle I have never seen."

My queens are all bred from my best long-tongued three-banded red-clover stock (no other race bred in my apiaries), and the cells are built in strong colonies well supplied with young bees.

PRICES: Untested queens, 75c each; six, $4; doz., $7 50. Select, untested, $1.00 each; six, $5; doz., $9.00.

Safe arrival and satisfaction guaranteed.

Descriptive circular free. Address

J. P. Moore, Queen-breeder, Rt. 1, Morgan, Ky.

Try the Robey strain of three-banded Italians that have become so famous all over the country as honey-gatherers. W. L. Coggshall and E. W. Alexander have both said in their writings to GLEANINGS that in extracting they always found better filled combs when they came to colonies containing the Robey queens. Many of the largest honey-producers of this and other countries use the Robey queens and pronounce their bees high-rollers for honey. Warranted queens, 75 cts. each, $4.25 for six. Safe arrival and satisfaction guaranteed, or money refunded.

QUEENS

L. H. Robey, Worthington, W. Va.

3-BANDED ITALIAN BEES.

The best all-round bees on earth. My stock is composed of selections from my own strain of 3-banded Italians that were awarded diploma at the Pan-American Exposition, and The A. I. Root Co. clover stock.

Tested queens, $1.50; select tested queens, $2.00; fair breeding queens, $3.00; extra select breeders, $5.00—ready to go promptly. Untested 1907 queens, $1.00; select untested queens, $1.25—ready early in March. Yours for a prosperous 1907.

W. O. VICTOR,

Queen Specialist. HONDO, TEXAS.

Let us send you to-day

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They tell you how to get in touch with the world so you can get the latest market or weather reports, summon the family doctor, or call a veterinary for your live stock—quick action on any one of these emergencies would repay you many times the cost.

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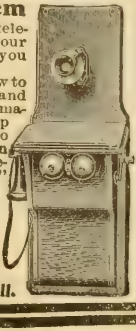

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To Address You

We Must Have Your Address.

We are constantly sending out choice literature.

Anything that relates to fashions, especially correct illustrations and correct descriptions, is choice, in our estimation.

The Autumn season, leading up, as it does, to Christmas, keeps us tolerably busy in posting our friends out of town as to conditions in the fashionable world.

If we have your name on our addressing list you ought to have your Autumn catalogue by this time. We are now mailing it.

NOW is the TIME!

to improve your stock by purchasing some of our Red-clover and Leather-color Italian queens. All of our queens are bred for their honey-gathering qualities, and you'll find them prolific and gentle.

Prices for Oct.	1	6	12
Untested	$ 65	$3 75	$7 00
Select Untested	90	4 75	9 00
Warranted Purely Mated	75	4 25	8 00
Select Warranted	1 00	5 25	10 00
Tested 1907 Queens	1 25	7 00	
Select Tested	1 50	8 00	

All orders accompanied with cash are booked and filled in rotation. Safe arrival by mail guaranteed. Send for price list of bees and supplies.

W. W. Cary & Son, Lyonsville, Mass.

ROOFING RE-MADE

5c Per Square.—We will guarantee to put any old leaky, worn-out, rusty, tin, iron, steel, paper, felt, or shingle roof in perfect condition, and keep it in perfect condition for 5c per square per year.

Roof-Fix The Perfect Roof Preserver, makes old, worn-out roofs new. Satisfaction guaranteed or money refunded. Our free roofing book tells all about it. Write for it today.

The Anderson Manufacturing Co., Dept. 24, Elyria, Ohio.

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Twenty-five Years' Practice.

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"Bee-keepers' Guide"

Liberal Discount to the Trade.

Moore's Long-Tongue and Golden

Queens

Fine select untested queens, $1; 6, $4.50; 12, $8. Tested, $1.25; 6, $6.50. Breeders, $3.00. Safe arrival gar'd.

W. H. RAILS, - ORANGE, CAL.

The A B C of Bee Culture

(and the X Y Z as well).

IT is only two years since we undertook to revise a new edition of our A B C, numbering 15,000 copies; yet the general advance along all the lines of bee-keeping, and the demand for the A B C, have been so great that we have been compelled to go completely over our work again and issue another edition, larger and better than the last.

A COMPLETE REVISION.

When we started on the work of revising the A B C book we had no intention of submitting it to any great changes, more particularly as we were in a hurry to get it out, as the old edition was nearly exhausted. But as the work of revision progressed, we found it necessary to make extensive alterations and additions—so much so that the book itself will be considerably larger. To meet the demand for better illustrations we had to provide a higher and more expensive grade of paper. These two factors compelled us to raise the price of the new edition, for, as most bee-keepers are aware, the A B C is sold on a very small margin of profit.

PRACTICALLY A NEW WORK ON BEES.

In addition to our regular staff of Root experts we have been assisted by W. K. Morrison, who has entirely rewritten many of the articles having to do with the scientific side of bee-keeping, besides reading and editing much of the other work as it went along. Mr. Morrison has traveled over all sections of the United States, almost every island in the West Indies, a large portion of South America, and also in Mexico, Central America, and Europe, so that the new A B C will be world-wide in its application, and sectional ideas largely eliminated. While the new book is American in its make-up from start to finish, in no sense can it be termed local to this country, and we believe it will be found as useful to a bee-keeper in Mexico, Cuba, West Indies, Argentina, Brazil, Canada, Europe, South Africa, Australia, New Zealand, and other countries, as it has been found to the bee-keepers of the United States.

VERY PRACTICAL.

In doing this the practical side of bee-keeping has not been slighted; on the contrary we have kept the dollar and cents side of the bee-business constantly in view, for we recognize the fact that bee-keeping must be made to pay or it ceases to exist.

LARGER THAN BEFORE.

While the new edition is larger than its predecessors, it is in no sense padded with useless material; on the contrary much of the work is necessarily condensed after the manner of an encyclopedia. We recognize the fact that the average bee-keeper has not a superabundance of time on his hands, and we have tried to meet his views of the matter.

THE NEW PURE-FOOD LAW.

In conformity with the changes now going on, new articles on sugar, honey, glucose, and nectar have been provided; also others on the law of bees, and foul-brood laws. These features alone are valuable.

HONEY-PLANTS.

The question of honey-plants is very important in estimating the value of a locality for bees, and this has been carefully rewritten, in many cases, so that the beginner in most parts can get a fair conception of the value of his locality for bee-keeping. In every case the scientific name accompanies all common names of honey-plants, so that the information conveyed will be found useful in all parts of the world.

QUEEN-BREEDING.

As the readers of GLEANINGS are fully aware, rapid strides are being made all along the line in scientific queen-breeding, and the usual article on this subject has been recast to suit the times.

MAKING AND RENDERING WAX.

As most of our readers know, improvements have been recently effected in this department, necessitating an entire change in this subject. Mr. H. H. Root has written this after much study and many experiments.

POWER-DRIVEN EXTRACTORS.

These have been dealt with under the subject of "Extracted Honey," so that the owner of such an outfit, or the bee-keeper who desires to get one, will have the necessary information at his elbow at all times.

DISEASES OF BEES.

So much has been learned about the inner workings and origin of bee-diseases that this is absolutely new in this edition. While the article under this head is necessarily brief, it covers the whole subject as it now stands. E. R. Root, the editor-in-chief, has gone to a great deal of trouble to get this so that the average bee-keeper can thoroughly understand it.

ILLUSTRATIONS.

The A B C of Bee Culture has always been famous for its illustrations, which are calculated to arouse the enthusiasm of the average bee-keeper, making him more determined than before to excel in his chosen pursuit or avocation. Price $1.50 postpaid; $1.25 by freight or express, not prepaid. For sale by all booksellers and supply dealers.

THE A. I. ROOT COMPANY, MEDINA, OHIO.

Classified Advertisements.

Notices will be inserted in these classified columns at 20 cents per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Help Wanted.

WANTED.—Queen-breeder for the East for season of 1908. Prefer a young married man who has had at least several years' experience, and is familiar with modern methods, and who would expect to continue the engagement indefinitely if both parties are satisfied. State experience, salary wanted, and give references. Let the first letter be clear and explicit on every point. Address ARTHUR WHITMAN,
c Gleanings in Bee Culture.

For Sale.

FOR SALE.—Opaline honey-jars, all kinds; send for price list. HAROLD E. SHORE, Germantown, Pa.

FOR SALE.—Fine job-printing outfit.
C. A. STEBBINS, Broad Creek, Va.

FOR SALE.—Beagle hounds, straight-legged, 18 months, 2 years, good rabbiters; $10 each.
FRED L. GRAFF, Parkersburg, W. Va

FOR SALE.—Shipping-cases for Ideal sections at reduced prices on account of overstock.
A. G. WOODMAN CO., Grand Rapids, Mich.

FOR SALE.—Homestead farm crops in their season, consisting of honey, grapes, pears, apples, etc.
C. J. BALDRIDGE, Kendaia, Seneca County, N. Y.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1907 send your name and address to FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

KODAK and Camera users, send us your developing and finishing. Send for price list. A full line of Kodaks, films, and all Photo Supplies.
FURNAS & MADDOX, 552 A, Louisville, Ky.

FOR SALE.—One two and a half H. P. engine and boiler in good working order. Used not over 150 days. Cost $150. Will sell for $75. J. W. UTTER,
Amity, Orange Co., N. Y.

FOR SALE.—Beautiful long-haired Angora and Persian kittens, some white and other colors. Prices low. Stamp for description.
MRS. J. F. SKEES, Marion, Ohio.

FOR SALE —Seeds of honey-plants yellow and white sweet clover, catnip, motherwort, cleome, seven-head turnip, Chinese mustard, touch-me-not, wild cucumber, etc. H. S. DUBY, St. Anne, Ill.

Real Estate for Bee-keepers.

FOR SALE.—40-acres honey, fruit, beet, and alfalfa ranch, with 125 colonies of bees. Cheap if taken soon. R. S. BECKTELL, Grand Valley, Colo.

FOR SALE.—Farm of 141 acres, log-house, good land, plenty of wood and water. Price $2500.00. Address J. W. BLACKWELL,
P. O. box 162, Warrenton, Va.

FOR SALE.—320 acres, stock, tools, and bees, at $16.00 per acre. Plenty of wood and running water; eight miles back from the Pacific coast.
MRS. J. KAETS, Vista, San Diego Co., Cal.

FOR SALE.—Farm of 70 acres; fine location; good buildings; new honey-house, 225 colonies Italian bees: crop of 1906, 14,500 pounds of comb honey.
WARD LAMKIN, King Ferry, N. Y.

Bees and Queens.

FOR SALE.—Mismated Italian queens at 25 cts. each.
C. G. FENN, Washington, Conn.

FOR SALE.—50 colonies of hybrid bees in 8-frame hives, in St. Lawrence Co. A. H. REEVES & CO.,
Watertown, N. Y.

FOR SALE.—Untested Italian and Carniolan queens at 75 cts. each; virgins at 30 cts.
EDW. REDDOUT, BOX 62, Baldwinsville, N. Y.

FOR SALE.—16 colonies of bees in 10-frame chaff hives; also two residences and five lots. Address
C. W. LITTLEFIELD, Remington, Ind.

FOR SALE.—400 colonies of bees; 2 apiaries in Delta, Colorado; 2 apiaries in New York, in the buckwheat location. W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—100 colonies Italian bees in 8-frame hives. Will sell in any quantity. $4.00 each.
E. A. SIMMONS, Greenville, Ala.

FOR SALE.—At a bargain, 200 hives of Italian bees in two-story hives for comb honey; well supplied with winter stores; fine location. R. L. TUCKER,
Independence, Mo.

FOR SALE.—75 colonies of Italian and Caucasian bees in No. 1 condition, with comb and extra supers; $4.00 each for the lot; $4.50 in small lots. All wired combs. A. D. D. WOOD, Lansing, Mich.

FOR SALE.—125 colonies of bees, and fixtures for extracted honey; 75 two-story hives; 66 cases 60-lb. cans; also driving mare, single harness, and buggy.
ERNEST W. FOX, Hillsboro, Wis.

FOR SALE.—J. P. Moore's Superior stock of full strong hives of bees; prompt shipment; $3.50 each. Speak quick; bargain. F. HOLTKE,
Southold, Long Island, N. Y.

FOR SALE.—100 select tested Italian red-clover queens at 80 cts. each; ½ doz., $4.00; untested, each, 60 cts.; ½ doz., $3.25. I guarantee every queen.
FRED LEININGER, Ft. Jennings, O.

FOR SALE.—Fifteen colonies bees with extra fine young Italian queens (none better); Danzenbaker hives, plenty stores, in first-class shape, only $4.00 a colony; also five colonies with pure-bred young Banat queens, $6.00 a hive. Cowan extractor and some extra bee supplies for sale. If you mean business, write M. C. LONG,
421 Cypress, Kansas City, Mo.

Wants and Exchange.

WANTED.—To exchange 1906 model Cypher's incubator, fine machine. W. H. KERR, Crawfordsville, Ind.

WANTED.—Buyer; apiary, poultry, 7-acre home; $1000 down, $900 salary. LUCE, Inavale, Neb.

WANTED.—500 colonies of bees in Texas, Arizona, or California. N. E. MILLER, Box 373, Logan, Utah.

WANTED.—Second-hand two or four L. frame extractor. T. S. MCLACHLIN, Whitehall, N. Y.

WANTED.—To exchange Italian queens for small gasoline-engine. Write W. T. CRAWFORD,
Hineston, La.

WANTED.—To exchange bees, full colonies, J. P. Moore's stock, for ladies' and gentlemen's bicycle.
F. HOLTKE, Southold, Long Island, N. Y.

WANTED.—To exchange 26 Danz. chaff division-boards, made by Root Co., for honey or bees.
BARNARD CUMMINGS, Rosalie Ct., Chicago.

WANTED.—A physician to locate here. Fine opening for a good doctor. Extra good location for bees. Write to BEE-MAN, box 73, Filion, Mich.

WANTED.—A suitable location for bee-keeping and poultry-raising on the west coast of Florida; would buy an apiary. WM. MCKNIGHT, Elamville, Ala.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

Honey and Wax Wanted.

WANTED.—White ripe extracted honey; will pay cash. GEO. RAUCH, North Bergen, N. J.

WANTED.—Fancy clover honey, both comb and extracted. Send average sample of extracted honey, and give lowest price.
J. E. CRANE & SON, Middlebury, Vt.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.
R. A. BURNETT, 199 S. Water St., Chicago, Ill.

WANTED.—To buy for cash, comb and extracted honey, also beeswax. ROBT. A. HOLEKAMP & SON,
4263 Virginia Av., St. Louis, Mo.

WANTED.—Choice extracted clover honey at 8½ cts. Choice fall honey 7 to 8 cts. per lb. f. o. b. here. Prompt payment on receipt. H. C. AHLERS,
West Bend, Wis.

WANTED.—500 to 1000 lbs. of extracted honey in barrels; Illinois honey preferred; part must be yellow, the rest light. Send sample with best price.
JOHN H. KOONTZ, Stewardson, Ill.

WANTED.—No. 1 and fancy comb honey; 4x5x1⅜ section preferred. Also light extracted. Must be guaranteed pure. Write, stating grade and how put up, and lowest cash price.
C. M. CHURCH, Arnold, Pa.

Honey and Wax For Sale.

FOR SALE.—800 pounds of pure beeswax for sale. Refuse from wax-extractors wanted. Will pay cash.
W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—Basswood and buckwheat extracted honey in 60-lb. cans and 200-lb. kegs.
W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—Fine white honey, two cans in case, 124 lbs. at 9 cts. per lb.; 10 cases, 8½ cts. Sample, 10 cts. I. J. STRINGHAM, 105 Park Pl., New York.

FOR SALE.—Extra quality clover and basswood extracted honey in new 60-lb. cans.
F. W. LESSER, Sta. A, Syracuse, N. Y.

CHOICE TABLE HONEY.—Direct from apiaries, f.o.b. car. One can, 60 lbs. net, $4.25; two cans, $8.10.
CHEEK & WALLINGER, Las Animas, Colo.

FOR SALE.—One carload extracted honey in 5-gallon cans, from alfalfa and sweet clover. Write, making best offer or for particulars. Sample, 5 cents.
W. H. CRAWFORD & SONS, Roswell, N. Mex.

FOR SALE.—Alfalfa honey. If you want nice honey for the table try a can of Colorado alfalfa honey, $5 a can of 60 lbs., F. O. B.
A. A. LYONS, Ft. Collins, Col. R. F. D. No. 2.

FOR SALE.—10,000 lbs. of extracted honey. white clover and heart's-ease mixed. Honey is well ripened, light in color, and of very fine quality. Put up in barrels or new 60-lb. tin cans. EMIL J. BAXTER,
Nauvoo, Hancock Co., Ill.

FOR SALE.—Fine alfalfa honey in large or small lots and at a very low price. Dealers and others wanting a fine table honey should write for free samples and prices to
THE DELTA APIARIES, Delta, Colo.

FOR SALE.—59 cases No. 1 and fancy comb honey, in 4x5 plain sections. Don't write unless you have a place for the very best stock.
E. D. TOWNSEND, Remus, Mich

FOR SALE.—Raspberry extracted honey—thick, ripe, rich, delicious; been left on the hive for weeks after it was sealed; flavor unapproachable and delightful; honey put up in new 60-lb. cans, two in a case, and offered at ten cents a pound. W. Z. HUTCHINSON,
Flint, Mich.

FOR SALE.—Three tons of comb honey—A No. 1, white, $4 per case; No. 2 white, $3.50; amber or buckwheat, $3 per case; 24 Ideal sections in glass-front case, less than four-case lots, 25 cts. per case extra; honey all well ripened, amber extracted, in sixty-pound cans, two to case, eight cents per pound.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

FOR SALE.—2000 lbs. fancy extracted clover honey, put up 56 lbs. in new cans, at $10.00 per case of two cans, f. o. b. at Amsterdam. Sample free for the asking. This honey was not taken away from the bees before Aug. 1. For body and flavor I am willing to have it compared with clover honey produced anywhere by anybody. EARL RULISON,
R. F. D. No. 1, Amsterdam, N. Y.

Bee-keepers' Directory.

QUEENS.—Clover stock. Experience and methods count. Write me. H. G. LARUE, LaRue, Ohio.

ITALIAN queens bred for honey, untested, 75c each.
GEO. H. PLACE, 816 No. 49th St., Omaha, Neb.

Extra honey queens and choice mountain honey.
Francis J. Colahan, Bernardo, San Diego Co., Cal.

QUEENS.—Pure Gold, Red-clover, Caucasian, Banat.
ROSE LAWN APIARIES, College View, Lincoln, Neb.

ITALIAN QUEENS.—Golden and leather, 60c each; worth $1.00. G. W. BARNES, Box 340, Norwalk, O.

Bee-keepers' supplies, Italian queens. Send for a free catalog. ARTHUR RATTRAY, Almont, Mich.

ITALIAN BEES and queens—Red-clover strain imp'd mothers. A. W. YATES, 3 Chapman St., Hartford, Ct.

ITALIAN BEES, queens, and Root's bee supplies.
E. SCOGGIN, Carlsbad, N. M.

I club a high-grade Italian queen with GLEANINGS, new or renewal. W. T. CRAWFORD, Hineston, La.

ITALIAN BEES and queens—red-clover and golden strains. E. A. SIMMONS, Greenville, Ala.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York City.

ITALIAN bees and queens bred for honey; price list free. B. F. YANCEY & SON, Angleton, Tex.

FINEST Golden and red-clover queens, Caucasian and Carniolan. DANIEL WURTH & GRANT, Pitkin, Ark.

ITALIAN AND CAUCASIAN bees and queens of best quality; price list free. A. E. TITOFF, Ioamosa, Cal.

MAPLEWOOD APIARY.—Choice comb honey, Italian bees and queens. GEO. H. REA, Reynoldsville, Pa. R. 2.

ROOT'S SUPPLIES at factory prices; wholesale and retail. ANTON G. ANDERSON, Holden, Mo.

ITALIAN BEES, queens, comb and extracted honey.
A. T. DOCKHAM, Rt. 1, Box 95, Eagle Bend, Minn.

FOR SALE.—Bee-keepers' supplies. Write for catalog. Lengst & Koenig, 127 S. 13th St., Saginaw, Mich.

FOR SALE.—Golden and red-clover Italian queens. WM. A. SHUFF, 4426 Osage Ave., Philadelphia, Pa.

ITALIAN BEES and queens—red-clover and golden strains. E. E. MOTT, Glenwood, Cass Co., Mich.

SWARTHMORE Golden-all-over, Caucasian, Banat, Carniolan, Cyprian queens. E. L. Pratt, Swarthmore, Pa.

GOLDEN yellow Italian queens—my specialty. Price list free. E. E. LAWRENCE, Doniphan, Mo.

ITALIAN BEES, queens, honey, and ROOT'S bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

FOR SALE.—Bees, queens, and bee-keepers' supplies (Root's goods), at factory prices.
F. W. VAN DEMARK, Mehan, Okla.

FOR SALE.—Root's bee-supplies, wholesale and retail; factory prices; catalog free. Beeswax wanted.
W. E. TRIBBETT, Staunton, Va.

GOLDEN-ALL-OVER Caucasian Banat bees and queens. We book orders for early queens from our best imported breeding stock for honey, with 600 twin mating-boxes. THE SNYDER APIARIES, Lebanon, Pa.

QUEENS.—Improved Red-clover Italians bred for business; June 1 to Nov. 15, untested queens, 60c; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

I must say to my friends, please do not send me any more orders for queens this season, as my health is so poor I find it impossible to continue queen-rearing. Thanks to all my friends for their very liberal patronage. W. W. CRIM, Pekin, Ind.

IMPROVED ITALIAN QUEENS now ready; nuclei and colonies about May 10, Danzenbaker or L. frames; 20 years a queen-breeder; 500 colonies to draw from. Circular and testimonials free.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

ANGEL'S GOLDEN BEAUTIES and his bright three-banded Italian Queens have but few equals and no superiors. A fine large queen of either strain for $1.00; an extra select breeder for $2.50. I have had 12 years' experience at queen-breeding. Address
SAMUEL M. ANGEL, Route 1, Evansville, Ind.

WINTER EGGS

Feed cut green bone; save half your grain and double your egg yield. The

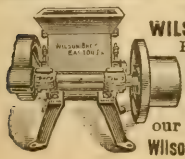
Humphrey

Green Bone & Vegetable Cutter,

the only open hopper machine, is guaranteed to cut more bone, with less labor and in less time than any other. Money back if you are not satisfied. It's the one hand cutter; feed under operator's control at all times; no complicated parts. Send for catalogue and special **Trial Offer.**

HUMPHREY,
Mine St. Factory, Joliet, Ill.

Make Your Own Fertilizer
at Small Cost with
WILSON'S PHOSPHATE MILLS



From 1 to 40 H. P. Also **Bone Cutters,** hand and power for the poultrymen; grit and shell mills, farm feed mills, family grist mills, scrap cake mills. Send for our catalog.
Wilson Bros., Sole Mfrs., Easton, Pa.

QUEENS

We beg to remind our customers the season for breeding queens here in Medina is rapidly drawing to a close. At present we are able to furnish all grades by return mail. Now is the best time to requeen. A young queen is more vigorous than an old one in spring, and not nearly so liable to swarm.

Prices of Home-bred Italian Queens

Untested queen	$1.00
Select untested queen	1.25
Tested queen	2.00
Select tested queen	3.00
Breeding queen	5.00
Select breeding queen	7.50
Extra select " " 1 yr. old.	10.00

The A. I ROOT COMPANY
Medina, Ohio

Special Notices by A. I. Root.

UNCOOKED FOODS, AND HOW TO USE THEM.

The above is the title of a book by Mr. and Mrs. Eugene Christian, price $1.00, 151 West Twenty-third St., New York. The book has about 250 pages; and whether you believe in the use of uncooked foods or not I think you will find this book exceedingly interesting and thoughtful; and I think you will enjoy at least *certain kinds* of uncooked foods all the more from having read the book. I make the following extract from the chapter on milk and honey:

Milk and honey seem to be the only two things in existence that were made primarily for no purpose except food. All other articles upon which people subsist were created for some other purpose. All cereals, legumes, fruits, nuts, and vegetables in the great scheme of nature, grow wholly to reproduce themselves; but the primary purpose of milk and honey, when they are created, is for food. They seem to have no other purpose to fulfill.

CALIFORNIA MOUNTAIN SAGE, THE PLANT THAT GIVES SUCH BEAUTIFUL "WATER-WHITE" HONEY.

We are now prepared to furnish seed, in five-cent packages, of both the black and white mountain sage. We do not know which variety is the better. The seed comes up in just three or four days, and the plant makes a very rapid growth in ordinary garden soil, furnishing a great amount of bloom. I hardly think there is any danger of its proving a noxious weed, for we have sold the seed for many years, and I never heard such a complaint. While it probably will not pay to grow any plant for honey alone, it may pay to sow sage in waste places—on your own premises, of course, where it will do no harm, and it is quite a curiosity anyhow to see this plant that has for years furnished not only tons but carloads of the most beautiful honey, in my opinion, the world has ever produced. Father Langstroth used to tell us that the far-famed honey of Hymettus came from mountainous regions, and suggested it was doubtless similar to our mountain-sage honey.

Convention Notices.

The Utah Bee-keepers' Association will meet Oct. 5 at the City and County Building, Salt Lake City, at 10 A. M. One of the subjects up for discussion is the proposed general revision of the bee-laws of Utah.

The fall meeting of the Middlesex Bee-keepers' Association will be held in the City Hall, London, Ont., on Saturday, Nov. 2, morning and afternoon sessions. An interesting time is expected.

E. T. BRAINARD, Sec.

The sixteenth fall meeting of the Connecticut Bee-keepers' Association will be held Friday, Oct. 11 at State Capitol, Hartford, Room 50, 10:30 A. M. Good speaking is to be a feature of this meeting, and a lively discussion of a number of topics will be of value. Our spring meeting was the largest by far in the history of the organization. Our recent field meeting at New Haven was a grand success. Come to Hartford and make the fall meeting the finest of the year. Please bring something for the apiarian exhibit. We want 500 new members.

J. ARTHUR SMITH, Sec.,
Box 38, Hartford, Conn.

The A. I. Root Co.:—As President Aspinwall has suggested the name of Mr. Geo. E. Hilton, Fremont, Mich., as his successor as president of the National for 1908, I take this occasion to second this nomination and bring his name before the readers of GLEANINGS who are members of the National, believing we have in Mr. Hilton the strongest and most capable candidate in the order.

Mr. Hilton has been in our State legislature two terms, been president of our State convention many times, and as vice-president of the National went to San Antonio, Texas, last year to attend the National convention.

Mr. Hilton is a fine commanding officer, apparently born to command; takes a pride in it, and is well fitted for it, having all the parliamentary rules, etc., at his tongue's end.

Hurrah for Mr. Geo. E. Hilton for president for 1908.

Fraternally,

Remus, Mich., Sept. 24. E. D. TOWNSEND.

Owing to the numerous requests for samples of printed letter-heads and note-heads, ruled and plain, together with envelopes to match, we have lately gotten out a line of samples with prices attached. We shall be glad to send samples to interested parties. We can take care of these orders promptly.

SWEET-CLOVER SEED WANTED.

We are in the market for sweet-clover seed, both yellow and white, hulled and unhulled. We would be pleased to hear from any who have been harvesting any seed with samples, stating the quantity they have to offer and the price asked. There has been quite a wide demand for this seed the past season. We still have some white unhulled on hand but very little of any thing else. We desire to lay in a stock of seed for next season.

BRISK HONEY MARKET.

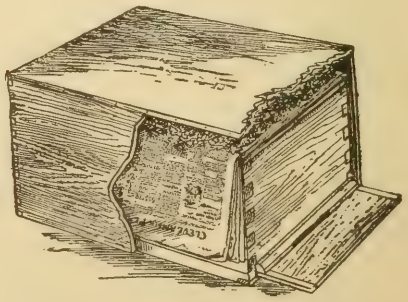
If any of our readers have a crop of choice honey not yet prepared for market they will do well to get it ready without unnecessary delay, for the market never was better in our experience than it is now. Buyers are evidently more active than sellers this year. In spite of our repeated calls we receive very few responses, and not enough honey to fill our orders. We hear of some dealers visiting the producing sections and buying up what can be found. This practice seems to become more general each year, especially when crops are short and supply scanty. This is the best time in all the year to market comb honey. Usually the demand slackens off within a month or two from this time. We should be glad to hear of any choice lots still unsold, either comb or extracted.

AMERICAN EXPRESS CO.

Within the last three months we have secured additional express service in Medina. We now have the United States, doing business over the B. & O.; the American, on the L. E. & W., which is one of the New York Central lines, and the Electric Package Co., operating over the suburban electric lines. This additional service will be an advantage to all patrons who have only the American Express Co. at their shipping-point.

PARCELS POST.

The increased express facilities which we can offer from Medina are a gain, but nothing to be compared to the advantage of a parcels post as a department of the United States postal service. It is a shame and a disgrace to our country, which in many things is so progressive, that we should be so far behind Europe in postal facilities. When John Wanamaker was postmaster general he said there were four great objections to the parcels post—namely, the Adams, American, United States, and Wells-Fargo express companies, and I guess there is little question that we should have had parcels post years ago if it were not for the opposition of the express companies and those working in their interests to maintain their present monopoly of the package-carrying business of the country. There are more and more people awaking to the oppression of the express monopoly, and demanding the relief which the United States government is able to give through a parcels post. To oppose the parcels post is to obstruct progress and development in our country.



TELESCOPE CAP FOR WINTER PROTECTION.

The above illustration shows a very satisfactory method of protecting bees over winter in single-walled hives. This same cover, listed as K in our catalog, is also a great protection in the fall and spring, especially the latter when bees are building up ready for the honey-harvest. We have known cases where enough additional honey was secured because of this added protection to pay the price of the covers in one season. The rim is 11¼ inches deep, and the top is covered with galvanized steel. The price, nailed and painted, is 80 cts. each, 8-frame; 85 cts., 10-frame. In flat, 62 cts. each; $3.00 for 5, 8-frame; 65 cts. each, $3.10 for five, ten-frame. Where this cover is substituted for the regular cover on a single-wall hive, a light super cover should be used in connection with it. Price of super cover is 15 cts. each, $1.30 for 10.

CHANGES IN PRICES FOR 1907-8.

Up to this time we have determined on the following changes in list prices. During the past season we have worked off our surplus stock of No. 2 plain sections so that from this date forward, until further notice, the price on B grade or No. 2 plain sections will be 25 cents per 1000 higher than the rate given in our catalog.

We cut out the dozen rate on No. 30 wire on spools, and increase the 5-lb. coils to $1.00 each.

B. P. S. paint for hives is advanced to $1.75 per gallon; 90 cts. per ½ gallon; 50 cts. a quart; 30 cts. a pint.

Painted wire cloth is advanced to 2½ cts. per foot for cut pieces; 2 cts. in full-roll lots. Galvanized wire cloth, 8 mesh, is advanced to 8 cts. per sq. ft.

The A B C of Bee Culture, very greatly enlarged and improved, printed on enameled paper, is advanced to $1.50 postpaid; $1.25 with other goods by freight or express. The new edition will not be completed till November. Half-leather editions will be $2.00; full leather, $2.50.

There has been an advance of over 30 per cent in material for bee-veils, and new prices are adopted as follows: No. 1, all silk tulle veil, 90 cts.; No. 2, cotton tulle with silk face, 60 cts.; No. 3, all cotton tulle, 50 cts.; No. 4, mosquito-bar veil, 30 cts.; bee-hat, 30 cts.; silk tulle per yd., 60 cts.; cotton tulle per yd., 25 cts.; mosquito-bar, per piece of 8 yds., 75 cts. No change in globe veil.

EARLY-ORDER CASH DISCOUNT.

We have been obliged to cut down the early-order cash discount below that offered in former years; but it is still sufficiently liberal to pay transportation charges quite a distance, or to pay liberal interest on the money invested in supplies early, and should attract those forehanded people who know pretty well what they want for the coming season.

The following is the schedule of discounts for early cash orders for bee-keepers' supplies, subject to the conditions below:

For cash sent	in	October,	deduct	5	per cent.
" " "		November,	"	4½	"
" " "		December,	"	4	"
" " "		January,	"	3½	"
" " "		February,	"	3	"
" " "		March.	"	2½	"
" " "		April,	"	2	"

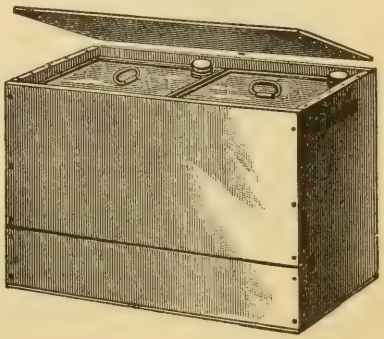
The discount is only for cash sent before the expiration of the months named, and is intended to apply to hives, sections, frames, foundation, extractors, smokers, shipping-cases, cartons, and other miscellaneous bee-keepers' supplies. It will not apply on the following articles exclusively; but where these form no more than about one-tenth of the whole order the early-order discount may be taken from the entire bill: Tinned wire, paint, Bingham smokers, Porter bee-escapes, glass and tin honey-packages, scales, bees and queens, bee-books and papers, labels, and other printed matter, bushel boxes, seeds, and other specialties not listed in our general catalog.

GOSPEL HYMNS AT HALF PRICE.

If any of our readers know of a mission church or Sunday-school, or Christian Endeavor Society, in need of singing-books we are in a position to do them some good. We formerly sold large quantities of Gospel Hymns, and have left in stock several lots of desirable books which we will close out at about half price.

We have 51 copies of Christian Endeavor edition of Gospel Hymns No. 6, words and music, board covers, which sold at $35.00 per 100. We offer them to close out at 20 cts. each, $2.00 per doz., or $7.50 for the lot. We have also 14 copies of Gospel Hymns No. 6, which sold at $30 00 per 100. This is the same book, except that the C. E. edition has a few extra special C E. songs in it which are not in the other. We offer these at 20 c. each $2 for the lot. Postage extra in each case 5 cents each if sent by mail. Of Gospel Hymns Consolidated, Nos. 1, 2, 3, 4, words only, large-type edition, board covers, which sold at $20 00 per 100, we have 23 which we offer at $1.50 per doz., $2.50 for the lot; by mail, 15 cts. each, Small-type edition, limp cloth covers, which sold at $10.00 per 100, we have 46 copies which we offer at 80 cts. per doz., $3.00 for the lot; 8 cts. each, postpaid.

HONEY-PACKAGES IN TIN



This cut shows a box of two 60-lb. tin cans, which is the standard package for storing and shipping extracted honey. It is far superior to barrels, because there is not the same chance for leakage, or taint from the wood; and, being square, they economize space. Owing to light honey crops, the last two years, the demand has been light, and we have a good stock bought below the prices ruling at present. To reduce this stock we will ship from Medina any orders mentioning this notice, at the following special prices: One box, two cans, 80 cts.; 10 boxes, $7.50; 25 boxes or over, at 70 cts. a box. One box of one can, 50 cts.; 10 boxes, $4.50; 25 boxes or more, at 42 cts. a box.

One-gallon square cans with 1¾-inch cap, 100 in a crate, at $10.00 per 100; 500 or over at $9.00 per 100; packed 10 in a case at $1.35 per case; 10 cases, $12.50.

Sturwold's Show-case.

This case is 28 in. high, 20 in. square, outside measure, top and bottom. The glass of which it is made is 16×24. The case is to be set up in any grocery, drug-store, or any other place of business where you want your honey exhibited or sold. The frame is of chestnut, filled and varnished, and finished in natural grain. Price, plain, $5; with name and address, $5.50. As the glass is very apt to be broken in transit, we will ship them, if you prefer, with glass boxed separately, at same price. In flat, no glass or finish, $2.50; glass included, $4.00.

Screw-cap Honey-gate and Can-screw Wrench.

Price 15 cts.; by mail, 18 cts. Price 10 cts.; 75 cts. per dozen. By mail, 4 cts. each extra.

We furnish the gate for 1⅛, 1⅝, or 1¾ screw. Other sizes made to order from caps you may furnish.

The wrench fits a 1¾ screw, and can be used on 1⅝ or smaller by bushing between cap and wrench.

When you order these gates separate from cans we can not guarantee a fit unless you send us a cap from the screw with the order.

Sample Mailing-blocks.

Price, each, 6 cts.; by mail, 9 cts.

These are small wide-mouthed glass bottles, which hold ½ oz., with cork, put up in a mailing-block with top which screws on and is easily removed.

Honey-Packages in Glass

We have quite a variety of glass packages for putting up honey for retail. We mention first our

Half-pound Tumbler.

This is shown at the left with a diamond label, No. 95. These include tin cover with wax or parchment paper disk for sealing tight. No labels. Will hold 7 oz. of honey when filled; and the price, $5.50 per barrel of 32 dozen; 5-bbl. lots at $5.25. In reshipping-cases of 4 dozen packed ready to reship, when filled, $1.00 per case; 6 cases, $5.70; 20 cases or over, at 90 cents per case.

No. 25 Jar.

This holds one pound of honey; has an opal cap with rubber ring and lacquered tin screw rim which seals tight. Packed in reshipping cases of 2 dozen each; price $1.10 per case; 6 cases, $6.30; 20 cases or more at $1.00 per case.

Tiptop Jar.

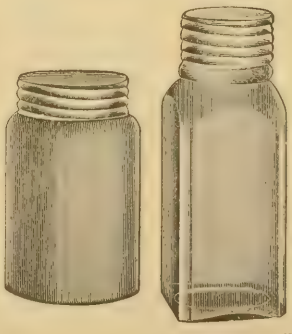
We keep these in two sizes, for half and one pound of honey. The shape of the jar is shown in the cut. It has a glass top, a rubber ring, and a spring-top fastener. Packed a gross in a crate at $5.00 per gross for 1-lb., or $4.50 for the half-pound size. We have them also packed in reshipping-cases of 2 dozen each at $1.10 per case for 1-lb. size; 6 cases, $5.30; 20 cases or over at $1.00 per case. Half-pound size, $1.00 per case; $5.70 for 6 cases, or 90 cts. per case in 20-case lots.

Simplex Jar.

This is one of the handsomest jars we ever handled. The factory making them was wrecked last August, and we have been unable since to secure any more of the size, which holds one pound. We can supply the next larger size, which holds 18 oz. of honey. Packed in reshipping-cases of 2 dozen. Price $1.15 per case; 6 cases for $6.60; in 20-case lots or over at $1.05 per case. We still have at Philadelphia a few cases of the 1-pound size which may be had from there while they last, at the same price as above.

Sq. Jar.

Hershiser Jars.



These jars were designed for use in the honey exhibit at the Pan-American Exposition in Buffalo, and are very neat and attractive. They have cork-lined aluminum caps which seal them tight. They are made in four sizes square and three sizes round. The 1-lb. size in each style is shown in the first two cuts at the left.

¼-lb.	square	Hershiser	jars,	doz.,	50c;	$5.40	per gross
½-lb.	"	"	"	"	55c;	6.00	" "
1-lb.	"	"	"	"	80c;	9.00	" "
2-lb.	"	"	"	"	1.00;	10.80	" "
½-lb.	round	"	"	"	60c;	6.60	" "
1-lb.	"	"	"	"	75c;	8.40	" "
2-lb.	"	"	"	"	1.10;	12.00	" "

The ordinary square jar to seal with cork, similar to that shown in cut at extreme left, is very largely used for honey. They are made in four sizes. The 1 and 2 lb. sizes are packed ½ gross in a package; the smaller sizes one gross. Price including corks:

5-oz.	square	jar	.....	35c	per dozen;	$3.25	per gross
8-oz.	"		.....	45c	" "	4.25	" "
1-lb.	"		.....	60c	" "	5.75	" "
2-lb.	"		.....	75c	" "	7.50	" "

PROMPT : SHIPMENTS

If you are in a rush for supplies at present, send us your orders. We have a

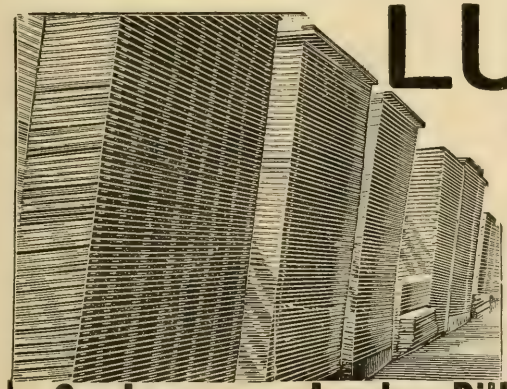
Large Stock of Root Company's Supplies

on hand to fill orders promptly. Also a

Fine : Lot : of : Italian : Queens : and : Bees

in one, two, and three frame nuclei and full colonies. Send for our 40-page catalog.

John Nebel & Son Supply Co., High Hill, Montgomery Co., Mo.



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A wonderful opportunity is offered you to buy lumber and building supplies of every kind at ***Prices that will save you big money.*** Such a chance seldom occurs. Lumber for your house, church, barn, meeting house, crib, store, factory, and in fact, buildings of every kind. We can furnish absolutely everything needed in construction material. Have your carpenter or builder make a complete list of everything you require, including Lumber, Sash Doors, Nails, Roofing, Siding, Ceiling, in fact, anything you may need in building material or merchandise of any kind.

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We bought at Manufacturers' Sale over 50,000,000 Feet of all kinds of Lumber and Finishing Material We are making special concessions, to those who buy at once. Even if you have no use for this lumber at once, it will pay you to buy now. Our prices will save you 30 to 50 per cent.

We cheerfully invite inspection of our Lumber stock and will be glad to have you come to our warehouse and yards at Chicago, see the lumber we are offering, and you will recognize that it is all what we say of it; make your own selection and see it loaded. It is not necessary to come to Chicago; we can easily sell you by mail. We can quickly convince you of the wisdom of placing an order with us. Just send us your lumber bill, and we will easily ***"Show You."*** On application we will send copies of letters from customers who have bought. They saved money why can't you? Write us to-day. ***WE PURCHASED EVERY EXPOSITION, INCLUDING THE $50,000,000 ST. LOUIS WORLDS' FAIR. Send for our Free 500 page Catalog No. C.H.*** 688 It quotes low prices on Furniture, Household Goods, Building Material, Machinery and Supplies.

CHICAGO HOUSE WRECKING COMPANY, 35th and Iron Sts., CHICAGO.

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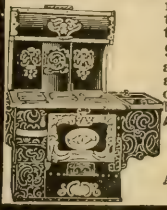
If you want a stove or range of any kind for any purpose, let us send

"A Kalamazoo Direct to You"

TRADE-MARK REGISTERED

at actual factory prices. You save from $5 to $40, because you keep in your pocket all the dealers' jobbers' and middlemen's profits. You run no risk, because we pay the freight and sell you on

360 Days Approval You not only save money but you get a stove or range of exceptionally high quality. Made of the best pig iron and steel of the highest grade, by the most skilled workmen, in one of the most modern and best equipped stove factories in the world. Every Kalamazoo is carefully inspected and we **know** it is right. If not, you get your money back without a quibble. You cannot get a better, no matter how much extra you pay. Why not save all the dealers' profit? Is it not reasonable to suppose that you can save money by buying direct from our factory!



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ALL SOLD AT ACTUAL FACTORY PRICES.

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All Kalamazoo cook stoves and ranges are equipped with patent oven thermometer which saves fuel and makes baking and roasting easy.

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FOR
BEE-KEEPERS.

Every thing you want; all made by us in our own factories—*at lowest prices.*

The American Bee-keeper (published 17 years), a monthly at 50 cts. a year. Sample copy and illustrated catalog and price list free. Address

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NEW GOODS! BIG STOCK!

NEW WAREHOUSE ROOT'S GOODS PROMPT SHIPMENT LOW FREIGHT

Every Thing for the Bee-keeper at Savannah, Georgia.

We are now prepared to furnish promptly a full line of supplies; choice new stock just from the factory. **Bees and Queens.** We have large apiaries of fine stock. Book your orders at once as there will be a heavy demand this season. Catalog sent free. Correspondence solicited.

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Wherever you are you can get our goods. Write us and we will either make you prices or will tell you where you can get our foundation nearer to you. We have agents everywhere. . .

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We handle every kind of bee-keepers' supplies and only the very best. Early order discounts given now on supplies and foundation. Write us before selling your beeswax or buying your season's supplies. . . . . .

Dadant & Sons, Hamilton, Ills.

ROOT

GOODS for the West

Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS.

My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

Write for estimate with liberal discount for orders sent in now.

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Gleanings in Bee Culture

A part of the apiary belonging to Wm. H. Horstmann, of Chicago, Ill., showing his Capitol hive containing three full colonies and a nucleus.

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Entered at the Postoffice, Medina, Ohio, as Second-class Matter.

Vol. XXXV October 15, 1907 No. 20

HONEY PACKAGES

OUR CASES are the non-drip "Root Quality" kind. Also can supply you with glass and tin packages for extracted honey.

BUY NOW FOR NEXT YEAR

and get 5 per cent cash discount for cash orders in September or October. We will quote you prices on the goods you will need for next season. Get your goods ready through the winter before the rush in the spring. ¶ We carry the Danzenbaker Hive, the Comb-honey Hive.

M. H. HUNT & SON

REDFORD, ~ ~ MICHIGAN

GREAT FIRE SALE

On account of a recent fire which slightly damaged our stock of goods, we are closing out all

POULTRY AND BEE SUPPLIES

AT A 10 PER CENT DISCOUNT.

It will pay you to order any supplies which you will need for next season's use. Make up your order and deduct 10 per cent. Goods guaranteed to be as good as new, except hives are discolored on outside. Don't delay, as they are going fast. Will exchange supplies for honey and wax

The Griggs Bros. & Nichols Co.

523 Monroe St., Toledo, O.

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De Espana, Portugal y Colonies.

Pidan catalogos de las colmenas, extractores, prenzas para cera, ahumadores, zinc perforado, escape de abejas, velos, cuchillos, maquinas para hacer base de panales, y todos otros articulos utiles en apicultura manufacturado por la celeberrima casa de

A. I. Root Company,

la fabrica la mas importante del mundo. Precios muy modicos a los subagentes por mercancias puestas en nuestros talleres.

EMILE BONDONNEAU,

Agente Générale

POR TODA EUROPA Y COLONIAS,

142 Faubourg SAINT DENIS, PARIS. 10me.

C. H. W. WEBER

Headquarters
for . . .

BEE-SUPPLIES

Honey! Who Wants Honey?

We have just received several carloads of water-white sage honey, the finest that can be produced, put up in 60-lb. cans, two to a case. We have also several cars comb honey in stock, white-clover and alfalfa.

If in the market, state quantity and we shall be pleased to quote you prices.

C. H. W. WEBER

Office and Salesroom, 2146-48 Central Ave.
Warehouse, Freeman and Central Avenues.

CINCINNATI, OHIO, U. S. A.

Honey Markets.

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct, to the retail merchant. When sales are made by commission merchants, the usual commission (from five to ten per cent) cartage, and freight will be deducted, and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

INDIANAPOLIS.—The demand at this market is principally for white-clover honey. A deluge of alfalfa honey is being distributed here, and dealers are nervous lest the deluge of Western honey should break the market. High prices thus far have not been a detriment to prompt sales. Fancy white comb sells to the retail grocery trade in lots of one to five cases at 19 to 20 cents per pound, actual weight. Finest extracted in five-gallon cans sells from 11 to 12 cents per pound. Alfalfa and sweet-clover honeys sell at slightly lower prices. Beeswax is offered freely, and sells for $35 per 100 pounds.
WALTER S. POUDER,
Oct. 4. Indianapolis, Ind.

NEW YORK.—Comb honey: demand good for all grades, especially for white and fancy stock. Same finds ready sale at from 16 to 17c per lb.; No. 1 white, 15; No. 2, 14; amber, 13; buckwheat, 12 to 13. Extracted: demand good, and we quote California white sage at 8½ to 9c; light-amber sage at 8 to 8½; alfalfa light amber at 8; white clover and basswood, 8 to 8½; buckwheat, 6½. Beeswax, 30
HILDRETH & SEGELKEN,
Oct. 8. New York.

ST. LOUIS.—The receipts of honey are exceedingly small for the season of the year. The demand is good for comb as well as extracted honey. We quote as follows: Fancy white, 17; No. 1, 16; amber, 15 to 16. Broken or defective honey sells at considerably less, and is very difficult to place. Extracted white, in cans, brings 8 to 8½; amber, 7½ to 8; in barrels and half-barrels, about 1 ct. per lb. less. Beeswax is firm at 29 for choice pure; all impure and inferior, less.
Oct. 10. R. HARTMANN PRODUCE CO.

KANSAS CITY.—The honey supply is a little light. The best white comb honey is $3 35 to $3.50, according to quality. Amber and light weights, $2.75 to $3.25. White extracted, 8 to 8½ cts.; amber, 7½.
C. C. CLEMONS & CO.,
Oct. 10. Kansas City, Mo.

BUFFALO.—There is very little new honey coming to this market. There is a very active demand for both comb and extracted. No. 1 to fancy white comb, 17 to 18; No. 2 white comb, 12 to 14; No. 1 buckwheat, 12 to 13; No. 2 buckwheat, 11 to 12; white extracted, 8 to 10; dark extracted, 6 to 7. Beeswax, 28 to 30.
Sept. 27. W. C. TOWNSEND.

CHICAGO.—Quite a few consignments of honey have been received during the past two weeks. No. 1 to fancy, white comb, brings 17 to 18 cts.; off colors, 1 to 3 cts less in the wholesale way. Extracted 8 to 9 cts for white; amber, 7 to 8. Sundry flavors of amber and dark, 6 to 7. Beeswax, 30 to 32—all of the foregoing being governed by quality, style, and package in the range of prices. Market active in all grades.
R. A. BURNETT & CO.,
Oct. 9 199 So. Water St., Chicago, Ill.

ZANESVILLE.—The arrival of large shipments of alfalfa honey has depressed the market slightly. The demand for honey, especially comb, is good. No. 1 to fancy bringing 19 to 20, as sold to the retail grocery trade. Not much demand for extracted in original packages, though there are some calls for small retail packages. I quote finest clover and red raspberry at 10½ to 12½ in five and ten gallon cans. Very little demand for beeswax except in a retail way.
EDMUND W. PEIRCE,
Oct. 4. 136 W. Main St., Zanesville, O.

SAN FRANCISCO.—Stocks of honey on this market are about cleaned up, and very little is coming in. There is apparently little held by producers in the country, and not much is expected in the way of new supplies until the next crop. Extracted is quoted at a slight advance. There is no dark amber offered. Light amber, extracted, 7 to 7½; new fancy white comb, 16 to 17; water white, extracted, 8 to 8¼.
Pacific Rural Press, Oct. 5.

DETROIT.—Honey is very scarce, and prices high. Comb honey is retailed out of the stores at from 22 to 25 cts. per lb. It is sold to the trade by commission houses for 18 to 20, for any thing from No. 1 to fancy. Some California extracted is in market, and is selling for 9. Michigan extracted is selling for 10 to 11. Beeswax, 27 to 29.
M. H. HUNT & SON,
Oct. 10. Redford, Mich.

NEW YORK.—Ship your honey now. This is when high prices prevail in the first part of the season. We make advances on receipt of same if desired. Fancy white pound sections, per lb., 18; No. 1 do., 16; No. 2 do., 13 to 15; buckwheat do., 12 to 14. Extracted clover honey, white, 8 to 9; light amber, 7½ to 8. Beeswax, fancy, 32.
CHAS. ISRAEL & BROS.,
Oct. 7. Canal and Watts Sts., New York.

SCHENECTADY.—On account of the advance in price of honey the demand has fallen off considerably; but as the crop is proportionately short, there is not much danger of a decline in prices. We quote: Fancy white, 16 to 18; No. 1, 14 to 15; No. 2, 13 to 14; buckwheat, fancy, 13 to 14; No. 1, 12 to 13; extracted, light, in 60-lb. cans and kegs, 8 to 8½; dark, 7 to 7½.
CHAS. MACCULLOCH,
Oct. 10. Schenectady, N. Y.

CLEVELAND.—Honey, white box, $3.75 to $4.00 per case; amber, $3 25 to $3.50.
Oct. 5. *Cincinnati Packer.*

WHAT HAS MUTH GOT NOW?

Genuine Orange-blossom Honey. Genuine Black-sage Honey. Genuine White-clover Honey.

(All in crates of two 60-lb. cans each)

and Fancy Comb Honey in 24-section cases, averaging 22 lbs. to the case.

You better write for prices; this honey is too good to stay long on our hands.

THE FRED W. MUTH COMPANY,
51 WALNUT STREET. The Busy Bee Men. CINCINNATI, OHIO.

KANSAS CITY.—Comb honey, Missouri, $3.75 to $3.85 per case; California, $3.85; Colorado, $3.75.
Oct. 3. *Cincinnati Packer.*

ST. PAUL.—Fancy white clover, new, per lb., 16 cts.
W. H. PATTON,
Oct. 8. St. Paul, Minn.

LIVERPOOL.—Honey, California, 5½ to 8½; Chilean and Peruvian, 3¼ to 6½; Jamaican, 3½ to 6½. Beeswax, American, 30 to 33; African, 28½; West Indian, 29 to 32; Chilean, 32 to 35
TAYLOR & CO.,
Oct. 5. 7 Tithebarn St., Liverpool, Eng.

WE WILL BUY AND SELL

HONEY

of the different grades and kinds.

If you have any to dispose of, or if you intend to buy, correspond with us.

We are always in the market for WAX at highest market prices.

HILDRETH & SEGELKEN,
265-267 Greenwich St. 82-86 Murray St.
NEW YORK.

I WILL BUY YOUR

HONEY

for cash. Send sample, and mention quality, style of package, and price.

M.V.FACEY, Preston, Fillmore Co., Minn.

Unusual good demand for

Honey

this season. We invite your correspondence, and your consignments of both Comb and Extracted Honey, and Beeswax. Commission 5 per cent. Liberal cash advances and prompt returns.

H. R. WRIGHT,
ALBANY, N. Y.
Estab. 1875.

Highest Market Price for your Honey.

A. H. DOOLITTLE, 180 Perry St., Buffalo, N.Y.

Hunter-Trader-Trapper

Here is a magazine that will surely interest many of our readers. It does for the trapper what GLEANINGS does for the bee-keeper, and does it well. It is just the thing for the man or boy who desires to make a little money winter time by trapping fur-bearing animals. It gives all trappers' "secrets," and indicates where to sell furs to advantage.

Hunter - Trader - Trapper

is not intended for city sportsmen with fancy guns and expensive fishing-rods. It is written by real wilderness hunters who know all about the capture of wild animals. It is a monthly, containing as much real reading-matter as the great monthlies, and far more practical. For a limited period we are making the following liberal offer:

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Established 1873
Circulation 32,000

72 pages, semi-monthly
$1.00 per year

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests.

Published by
THE A. I. ROOT CO., Medina, Ohio

J. T. CALVERT, Business Manager

POSTAGE IS PREPAID by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, and Mexico. Canadian postage is 30c per year. For all other countries in the Postal Union add 60 cents per year postage.

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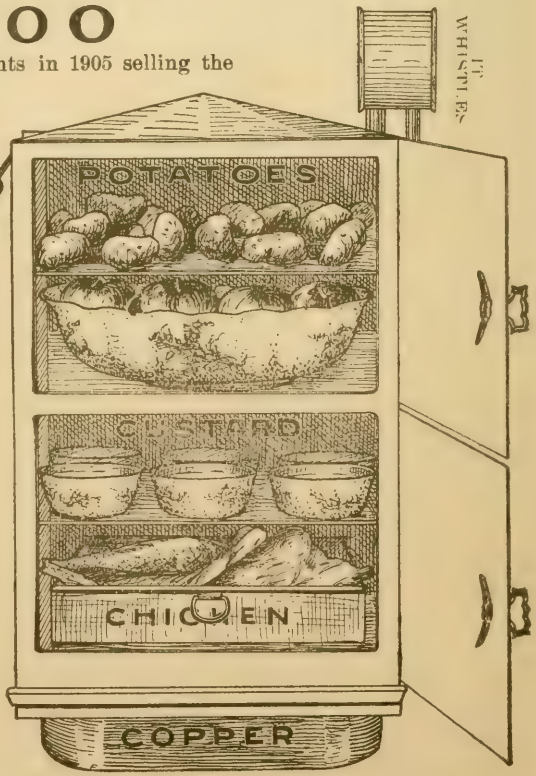

Gleanings in Bee Culture

Combination and Club Offers.

Last season, without intending to show any partiality, a premium list was issued in the interest of subscription work. A wide choice of books and papers on bee-keeping, poultry-raising, fruit culture, and kindred subjects was open to any one who could devote a little leisure time in securing GLEANINGS subscriptions, either new or renewals.

ONE RESTRICTION—that a renewal for ones self did not entitle the sender to a premium—caused an occasional protest.

Fair to Everyone

During the season 1907-8, both old and new subscribers may secure a year's subscription to GLEANINGS IN BEE CULTURE, and choice of any of the following books, papers, or articles, by sending a small additional amount to subscription price, as specified under terms of the offer which meets his needs. We feel certain that these offers will be appreciated by all, especially by any who may have felt that the list last season was too restrictive.

Offer No. 1 B.—A B C OF BEE CULTURE (1907 edition), postpaid, and GLEANINGS one year, for $2.25. This edition of A B C will be ready to mail about November 1.

Offer No. 2 B.—HOW TO KEEP BEES, postpaid, and GLEANINGS one year, for $1 50 A handbook for those who keep bees for happiness and honey, and, incidentally, for money. It serves as an introduction to more extended manuals, such as the A B C of Bee Culture.

Offer No. 3 B.—FORTY YEARS AMONG THE BEES, by Dr. C. C. Miller, and a year's subscription to GLEANINGS, $1 75, postpaid.

Offer No 4 B —STANDARD ROOT SMOKER, postpaid. and GLEANINGS one year, $1 85. One of the best smokers made, both in principle and construction.

Offer No. 5 B.—WHAT TO DO AND HOW TO BE HAPPY WHILE DOING IT by A. I. Root. This book postpaid, with GLEANINGS one year, $1.35.

Offer No. 6 B.—A copy of MINK-TRAPPING, postpaid and GLEANINGS one year, $1.30. The methods published are those of experienced trappers from all parts of the country.

Offer No. 7 B.—A copy of FOX-TRAPPING, postpaid, and GLEANINGS one year, $1.30. A book of instructions telling how to trap, snare, poison, and shoot. A valuable book for trappers.

Offer No. 8 B.—BEE-GLOVES. One pair of cloth bee-gloves, with or without fingers, with GLEANINGS one year, $1.35, postpaid.

Offer No. 9 B.—One FOUNTAIN PEN, postpaid, with GLEANINGS one year, $1 50. Price of pen alone is $1.00; not equal to pens sold at $2.50 and up, but as good a pen as we can find for $1.00.

Offer No. 10 B.—A year's subscription to GLEANINGS and THE AMERICAN BOY, $1.65.

Offer No. 11 B —DEADFALLS AND SNARES. (Just the book for trappers, hunters, woodsmen, and the country boy who wants to know the different ways of capturing fur bearing animals of all kinds). This book, postpaid, with a year's subscription to GLEANINGS, $1 30

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THE A. I. ROOT COMPANY, MEDINA, OHIO.

Gleanings in Bee Culture

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H. H. Root, Ass't Editor

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HOW GLEANINGS CLASSIFIED ADS. SOLD A CROP OF HONEY.

For Sale.—10,000 lbs. of extracted honey, white clover and heart's-ease mixed. Honey is well ripened, light in color, and of very fine quality. Put up in barrels or new 60-lb. tin cans.

Emil J. Baxter,
Nauvoo, Hancock Co., Ill.

Dear Sirs:—Please stop my honey adv't, as it is all sold. Please send bill. Yours truly,
Nauvoo, Ill., Oct. 4, Emil J. Baxter.

P. S.—Please mention in Gleanings that honey is sold, so I will not be pestered to death answering letters. E. J. B.

SUBURBAN LIFE.

Elsewhere we print the advertisement of this prominent magazine for the home-builder. If you wish to get ideas for improving your home we think you will find just what you wish in *Suburban Life*. It makes a great feature of beautiful pictures, which gives the hurried reader the very best ideas of landscape work at a glance, and enables him to get very vivid ideas of what others have done in the same line, not a hundred years ago, or in some foreign country, but right here and now. Perhaps no feature of our time stands out more prominently than the extraordinary pains that are now being taken to idealize the home as a place of rest and happiness among trees, birds, and flowers, where the children may grow up among cheerful natural surroundings, close to nature's heart. Magazines like *Suburban Life* have done and are doing much to popularize this kind of life. Many people never realized before the opportunities they had until they saw the beautiful views presented in these magazines, showing what others were doing. They have been greatly stimulated, and helped far beyond the mere cost in dollars and cents. Read the offer *Suburban Life* is making to Gleanings readers and we believe you will scarcely find it in your heart to resist the impulse to subscribe.

ARTIFICIAL WORMS AND BUGS.

Most poultry-men know that fowls of all kinds crave a meat diet of some sort, usually in the form of worms and insects, depending largely on what they can most readily pick up when they are allowed a free range. The more of this kind of food they can pick up the better, because it not only saves the cost of feeding them but also greatly stimulates egg-production.

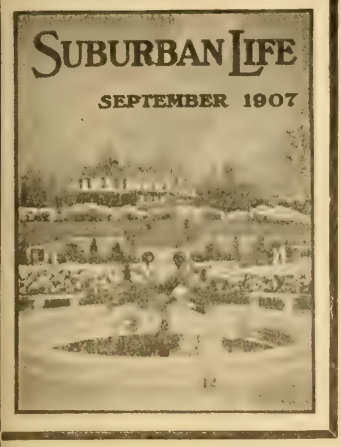
When fowls are kept in small enclosures the case is entirely different; for it is no longer possible for them to pick up very much, if, indeed, they can get any thing at all, and to be successful the care-taker must provide them with a satisfactory substitute.

The most satisfactory substitute for worms yet discovered by American poultry-men has been green cut bone. It is satisfactory, because it can be cheaply and easily obtained, and yet contains the same ingredients that are found in bugs and worms.

The chief item in its cost is the labor of cutting up the bone into pieces small enough so the chickens may readily swallow them; and a number of devices have been invented calculated to deal with this problem. One of the very best inventions for this purpose is the F. W. Mann green-bone cutter advertised elsewhere in Gleanings, which has been on the market for some years, and found quite satisfactory by a large army of users scattered over the whole of North America. There can not be a better testimonial than this.

Properly cut green bone has been found to maintain the health of poultry fed on it to a remarkable degree, and by its use it has been found perfectly feasible to keep poultry in confinement on a very large scale. Many of our most expert poultry-men would hardly know what to do without one of Mann's green-bone cutters in their yard, coupled with a large supply of green bone.

So convinced are the makers of this machine (F. W. Mann Co., Milford, Mass.) that they actually allow a prospective purchaser the privilege of a ten-days' free trial In doing this they do not ask a deposit or any thing of that sort, but give just what they say they will do—a fair free trial without any obligation to pay for it if not satiafsctory. Nothing could be fairer.



Suburban Life

25c a Copy; $3 a Year

You Cannot Do Without It This Year

MANY of you already know it to be a most delightful and expensively gotten up magazine of sixty-four pages or more, twelve by fourteen inches, printed entirely on coated paper and beautifully illustrated with often as many as one hundred fine half-tone engravings. Each number breathes forth the true spirit of suburban living.

The One Essential Magazine for the Suburbanite

What We Offer for the New Year:

1. **A BIGGER MAGAZINE.** The minimum size will be sixteen pages more than last year.
2. **A BETTER MAGAZINE.** We shall greatly increase the expense of Suburban Life by giving three-color covers, and more beautiful decorative and illustrative features.
3. **A STILL MORE PRACTICAL MAGAZINE.** We shall deal with the vital problems of suburban living in a thoroughly practical and suggestive manner.

The Price of Suburban Life is $3 and it will be the Biggest Value for the Money this Season.

SPECIAL INTRODUCTORY OFFER:

We have secured a special edition of "THE PRACTICAL GARDEN BOOK" by PROF. L. H. BAILEY, which is one of the biggest sellers in the Garden Craft Series, published by the Macmillan Company, and contains the simplest directions for the growing of the commonest things about the house and garden. It is a book for the busy man or woman who wants the most practical information as to just how to plant, prune, train and care for all the common flowers, vegetables, fruit, or ornamental shrubs or trees. The volume is of handy size, cloth bound, 250 pages, and illustrated.

To those who are not acquainted with SUBURBAN LIFE, but would like to be, we will mail SUBURBAN LIFE to any address in this country for four (4) months and include a copy of "THE PRACTICAL GARDEN BOOK," ALL FOR $1.

Send a Dollar Bill at Our Risk and We Will Do The Rest

If sent to Canadian points, add 25 cents to the above price for postage.

ADDRESS ALL ORDERS TO

PUBLISHERS SUBURBAN LIFE, 34 West 26th Street, New York City

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Our Advertising Rates.

Twenty cents per agate line, flat.
Fourteen lines to inch.

SPACE RATES (To be used in one issue)

One-fourth page.....$11.00
One-half page..... 21.00
One page..... 40.00

Preferred position, inside pages, 30 per cent additional.
Preferred position, inside cover pages 50 per cent additional.
Outside cover page, double price.
Reading notices, 50 per cent additional.
Cash-in-advance discount, 5 per cent.
Cash discount, if paid in 10 days, 2 per cent.
Bills payable monthly.
No medical or objectionable advertising accepted.

"A Square Deal."

We believe that every advertisement in this paper is backed by a responsible person. But to make doubly sure we will make good any loss to paid subscribers sustained by trusting any deliberate swindler advertising in our display columns, and any such swindler will be publicly exposed. We protect subscribers against rogues, but we do not guarantee to adjust trifling differences between subscribers and honest responsible advertisers. With regard to the classified columns, we can not protect our readers from what they consider bad trades, where there is room for a good deal of difference of opinion. This would be impossible; but we do protect them from all deadbeats and swindlers. Of course we are not responsible for the debts of an honest bankrupt sanctioned by the courts. Notice of the complaint must be sent to us within one month of the time of the transaction, and you must have mentioned GLEANINGS IN BEE CULTURE when writing the advertiser.

How to Keep Bees

By Anna Botsford Comstock

228 pages. 82 pages of illustrations.

A charmingly written manual describing clearly and in detail the outfit, first steps, and methods. The author's well-known literary ability has combined with her enthusiasm for a subject to produce a very unusual volume. It is a handbook for those who keep bees for happiness and honey, and incidentally for money. It serves as well as an introduction to the more extended manuals already in the field. "Finally with all due deference to the authors of the excellent books on bee culture which we have already, my opinion is that this new book, 'How to Keep Bees,' is the best one for a beginner, or one who does not wish or expect to keep more than a dozen colonies, that has yet come before the world."—*A. I. Root, in Gleanings, July 1, 1906.*

Chap. 1, "Why Keep Bees," urges honey, perhaps money, recreation, love of nature study, and the need of bees in "a perfect garden," as good reasons for keeping bees. The second chapter tells "how to begin" in a small way, and we may get all the necessary detailed information for management from later chapters, arranged in order of demand for information.

Price $1.00. Postage 10 cents extra.

Money refunded to any dissatisfied purchaser.

The A. I. Root Co., Medina, O.

MR. LONG'S STATEMENT.

We have known for a long time that the advertising columns of GLEANINGS are exceedingly popular, and that very remarkable results are being secured right along. We haven't, however, had the evidence at hand many times to present, for we have not before for some years asked our advertising friends for their opinion. We now take pleasure in presenting the statements of those who will speak not only disinterestedly but authoritatively from experience.

Some weeks ago Mr. Frank E. Long, president of the Long-Critchfield Corporation, the advertising agency which sends us a large number of orders for space, said to our representative that he regarded GLEANINGS as very remarkable in results which it secured for their clients, and a number of other fine things too. We did not feel at liberty to quote Mr. Long until we had his permission. The copy of letter from him published below came in answer to such an inquiry:

CHICAGO August 20, 1907

Mr. A. L. Boyden, Advertising Manager,
Gleanings in Bee Culture,
Medina, Ohio.

Dear Sir:-

Answering your favor of the 9th inst. with reference to Gleanings in Bee Culture and whether it has been paying our customers satisfactorily, will say that the fact that we are constantly increasing the volume of business sent to Gleanings in Bee Culture should be quite sufficient evidence that our customers are not only getting satisfactory results but that we are well enough pleased with the returns to advocate its use to our constantly increasing customers.

As you know we have absolutely no favorites in publications, our only criterion in soliciting mediums being the results for our customers. Gleanings in Bee Culture is one of the most satisfactory mediums all around, considering its size, which we use, the results almost invariably proving satisfactory.

You are at perfect liberty to use this letter if you so desire. We are always glad to say a good word for a genuinely meritorious publication.

With best wishes,

Very truly yours,

LONG-CRITCHFIELD CORPORATION

President.

Please notice particularly what Mr. Long says:

GLEANINGS gives satisfactory results to the advertisers;
GLEANINGS gives satisfactory results to the advertising agency;
GLEANINGS is a genuinely meritorous publication.

In conversation Mr. Long said that the results were actually phenomenal many times. He told our representative why, but that's the secret. Mr. Long's agency sends us such advertising as:

Cyphers Incubator Company,
F. W. Mann Co. (bone-mills),
American Harrow Co.,
Electric Wheel Co.,
F. W. Bird & Son (roofing),
Kalamazoo Stove Co.,
American Steel & Wire Co.,
The Deming Co. (sprayers).

These are only a few of the concerns whose advertising appears regularly in GLEANINGS coming through the above or some other agency. Many of our advertisers have been with us regularly in season from five to fifteen years. Not one of them would send us orders for a single issue unless they were already receiving good returns.

Mr. Long speaks of *satisfactory results*. This is what you would want to know about if you were to advertise. In an early issue we will tell you the experience of one advertiser, in his own words, who secured the past season orders amounting to over $1000 from advertising which cost him about fifty dollars. Its orders you want.

What have you to sell to readers of GLEANINGS? If you want our opinion regarding the advisability of advertising in our columns, write us regarding it. We never recommend it unless we are convinced that there is a good prospect of fair returns for the money spent, and, further, that you are in position to and will give our readers a square deal. Our circulation is 35,000 copies. Our rates are 20 cents per line. Watch for our next; but, better still, get your inquiry or order for space off to us before you miss another issue. Address all inquiries to

ADVERTISING DEPT. GLEANINGS IN BEE CULTURE, MEDINA, O.

Some Good Offers for You

The American Bee Journal, on July 1, 1907, was changed from a 16-page weekly to a 32-page monthly, at 25 cents a year. September 1st the yearly subscription price was placed at 50 cents, which is very low indeed when you consider what the Journal is. It is now in its 47th year—the oldest bee-paper in America. We want *you* to see a copy of it; if you have not already seen it, send us a postal-card request at once and we will mail it.

A Few Special Combination Offers

1. One Untested Standard-bred Italian Queen (in Sept. or Oct.), with the American Bee Journal one year—both for only one dollar. (Queen alone, 60 cts.)
2. An Ideal Hive-tool (postpaid) with Bee Journal one year—both for only 60 cents. (Tool alone, 30 cents.)
3. One Queen-clipping device (by mail) with Bee Journal one year—both for only 60 cents. (Device alone, 25 cts.)
4. Ten Bee and Teddy Bear Souvenir Postal Cards (by mail) with Bee Journal one year—all for only 60 cents. (10 cards alone, 25 cents.) Address

GEORGE W. YORK & COMPANY,
118 W. Jackson, Chicago, Ill.

Deadfalls and Snares.

This book gives all known methods of making deadfalls and snares. It is just the thing for trappers, hunters, and woodsmen generally.

Deadfalls and snares is edited, printed, and published by A. R. Harding, who is an experienced trapper, also the editor of *Hunter-Trader-Trapper*. The book is nicely bound, and has 232 illustrations.

It is composed of 28 chapters as follows:

Building Deadfalls,
Bear and Coon Deadfalls,
Otter Deadfall,
Martin Deadfall,
Stone Deadfall,
The Bear-pen,
Portable Traps,
Some Triggers,
Trip-triggers,
How to Set,
When to Build,
Where to Build,
The Proper Bait,
Traps Knocked Off,
Spring-pole Snare,
Trail-set Snare,
Bait-set Snare,
The Box Trap,
The Coop Trap,
The Pit Trap,
Number of Traps,
When to Trap,
Season's Catch,
General Information,
Skinning and Stretching,
Handling and Grading,
From Animal to Market,
Steel Traps.

Deadfalls and Snares, together with a year's subscription to GLEANINGS, $1.30.

The A. I. Root Company, Medina, O.

Articles Wanted.

The *Bee-keepers' Review* would be glad to examine, with a view to their purchase, articles of a helpful nature for practical bee-keepers. It is not that it has run short of material that this request is made, but because it wishes the best correspondents it is possible to secure, and takes this method of letting it be known. It would especially like articles on the production of comb honey. If the information can't be crowded into one article, then write two or three, or even half a dozen; in fact, a series on the subject would be particularly desirable. Don't hesitate to write because of inexperience in that line—a new writer sometimes turns out to be a treasure, while an old writer's articles may be "twice-told tales." If you have had experience, or possess knowledge, the telling of which may help your brother bee-keeper, send in an article. If used, it will be paid for generously.

W. Z. HUTCHINSON :: :: :: :: :: **FLINT, MICH.**

Now Is the Time

TO LAY PLANS FOR NEXT SEASON.

Before you plan, investigate the merits of our Divisible Brood-chamber. There is NO DOUBT of the shallow hive giving better results in control of swarming and the securing of FANCY COMB HONEY.

The A. I. Root Company
Syracuse, New York

Dittmer's Comb Foundation

is the best, not because we say so, but because the bees prefer it to other makes.

DITTMER'S PROCESS IS DITTMER'S.

It has built its reputation and established its merits on its own foundation and its own name.

We make a specialty of working wax into foundation for cash.

Write for free catalog, and prices on full line of supplies.

GUS DITTMER, Augusta, Wis.

"If goods are wanted quick, send to Pouder."
Established 1889

The Foresight of the Busy Bee.

By the Bee Crank.

The industry and thrift of the bee has for so long been a favorite theme with moralists and philosophers that it should not be necessary to cite bee-men, of all people, to the example of their own tireless little workers.

And yet the discount of 4 1-2 per cent that I am offering upon cash November business is an investment that would turn away any bee out of its course if it understood it. And therein the bee would teach a lesson that a lot of bee-men need, though they may not realize it. I carry a full line of bee-supplies, including Root's goods at Root's prices, and the special November discount applies to almost the entire line. Send for catalog.

I pay the highest market price for beeswax. Send by freight or express according to the size of the shipment.

If you wish to purchase finest white-clover extracted honey in 5-gallon cans, write for my monthly quotations of Indianapolis honey market.

Walter S. Pouder.

513-515 Massachusetts Avenue, Indianapolis, Ind.

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Company, Medina, Ohio

E. R. Root, Editor A. L. Boyden, Advertising Mgr.
H. H. Root, Asst. Ed. J. T. Calvert, Business Mgr
A. I. Root, Editor of Home Department

Vol. XXXV. OCTOBER 15, 1907. No. 20

STRAY STRAWS
by Dr. C. C. MILLER

F. GREINER, p. 1261, supposes top and bottom of a 1⅞ section are 1⅝ wide. Are they not 1½? But perhaps even that is narrower than necessary.

J. M. ROTH says that, when a queen carries her wings tightly closed, it indicates strength. Wings spread out indicate weakness.—*Leipz. Bztg.*, 130.

THE *Leipz. Bztg.*, 143, recommends feeding above to supply stores, and below for stimulating. [We fail to see that it would make any difference from which point the food was given.—ED.]

GOLDEN BEES were severely condemned at the great German bee convention as poor workers, and with tongues no longer than other bees. But does any one in this country claim long tongues for the goldens?

R. A. BURNETT talks sense, p. 1272. Whatever harm has been done by fear of adulteration, vastly more harm has been done in some places by bee-keepers themselves throwing on the market such miserable stuff under the name of honey.

LYCOPODIUM sprinkled on old combs, as a substitute for pollen in spring, is highly recommended in *Europ. Bzcht.*, page 126. Dr. Pilgrim says it is eagerly sought by the bees when other substitutes are neglected, and its lightness makes it comparatively cheap.

THE SIMPLEST and best plan of uniting, says Aug. Kamprath, *Bienen Vater*, 232, is to shake the bees to be united at the entrance, and let them run in, first making sure that they are well filled with honey. [This certainly helps to make the moved bees stay in their new location.—ED.]

SWITZERLAND is less than half as big as Ohio, and the Swiss Bee-keepers' Union numbers 6838 members. If we did things on the same scale here, in proportion to population, Ohio would have an association of more than 8000, and the National would number 164,000.

THE MASTERPIECE of bee culture, according to Rev. Luger, *Deutsche Bzcht.*, 131, is not wintering nor yet springing, but queen culture. Every bee-keeper should be able to rear best queens for his own use. [Is it not rather all three? One is about as important as the other.—ED.]

GERMAN JOURNALS are jubilant, and well they may be, over the organization of one grand association of German-speaking bee-keepers, "*Der Deutsche Imkerbund.*" numbering 100 000 or more (makes our National look like 30 cents). Each member pays ½ cent into the treasury. [Such organizations are possible in Europe on account of the compactness of the population and the short distances of travel.—ED.]

"I NEVER learned the knack of using the little springs to hold the frames and sections snugly together," says F. Greiner, page 1262. I wonder if it wouldn't pay you to learn, Bro. Greiner. I value them more highly all the time. They adjust themselves to the space, and, whether tight or loose, they hold all together, whereas the wedge sometimes takes hard work to force in, and sometimes shrinkage allows it to drop out. Another important item: The straight stick wedged in diagonally makes a pocket in which the bees congregate and refuse to be dislodged; whereas all is open with the spring. One spring does for each super.

I WONDER if there is not just a little danger that the eucalyptus may prove an English sparrow to California bee-keepers. Prof. Cook says, p. 1253, that the bees "are likely to find a banquet spread in the eucalyptus groves at any and all seasons." That's nice for the bees, but how about other honey being flavored with eucalyptus? A little of such a pronounced flavor ought to go a long way; and if it is present at all seasons will

there be any honey without a touch of its flavor? For years Australians have been trying to get their eucalyptus honey accepted in London, but the London palate will none of it. Will the American palate accept it any more readily?

Anton Rauschenfels, who has been exclusively occupied in rearing queens for market since the eighties, says *B. Vater*, 247, that with his bees, and in his country, Italy, in May and June, if all is favorable the first eggs are found the seventh or eighth day after the birth of the queen; but often this is not the case; in July and August, even under the most favorable circumstances, no eggs before the tenth day; and if there is a dearth of pasturage one may be satisfied to find eggs on the twelfth day. Unless a queen is fertilized before 18 days old she is not likely to be fertilized at all. Virgins slow about mating, making frequent unsuccessful flights, are likely to be balled by the bees. Fertilization occurs most speedily in baby nuclei.

Too late, perhaps, to do good by any protest, but I may at least be allowed to register a little lament that some deem it a duty to use the word "section" to signify one of the stories of a divisible brood-chamber. More than once, lately, I have been just a little troubled to know which kind of "section" was meant when the word was used. Why not let "section" continue to mean the little box it has meant so many years, and call a story a story? [The word "story" is hardly a good one, because it generally refers to a full-depth hive-body. "Brood-chamber" is better because it has come to be associated with half-depth bodies of a divisible hive. The term "section," referring to the same thing, is a little bad. Perhaps we editors should edit out these confusing words or those used out of their regular connection. We'll try.—Ed.]

G. M. Doolittle has been faithful in season and out of season in trying to ding into bee-keepers' heads, as he does on page 1254, the importance of knowing the resources thoroughly and then controlling and concentrating the bees. I wonder if it has ever occured to him that "locality," that ever ubiquitous meddler, may have something to say in the case. However important his idea may be for him and others like situated, for my bees and my locality I don't believe there is a thing in it. The desideratum here is to get all colonies as strong as possible just as early as possible, and let the bees do the rest. I never knew the time when a colony was strong any too early, and I never knew the time when I thought any thing would be gained by doing any thing to weaken it afterward. So if we don't all follow your advice, Bro. Doolittle, just lay it to locality.

On the first page of Straws, in the previous issue, Dr. Miller says, in reference to my query as to what to do with bees where there is no sale for them, "I am afraid very few have had such experience; and although I do not come in the prescribed class I would suggest doubling up in fall or spring. That will reduce the number of colonies, and perhaps secure more surplus than 'taking up' in the fall." Well, doctor, I think you have hit it exactly. If one has more bees than he knows what to do with he should by all means double them up in the spring, of course taking the weak ones first until he has the desired number of colonies, taking care to save the most desirable queens. Our friend Frank Boomhower, of Gallupville, N. Y., says he took 800 lbs. of honey from one colony in one season. Said colony was eight stories high, and was made, if I am not mistaken, by taking in the brood and even whole colonies without uniting. A. I. R.

According to the *Louisiana Planter* the new crop of syrup from cane juice is selling freely at $1 00 a gallon, or as much as honey would bring a short time ago.

The *Pacific Rural Press* says that Arabian alfalfa has shown a remarkable superiority over the ordinary kind grown alongside of it at the University experiment station, Tulare, Cal. W. K. M.

The editor has been temporarily away from the scene of action. On returning from a trip to the Jamestown Exposition he was taken with a severe attack of what proved to be appendicitis. Since he had suffered from many lighter attacks before, an operation was considered necessary. He is now almost well again, however, and has returned to his work with renewed vigor. A part of the editorial work for this issue was dictated from his bed in the hospital.

We make this explanation for the reason that there are several important letters now awaiting his personal answer which could not be attended to promptly. These will receive his attention as soon as possible.

H. H. R.

THE VALUE OF HONEY.

The *Southern Farm Journal* prints the following excellent testimony in favor of honey for sick children. This is not an isolated case by any means. Similar instances are being constantly cited in European journals devoted to medicine and health.

According to Dr. Pol Denade, honey should occupy an honorable place in therapeutics. He relates that a lady asked his advice about a tiny emaciated baby.

The child, which lay in its mother's arms, was nine months old, and gave one the feeling that it had but to close its little eyes for death to assert itself. The infant was suffering from diarrhea, which had refused to yield to all remedies tried; the poor little creature was emaciated to an extreme degree, with black rings under the eyes, and the lower stomach fearfully large. The poor sufferer had no appetite whatever, but was, in its place, plagued with almost incessant vomiting and diarrhea. He ordered her to feed the infant on honey and water, nothing else absolutely, for eight days, and if the child were still living at the end of that time, to give goat's milk and water in the proportion of one to two parts respectively. "I dismissed the case from my mind, since I did not hope for any thing better than death as a release," says the doctor. "What was my astonishment when, at the end of three months, I was shown a healthy-looking well-nourished baby, with an excellent appetite and regular habits, and its stomach reduced to normal proportions, may be easily guessed. Here was my little wretched creature nothing less than metamorphosed by means of the honey."

SEASON REPORTS.

As mentioned in our last issue, these local reports should not be taken to represent general conditions throughout the whole of the States mentioned.

Very good crop, Dryden, Va.
One-fourth crop, Deer Plain, Ill.
No white crop; small fall crop, Meredosia, Ill.
No crop—necessary to feed, Pollock, La.
No Crop, Soldiers' Grove, Wis.
Very small crop; colonies O. K. for winter, Fremont, O.
Heavy fall crop parts of Southern Ohio.
Double last year's crop, Grommet, Col.
Good fall flow Underwood, Ind.
Good fall flow, Indianapolis, Ind.
Good fall flow, Parkersburg, W. Va.
Extra good crop, Petersburg, Tenn.
Poor season, Bell's Landing, Pa.
Fair crop, Mertztown Pa.
Good crop, Stanton, N. J.
One-fourth crop, El Toro, Cal.
Extraordinary fall flow, Bard, Ark.

THE NEW PARCELS POST; WHAT THE GOVERNMENT WISHES TO DO.

THE Postmaster-General has, through the daily press, recently taken the public into his confidence with regard to the new parcels-post system which he will recommend to the consideration of Congress when it assembles. His idea is to have a parcels post at the rate of 12 cents per lb. over the whole country; then there will be a parcels post limited to rural routes, and another to cities, at a much lower rate—probably a cent a pound.

By way of criticism, the rate of 12 cts. per pound looks rather high, and it seems clear the service would succeed much better if the rate were lower. The present rate of 8 cts. per pound for books, etc., seems high enough, and it does not seem as if ordinary packages would cost any more to transport than books. Some of the European governments carry packages at 24 cts. for 11 pounds, and actually make money at it. Probably Postmaster-General Meyer's plan is best because the "vested interests" have succeeded in exciting quite a lot of people to oppose a parcels post, and his plan is likely to meet with the least opposition of any yet proposed.

The local feature will please most bee-keepers, particularly those who have a local trade in honey. In a few years, if we faint not, it may be possible for a bee-keeper to sell his honey by talking over the telephone, and having the same delivered to his customers by parcels post. Most bee-keepers have customers who can not be reached by the present-day methods; whereas by means of the parcels post they could be reached quite nicely, even when the weather is bad.

Some folks are quite virulent in their opposition, and seem to think the farmer is expecting too much when he asks the government to do what every other civilized government does for its people. W. K. M.

THE HONEY MARKET.

DURING the past two weeks we have received further conflicting reports regarding the movement of the crop. Michigan, to which dealers usually look for very fine stocks of fancy clover honey, still offers but very little so far as we can learn — almost none going out of the State. Wisconsin and Minnesota are making very few offerings for markets in this vicinity and further east. As occasionally happens, there is some movement of honey westward. In average seasons the tendency of the crop is to move east; but in exceptional years we see Vermont clover honey going to Chicago, Iowa honey to Omaha and the West, and we learn of some movements in this direction this year.

In the eastern portion of the clover belt, particularly New York, there appears to be a larger amount of No. 1 white and amber grades than earlier reports indicated; but from information at hand we can not modify our report regarding Michigan, Ohio, Indiana, Illinois, Wisconsin, and Minnesota.

California honey is still ruling very high. Bee-keepers have made disposition of entire crops of white-sage extracted at six cents at their yards in some instances. In the alfalfa districts of Utah, Nevada, and Colorado, offerings of extracted are still firm, and prices well sustained.

There seems to be, however, a much larger offering of alfalfa comb honey than for several years; and when this latter reaches the eastern market in quantities it is likely to influence the price of eastern white honey to some extent. As we pointed out in our last, we believe it is unwise for eastern bee-keepers to hold crops of No. 1 and No. 2 white and amber grades beyond this time, for, in the light of our past experience, the maximum price is reached by October 1st, and by November 15th the height of the season is past. Those who have a strictly fancy and extra fancy clover comb honey can usually find a market for it almost any time at remunerative prices, and yet nothing is gained, in our opinion, by holding even this after the above date.

THE PROPER SOIL FOR WHITE AND RED CLOVERS; SWEET CLOVER; WHITE, YELLOW, AND SOUR CLOVER.

THOSE of our readers who have been nonplussed by the failure of white clover, both as a forage and honey plant, will be interested in the discussion now going on in the

Country Gentleman, Albany, N. Y. The discussion chiefly relates to red clover; but what is said will apply to most of the others as well. It is pointed out that, to get good crops of clover, the land must be rich naturally, and occasionally well manured to get satisfactory results. As long ago as 1758, Hale, an English writer, pointed out this fact, yet there are many who believe that we have only to sow clover on poor soil and it will soon get rich.

As a matter of fact, the only clover which grows and flourishes on poor soil is sweet clover, of the various varieties—white, yellow, and sour. Sour clover (*Melilotus Indica*) is highly recommended by the Arizona station as a soil-improver. Prof. McClatchie, of that station, says of it: "The so-called sour clover, *Melilotus Indica*, makes a vigorous growth between early fall and late spring. On account of this vigorous growth during a time of the year when irrigating water is most plentiful, it is the legume best adapted to the region for green manuring. It makes the best growth if sown during October." This, coming from such a source, is good testimony. Boiled down to its last analysis, the statement that sweet clover is the best of all clovers for improving poor soils is undoubtedly true. We should be glad to obtain further particulars of sour clover from our readers. W. K. M.

THE HONEY-YIELD IN MANATEE CO., FLA.; THE CAUCASIANS RATHER BEHIND THE ITALIANS THE PAST SEASON.

This week I have been requeening a few of my poorest colonies in the out-yard, and about four out of five of the poor ones had a dash of Caucasian — probably ⅛ of the bees were Caucasian, the rest Italian. One hive that had not made a pound of surplus this summer I found had a fine large Caucasian queen, and about half or more of her bees were well marked. Some of my best Italians made over 100 lbs. I got 2800 lbs. from 42 colonies.

I thought I would requeen all my out bees, but some of them have done so well this poor year I have concluded to cull out the poorest. I. T. Shumard.

Osprey, Fla., Sept. 20.

It will be remembered that, with the strain of Caucasians I had on the island a year ago last winter, they seemed equal if not superior to the Italians as honey-gatherers; and that was our impression during the summer of 1906; but during the past season, 1907, the above letter seems to indicate that the Italians were ahead. My old imported queen, however, died, and we were compelled to use another Caucasian for breeder. She may not have been equal to the original imported queen. During the past summer I found a colony out in our apiary at work before any of the rest, out of the three or four hundred. This colony was also out a little later in the evening. When I called the manager's attention to the colony I said, "This unusual activity is owing either to the Caucasian strain of blood or else it is because they have a young queen that has recently commenced laying."

He referred to his slate and told me I was right in *both* respects. The Caucasian queen, however, that was the mother of these active bees, had been sold, and we had no means of knowing who got her. It is now pretty well demonstrated that the progeny of certain queens excel others as honey-gatherers; and this may be true of Caucasians or any other race. It begins to look as if the original imported Caucasian queen that I carried to the island in December, 1905, was a queen of more than ordinary value. With the information we now have in regard to the matter, my impression is that the Caucasians are not, as a rule, superior to the Italians as honey-gatherers; but where one makes a business of queen-rearing they are far ahead for getting large numbers of strong healthy queen-cells. No queen-breeder can afford to work without the help of a strain of Caucasian blood to aid him in grafting, getting queen-cells, etc. A. I. R.

WHY COLONIES OFTEN DIE THROUGH THE WINTER WITH PLENTY OF STORES IN THE HIVES.

Every spring there are hundreds of beekeepers that find many of their colonies dead without any apparent reason. There is plenty of honey in the combs, and every thing is in good shape—but the bees are dead. Other colonies come through so weak that it is almost impossible to build them up for the honey-flow.

There are many possible causes; and, while we could not name them all, we wish to emphasize one or two.

For instance, the colony might not have been strong enough in the fall to keep up the necessary degree of animal heat, so that the individual bees were unable to leave the cluster long enough to reach the stores in another part of the hive. This would account for a good deal of the loss. Weak colonies should be united, for it does not often pay to winter a mere nucleus.

But there is another cause that many have overlooked. Some bees must die on account of old age. If the majority of the bees that make up the cluster in the fall are already old, then it is evident that a large percentage of the bees in that colony will die a natural death during the winter. Furthermore, old bees have not enough vitality, and they will die under conditions that would not prove dangerous for the younger bees.

The remedy is to see that brood-rearing is kept up long enough to give a strong force of young vigorous bees to go into winter quarters. Stimulative feeding should be resorted to if necessary.

Editor Hutchinson, in the September issue of *The Bee-keepers' Review*, comments upon the importance of young bees in the fall; and since his advice is particularly timely, we give it herewith in his own words.

If the bees have not gathered any stores since early in the season, there ought to be some stimulative feeding to encourage breeding, and thus have some young bees for winter. I had a letter to-day from a man in Canada, saying that his bees had gathered no stores since fruit bloom, and the bees had run down in numbers until he was fearful he could not winter them. Last year, here at Flint, my bees gathered no honey after the close of the white-clover honey har-

vest, hence there was not very much breeding late in the season. There were plenty of bees in the hives when put into the cellar, but many of the bees were old, and when spring came many of the bees (not colonies) were dead from old age. The bees were all clean, dry, and healthy, but I was surprised to see how few there were in many of the hives. This year I am giving them an occasional feed this month, and probably will continue it a part of next month. No amount of fussing next spring will atone for neglecting the bees this fall.

NORMALITIES AND ABNORMALITIES OF QUEEN INTRODUCTION.

[The following is an extract from the new edition of THE A B C OF BEE CULTURE on the general subject of introducing, setting forth some of the general principles underlying the process. The article attempts to give some of the normal conditions that govern the problem. While some of the positions taken may be the subject of controversy, yet much that is here said seems to be in line with the modern practice of most bee-keepers.—ED.]

Under normal conditions only one queen will be tolerated in a colony at a time. Should there by accident be two, when they meet there is likely to be a battle royal, when one of them will be killed; so it happens that queens are, as a rule, jealous rivals; but there are exceptions. There are conditions, as when an old queen is about to be superseded, when the young daughter may be tolerated in the hive along with her mother, and both laying side by side; but in the course of a few days or a few weeks the mother will be missing. Whether she dies of old age or the daughter kills her we do not know. There are other conditions where two and sometimes a dozen queens will be permitted to stay in the hive; but those conditions seem to be abnormal.

Again, it may be stated that a normal colony of bees will not take a strange queen, even though they have no mother of their own, much less will they accept an interloper when there is already a queen in the hive. We may, therefore, lay it down as a rule that has exceptions,* like all other good rules, that we can not introduce any queen, young or old, to a colony that already has one; and even when the bees have been suddenly deprived of a queen they will not, under ordinary conditions, accept another, no matter how much they may need one, until she has been "introduced." It follows, then, in the process of requeening we are compelled to put a new queen in a wire-cloth cage and confine her there, where the other bees can not attack her, until she has acquired the same colony odor or individual scent as the bees themselves. This usually takes two or three days, at the end of which time the queen may be released and they will treat her as their own royal mother. We do not know how bees recognize each other, or how they can tell a strange queen from their own, except by scent factor.

It is a fact well recognized that a dog can pick out his master from hundreds of others through the agency of scent; nay, further, he can track him if he loses sight of him by catching the scent of where he has walked, in spite of the fact that hundreds of other people may have gone over the same ground. This scent that is so acute in a dog is undoubtedly highly developed in the bee, otherwise we should be at a loss to account for some of the phenomena in the domestic economy of the hive. Hence we naturally conclude that, by the sense of smell, the bees recognize their own mother from a new or strange one.

Again, we learn that, if two queens have exactly the same colony odor after being caged for two or three days in a queenless hive, either one may be liberated and the bees will accept one just as readily as the other. If both be liberated at the same time, one in one corner of the hive and the other in the opposite corner, both will be tolerated by the bees; but once the queens come together themselves there is danger of a royal battle* resulting in the death of one. From this fact we infer that the bees, providing a queen or queens have the requisite colony odor, would accept at any time one or more such queens under many conditions; that, further, when two queens have the same colony odor, if they can be kept apart by means of perforated zinc both queens can continue to lay eggs in the same hive without let or hindrance. This condition will be allowed so long as the colony prospers and there is not a dearth of honey. When there is a disposition on the part of the bees to rob they may destroy one of the queens.

Bees that have been shaken into a box or pan, and then shaken or bumped again and again until they are demoralized or frightened, are much more tractable than those not so disturbed. Such bees if made queenless just prior to the shaking, if confined without combs or brood in a cool place for a few hours, will usually accept a queen at once. The factor of colony odor then apparently does not operate, for the bees are put out of their normal condition.

Another fact worthy of consideration at this time is that young bees just hatched will at any time accept any queen. Therefore, it comes about that, when one desires to introduce a valuable breeder on which he desires to take no chances whatsoever, he causes her to be released on a frame of very young or hatching bees; but consideration will be given to this later.

Another fact worthy of note is that virgin queens, if just hatched, will usually be accepted by a colony, if not too long queenless, without the process of introduction or of caging; but when one of these queens comes to be four or five days old she is very much more difficult to introduce than a normal laying queen. Why this should be so, we do not know.

Having stated, therefore, the basic principle governing the relation of the queen to the bees we can now more intelligently pro-

* If a virgin queen, on returning from a mating-trip, enters by mistake a hive where there is an old laying queen she may, and very often does, supplant the old queen. The virgin is young and vigorous, and more than a match for the old queen full of eggs. Even though the colony odor be lacking, the bees in this case accept the supplanter.

* We say "danger" of a battle. Queens will not always fight when so put together.

ceed to the methods of introduction, most of which are based on the theory that the queen to be introduced must first have acquired the colony odor of her new subjects.

There are some methods of direct introduction by which the queen can be released without the process of caging; but in the case of queens of any value they should not be employed, and are, therefore, not given in a work of this kind designed primarily for the novice in bees.

A SCORE OF COMMONLY ASKED QUESTIONS.

We are constantly answering questions on the subject of bees and bee culture. Sometimes one mail will bring the same question asked several different times by as many different bee-keepers. Of course, it would not be possible to answer all of these in Gleanings, as it would take up entirely too much space, and many of them would be simply repetitions. But we have decided to publish at certain times of the year the answers to the questions that are asked the oftenest, in order that a larger number of our readers, and especially the beginners, may be benefited. The ones which we give below are those having to do especially with the problems encountered in wintering.

1. Should supers be left on the hives during the winter?

No, not unless you wish to remove the inside fixtures and substitute packing material.

2. Will it hurt the bees to open the hives in cold weather?

Yes. Ordinarily hives should not be opened after the cold wea'her sets in, as it breaks the propolis sealing and permits cold wind to blow through the cracks. If it is absolutely necessary, wait until a warm day.

3. Which are better—sealed covers or absorbent cushions laid on the tops of the frames?

Sealed covers. There was a time when it was considered best to place cushions directly over the frames; but since they often get wet from water of condensation, and freeze, flat covers sealed down by the bees are now recommended.

4. Should queen-excluders be left on through the winter?

No.

5. How can I tell whether there is enough honey in the hives?

By looking over the combs before cold weather comes. There should be an average of three or four pounds of sealed stores in each comb.

6. How much honey does it take to winter a colony?

From 20 to 30 pounds, depending upon the size of the colony. Bees in a cellar usually need less than those out of doors.

7. How can I winter a weak colony?

In a good bee-cellar. But it is generally best to unite the weak ones before winter.

8. Does it pay to give cellared bees a midwinter flight?

Yes, if necessary. But the best way is to manage so that they will not need such a flight. As long as bees are quiet, don't disturb them.

9. My cellar has a damp floor; will it do for wintering bees?

Yes, if the damp floor is the only objection. If the atmosphere is dry, the air good, and the temperature kept about 45°, there should be no trouble.

10. Is cork dust good for winter packing?

Yes, if you can get it cheaply. Usually it is pretty expensive.

11. Shouldn't double-walled hives have packing material under the bottom-boards?

Not unless they are raised from the ground, and in many cases it would not even be necessary then.

12. Why did four of my five colonies die that I wintered out of doors?

We don't know, as you haven't given us all of the particulars. Any of the following reasons might explain the trouble: Colony too weak in the fall; bees too old; packing insufficient; location too much exposed; entrance too large or small; queen dead; poor quality or too small quantity of stores; wet packing.

13. How large an entrance should I have for my colonies in eight-frame hives wintered out of doors?

It depends upon the strength of the colony; but $\frac{5}{8} \times 4$ inches is probably not too small. Smaller entrances are now considered better than the larger ones advised several years ago.

14. One of my queens died in January. What can be done?

Introduce another queen if you are so fortunate as to have one. If not, unite the queenless colony with some other weak colony.

15. The packing over my bees is wet. What shall I do?

You should have put on a super cover so that the bees could seal it down. A dry cushion can be placed over this if necessary.

16. How can I keep my bees from flying out when the sun shines, and dying on the snow?

Place a board in such a position that the sun can not shine in at the entrance, thus luring the bees out when it is too cold for them to fly.

17. Can I winter my bees in a building above the ground?

Yes, if the temperature can be kept uniform at 45 degrees. Otherwise you had better not experiment.

18. How can I feed my bees in the cellar?

Place an empty super on the hive, and partly fill it with moistened loaf sugar.

19. How may I know whether my colonies out of doors are short of stores?

If necessary, open the hives and make an examination on the first warm day. But it would have been much better if you had made sure that there were plenty of stores in the fall.

20. Why is sugar syrup preferable for winter food to honey?

Because it is cheaper, less stimulating, and always the same. Some kinds of honey are not at all suitable for winter food.

Texas must now be in the lead as a honey-producing State. Its 1907 crop has been fair; and for producing at least some honey, year after year, I doubt whether any other State can beat it.

To make a success of bee-keeping as a business is what I am trying to do, and this has been a busy season. There are now fourteen apiaries scattered far and wide. If no honey is obtained at one place I ought to get it at another.

It is not how much we make, but how much of that is profit. What does it profit a man if it costs him eleven cents to produce a ten-cent pound of honey, fussing with some of the systems (?) given occasionally in our journals. Get a system that lessens the cost of production.

Honey exhibits are good advertisements. They help to sell honey. Bee-keepers are beginning to understand this better than ever; and the consequence is, nearly every fair will have its bee-department and a generous premium-list.

Requeening should not be overlooked by the honey-producer. Every spring there will be quite a number of queens that "come up missing," and many fail to come up to the desired standard, and this keeps on throughout the entire season. It is caused by allowing old, worn-out, and worthless queens to remain too long in the hives. The remedy is to requeen all such before they become worthless.

The best results in my apiaries are obtained from queens reared the previous fall, and they will do two good years' work; then they should be replaced in the fall, or after the honey season with fall-raised queen. In this way good results should be obtained year after year. Of course, there will always be some that will fail sooner than others, and must be replaced sooner.

For years it has been one of my greatest desires to make my own hives and supers, but "I never got to it." Now I am glad *I* did not; for of the many, many home-made hives I have seen *and used*, very, very few meet with satisfaction with *me*. There are many who make their own hives, and are satisfied with them; but it is impossible to make them so they will always fit snugly as a hive only should. The greatest objection to them here is the yellow pine lumber which either warps or splits, but always shrinks more or less. A super made the right depth will be ¼ inch too shallow later, and the frames rest on those below them. If this shrinkage were the same in all of the lumber, sufficient allowance might be made when cutting the hive parts; but some boards shrink more than others. Besides, the bodies and supers are very heavy. With white-pine lumber at hand I'd make my own supplies. Now I make only the bottom-boards and covers out of yellow pine. They last longer, and are better than the light flimsy ones offered on the market.

Nothing enthuses a bee-keeper more than to be visited by another one of his craft, when a regular convention can be had and ideas exchanged face to face. Such has been my happy lot recently when one of my old college chums while at the Ohio State University together, and also a bee-keeper, Arthur H. McCray, of Duvall, O., "came to Texas" and spent nearly a month here. He came just in time to help me take off part of my crop of honey, some 20,000 pounds, and to be with me night and day, and on my rounds to a dozen apiaries. Yes, and he learned, he said, something of managing apiaries on a large scale, as well as something of Texas. So well pleased was he that he hated to go back. Yes, Texas is a great country, and we know it.

My main sources for surplus are the mesquite-trees and the cotton-fields, cotton being the second of importance in the central and northern part of the State, or throughout the black-land regions. On sandy or light soil cotton produces very little honey. In the picture shown on p. 1321, is one of the Brazos River "bottoms" cotton plantations, some of which contain several thousand acres of cotton-fields. I have two apiaries here, and cotton is the only source, as no mesquite predominates. The yield is good, averaging about 75 pounds of bulk comb honey a year. One year it was over 100 pounds. Honey from cotton is very light in color, the comb very white, and of excellent flavor when well ripened. As soon as cool weather sets in this honey fairly draws out in long strings when handled with a spoon.

"POISONED" COTTON AND BEES.

Several enquiries have come to me from time to time, asking if bee-keepers need fear any danger to their bees where poison is used on the growing cotton to destroy the leaf-worm and other injurious insects. According to several items in some of our leading newspapers there would be no danger; but the facts are that dangerous results might follow. Several serious cases have come under my observation. One of these happened on our own home farm where one of the tenants had applied London purple to about ten acres of cotton to poison the leaf-worm. This cotton was on low land where the leaf-worm was doing the most damage. It being of more luxuriant growth, this cotton yielded nectar more abundantly, and the bees

worked more on it than in any other parts of the fields. The result was, the destruction of the whole apiary in a few days' time. Dead bees could be found everywhere, inside and outside of the hives, as the adult bees suffered as well as the brood and young bees in the hives. This was in 1890.

Another instance occurred about eight years later. A bee-keeper wrote me that he was rejoicing over his apiary of fine Italians which were storing surplus honey from cotton, and that a big flow was on. A week later he wrote again, but in quite a different tone. Paris green had been applied to cotton by a neighbor to destroy the leaf-worm, and it resulted in killing all the bees in the bee-keeper's apiary. Some of the colonies had stored as much as 100 lbs. of honey, and had all been in fine condition. Another case was that of a bee-keeper in Louisiana who lost his entire apiary of nearly 150 colonies from the effects of Paris-green spraying on cotton. In the first and second cases mentioned, the poison was applied in the dry state, or "dusted" on the cotton-plants, while in the latter it was in the form of a spray.

IMPROVEMENT OF BEES.

In referring to the improved strain of bees mentioned in this department, page 831, Mr. Otto Sueltenfuss, of San Antonio, says that this has helped him to account for the different traits shown by queens of this particular strain. He found the queens nearly all prolific, and some of them very much so. The bees in the majority of the colonies of this strain were gentle and easily handled; but a few seemed to show some traits of the Cyprians in regard to stinging. Some queens of this strain produced fine comb-builders, and the best comb-builders generally cap their honey the whitest. He also found that good comb-builders are also good honey-gatherers, which is only natural, as the faster a colony builds combs the more it is able to store. On the other hand, good honey-gatherers are by no means always good comb-builders, and he thinks it a safe plan to weed out the poor queens as much as possible.

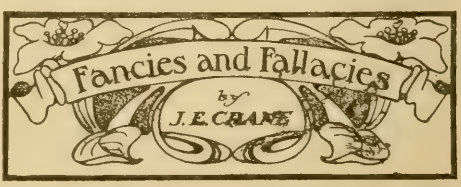
The strain of bees referred to was obtained by mating daughters of pure Cyprian mothers to Carniolan drones; then daughters of these queens are mated to Italian drones, thus combining the hustling qualities of the Cyprians, the gentleness and white capping of the Carniolans, and the non-swarming disposition and color of the Italians.

It may not be desirable to try to find better bees by such methods of criss-crossing; but it seems to me that there may be something in it. If the above cross gives good results there may be other combinations even better. But such breeding should be carefully done. Here is a field for scientific work. The bee-keeper is too prone to attempt it in his haphazard way, and to jump at conclusions.

There is no doubt in my mind that we can produce better strains of bees than we have now, and judicious breeding should do it. I am not a great believer in continually trying something new, unless it has already especial merit. But to try every new thing that comes along is, for those who are trying to make the most out of their bee-keeping, a waste, not only of time but money; besides, it is running a great risk whether such things may prove even as good as the old that has been discarded. I know of several bee-keepers who have ruined their once excellent stock of bees in introducing new blood by buying queens from breeders (?) upon whom they thought it could be depended for good stock.

But if a good strain of bees is once obtained, even careful selection will do wonders in improvement. One of the easiest ways to accomplish this end, for the practical bee-keeper, is to save as many cells as possible from the best queens during the swarming season, and requeening all colonies containing undesirable queens with such cells. Drones of the right kind only should be allowed to fly at such times. The results will soon show.

There are several ways of improving strains of bees, and those who undertake it should decide definitely at the outset just what plan is to be followed. Either a pure strain should be bred up to a higher standard, or the method of crossing several races to obtain the desired results should be resorted to. A great deal of experimentation, of, course, is necessary before results are gained; but I would urge that more bee-keepers pay more attention to just this subject, even if it does cost a little at the start. It may mean much in the end. "The improvement of our honey-gatherers" should be the bee-keepers' motto.



Dr. Miller is right as to the value of wet grass to stop robbing; but at outyards we don't always have grass; but I sometimes use pine boughs, weeds, or even old leaves piled against the hive, over the entrance, and it works.

I presume the doctor is right in regard to sheep when confined in a yard of bees. I do not put sheep into a yard of bees, but, instead, put my yard of bees into a sheep-pasture, and it works all right. I believe the sheep learn to crop the feed among the bees at night.

"This year there will probably be offered to the market considerable off-grade comb honey," says the editor, p. 1128. It is near-

ly all yellow this way; and, except for bleaching, I should not have a dozen cases of white honey. With the aid of a bleaching-room I am able to make my crop much more attractive than would otherwise be possible.

And now I don't know but I have got my foot in it. Can any one tell if the use of sulphur in bleaching or for destroying the eggs and larvæ of the wax-moth will injure the combs for food by absorbing sulphur dioxid?

Hold a minute, Mr. Doolittle. I want to talk with you. You say when the honey-flow is on, two bees occupy as much space as three or four did before. Do you mean that they are as large as three or four bees at other times, or that they cluster further apart, and thus take up more room?

Another thing, you say that, if you just fill the empty space above a colony of bees with empty comb they will not swarm. That's just what I did two years ago, but evidently this yard of bees had never read Quinby, and did not understand the proper thing to do; for almost every hive swarmed, or tried to. Some colonies did not even stop to store any honey in the empty combs.

THE QUESTION OF HONEY-LABELS.

I have watched with no small amount of interest the discussions as to labeling bottled honey, and have admired the interest the editor of GLEANINGS has taken in the matter, and his efforts to have the rulings of the Department such as will not embarrass either bee-keepers or those who make a specialty of packing honey. With many others I have hoped the use of the phrase "*put up by*" might be allowable, as it seems to fill the bill more perfectly than any other; and I doubt very much if any court in the United States would hold the user of such a label as misleading. The Standard Dictionary says, one use of the phrase "to put up" is "to pack away or preserve; hoard; as, to put up fruit." There is no reference as to whether the fruit put up is one's own produce or produced by another person.

Mr. F. L. Dunlap says, in letter of Aug. 7, "I do not see on what grounds it would be possible for the bee-keepers who bottle their own honey, sell it under their own label with their own names attached, and then, when their own supply of honey is exhausted, buy from other producers, and bottle the product thus obtained, to sell it under the identical label that they used in the first case where they were the actual producers of the honey." Now, it seems to me this is making a mountain where none exists; and it seems, further, that it would "be possible" to do this very thing; but, of course, much will depend on the label. If I label my honey as "*produced by J. E. Crane*," then it would be misleading to buy my neighbor's honey and put it up under the same label. If I use a label that could be true of both lots of honey, as "bottled by," or "put up by," then it would seem to be possible to put up both lots under a common label. And it would seem, further, that, if I can not use a label that will be common to my own produce and my neighbor's, neither can I buy of two different producers and label it the same, although different from my label.

But Mr. Dunlap goes on to say, "In other words, the phrase 'put up by' is not sufficiently explicit to be of much significance to the ordinary consumer." This may be true. If so it would naturally follow that it could not be very misleading. Mr. Dunlap says, further, with regard to this phrase, "It does not differentiate between the actual producer and the one who is not, which differentiation is necessary." Well, it looks to me from my view-point as though, if this phrase did not differentiate between the actual producer and the one who is not, then it could with equal propriety be used on both. "Which differentation is necessary." Why? pray tell. I have been producing honey for more than forty years, and yet can see no good reason why the honey I produce can not be sold in common with other honey of the same grade or quality under a common label. There may be something in the law that makes this ruling necessary, that I do not know about. I wish it could be explained so I could understand it. Let us see how such a ruling will work. Here is a man who does a large bottling business. He is also a honey-producer. He had a crop last year of 10,000 lbs.; but to supply his trade he buys 150,000 lbs. more of, say, fifty different producers, of the same grade as his own. Now, according to this ruling he can sell all of the product of these fifty producers under a common label; but his own he must sell under a separate label. Why?

To differentiate, I suppose, although the honey was all of the same grade.

Now, as I look at it, it would seem as though altogether too much stress is laid on the point of who is the producer. As a matter of fact, as all bee-keepers know, the quality of honey depends much more on the flowers the bees work on than who owns the bees; and it would seem to an old-fashioned bee-keeper that it would be of vastly more importance to label our honey so as to indicate to some extent the flowers it was gathered from, rather than who run it into bottles.

To illustrate, many persons are very fond of clover honey, but care nothing for that gathered from basswood or buckwheat. Some years clover may yield abundantly with but little basswood, while the following year the order may be reversed. If the producer labels his honey the same both years as produced by himself, many consumers will be misled into expecting the same kind of honey, although he has complied perfectly with the pure-food law. On the other hand, if the producer uses a label common to his own and other producers' honey, when his own proves of inferior quality he can buy where the season has been more propitious, and furnish his customers with the same grade

or kind they have been accustomed to, thus more perfectly fulfilling the spirit of the law than would otherwise be the case. I believe all or most persons who bottle honey desire to put up as nearly the same grade or quality from year to year as possible; and their name stands for that grade. So far as I know, it has been the practice for producers, when they wished to distinguish their own honey from their neighbors', to use the phrase "produced by" or "from the apiary" of so and so, which would seem to differentiate their own from all others sufficiently where such differentiation is necessary.

THAT VACANT SPACE.

"Have you the bees ready for winter yet, Mr. Doolittle?"

"Not entirely, Mr Sanders"

"Why do you answer that way? I supposed that, when you got them ready at all, they were to be gotten *entirely* ready."

"Well, sometimes it is that way; but more often they are mainly gotten ready in August or the first half of September, and the 'entire' part put off till the latter part of October or the first of November."

"Mainly in August! What can you do about getting bees ready for winter in August?"

"Know that they have a good queen, and stores enough for winter, with the combs all in good repair, and the hive in the best possible shape so that the bees can fix their honey and hive all tight and tidy while it is still warm weather. In this way they have their stores all fixed as to sealed honey, and that in open cells all about the cluster, in just the shape they desire it when cool and cold weather comes on."

"What is the difference in this matter? I do not fix mine till I get ready; and then if one colony has more stores than it needs, and another not enough, I take from the one and give to the other, no matter if it is in November. Does this do any harm?"

"Allow me to ask you if it would make any difference with you if some one were to take the roof off your house in November and carry your vegetables which you had stored in your cellar up to the attic, and remove your pantry and dining-room into the parlor, and all such like things, leaving doors and windows open, and unstopped cracks all about the walls of the house."

"Well, I should think it would. But you do not think the bees would suffer as I would, do you?"

"Excuse me; but I think more."

"How could it be?"

"You would keep a fire to dry out things, and keep you warm till you could repair things; but the bees could not repair things till it became warm again; and while they were waiting for the warm weather they must consume honey as fuel to keep warm, and often to an extent above what they otherwise would, to bring on dysentery and death. Late disturbing of bees often brings about serious results, especially where the bees are wintered on the summer stands and the season proves one of continued cold so as to prevent winter flights."

"I had not thought of that, and I guess you are right."

"I believe this to be right, and nearly if not all of our best bee-keepers are in accord with these views What was your crop of honey the past season?"

"Quite poor. Not more than about 50 sections to the colony, on an average."

"I call that good for this year."

"Did you do better than that with your plan for working at the out-apiary?"

"Only a little. The average was about 67 pounds, which is the poorest of any late year."

"That was considerably better than I got. But I had lots of unfinished sections this year—much more than usual. Did you have many?"

"No—the least I ever had."

"That makes me think. Are you going to answer Dr. Miller's question he asked you on page 1127."

"I do not remember what he asked me."

"Have you GLEANINGS handy?"

"Yes, here is the September number."

"This is what Dr. Miller writes: 'Bees are believed to hustle in with greater energy to fill a vacant space made between partly filled sections than they will do where they are allowed to have their own way of working, or continually adding from the outside, p. 1075.' Yet, Bro. Doolittle, I understand that you have lately come to the conclusion it is always best to add empty sections over the others. Please tell us why."

"I do remember now about this matter, but had forgotten it."

"Yes; but are you going to answer it?"

"Well, yes, perhaps, some time."

"Well, if you are going to answer it you might as well do so right here and now."

"Why do you say thus?"

"Because Sanders wants to hear the answer. That is something he wants to know about as well as Dr. Miller."

"You said you had lots of unfinished sections this year, did you not?"

"Yes."

"Why did you have so many?"

"Because the season was poor, I suppose."

"But I had the same poor season, and do not have enough unfinished sections for baits for next year."

"I see you are trying to work some racket on me."

"Did you not work your bees on the tiering-up or spreading-out plan?"

"Yes; but what has that to do with unfinished sections?"

"Far more in a poor season than in a good season."

"How is that?"

"From what you just read, which Dr. Miller quoted from my writings on page 1075, that bees will hustle with greater energy to fill a vacant space between partly filled sections, or partly filled sections and the hive below, than they will if allowed to have their own will."

"Yes; but if I understand things aright, we shall secure the more honey just in accord with this energy. Is not this right?"

"Given the assurance, or the insurance (I do not care which way you put it) of a good season, *long drawn out*, then you would be right; but with a season commencing well, with no assurance about how long this commenced-good season would last, as in the past season, then this tiering-up or spreading system of working, resulting in its increased energy, does not give as good results as where the bees are allowed to take their own way of working."

"How is that? I do not see my way clear as yet."

"With a good commencing we have one super one-half to two-thirds full when you come along and lift it up and put an empty one under. With increased energy the bees rush into the under super so as to connect their work between the hive and the partly filled super above, working with much greater vigor than they did before, but at the same time doing less work in the upper super than they were doing before the tiering. Two days later the good season is changed to a poor one by rain or cold windy weather, which continues till the honey-flow is over, in which case you have two supers well under headway, but none of the sections finished."

"Yes, I see that; but would I not have had those unfinished in the first super had I done no tiering or spreading?"

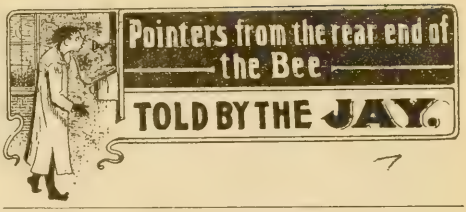
"Not with the same season, for half the energy put into the super two-thirds full would have finished it, so you would have had those sections in salable form, while now you have double the number of sections worked in, with few if any of them in salable form."

"Yes, but this was a peculiarly poor season."

"I know it was; and it is because we seem to have more of these peculiar seasons now than we did thirty and forty years ago that I gave up the spreading plan, and work on the plan of adding at the top the sections which have starters of foundation in them, instead of tiering or adding between the top and brood-combs below, as I used to do."

"I see. But will not the average of the seasons, even now, give the better results by the spreading or energy plan?"

"My experience says no, and that is why I have adopted the other."



THAT SWARM PROBLEM.

If an attempt at an article containing information is permissible in this department, I wish to offer the following. If, however, the reader fails to see any thing of merit in it, please pass it off as a joke.

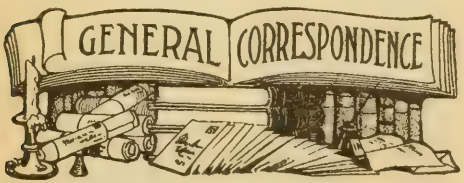
Believing there are many localities similar to mine, I wish to tell how I treat swarms in a way that, so far as I am concerned, solves the swarming problem. Our swarms usually come about the middle of the white-clover flow, and, if hived on starters in a contracted brood-nest, as usually recommended, the results are very unsatisfactory. They will leave the corners unfinished for a time, and later will fill them with drone comb. If crowded enough to finish off the super they were working on they will usually carry pollen into the sections. If given full sheets of foundation they will not finish the super, and will not, as a rule, get enough honey to build up on and winter safely Then this is too uncertain a method of increase if increase is wanted. After trying every thing I could hear of along this line for a number of years, I hit upon the following, which works out to my satisfaction:

When a swarm comes out I place the clipped queen in a small cage and hang it on a pole or something that can be easily carried. Then when the swarm has clustered on it I allow it to hang there till night so the bees will cool off. Then just as it is getting dark I take the swarm to a colony that is not doing good super work and dump them in front of the entrance. The queen I give back to the hive from which the swarm emerged. This, however, is always requeened later, as a queen that swarms I never keep. The old hive I move to a new locality, and the returning bees will cluster with the swarm, which should be allowed to cluster near the old stand. The super from the old hive should be placed on the hive containing the swarm, and, as a rule, I have to add an extra super to give them room. The vigor with which the whole colony goes to work, and the way they get the honey, is certainly a pleasant sight. I have never tested this by hiving a large swarm with another large colony, but doubt if they would make as much or any more honey than both colonies would have made separately had there been no swarm, but they make much more than any other way that I have ever tested when treating new swarms.

But it is with the weaker ones that the best results are obtained. Take, for instance, two colonies not doing the best of work in the supers—supers half full; the center rows

are partly capped, the outside ones only started. If they are left in this way a few light-weight sections will be the result, and perhaps those near the outside will be warped out of shape and fastened to the fence. But suppose that about the middle of the flow one of them swarms—what will be the result when treated in the manner described? As soon as they have been fixed, and the third super given (I usually put this empty one between the other two), work in all three supers will be carried on with a rush, and from three to four supers of extra-fine comb honey will be the result, where, had they not swarmed, but two supers of poor honey would have been obtained.

If they are inclined to fight when united I smoke them a little. Now some will ask, "Will not this cause the united colonies to swarm?" I never had one do so, and I have practiced this with several colonies a year for four years. They all seem to work with the vigor of any newly hived swarm. If they should do so I would hive them with a colony containing a young queen raised the same year. I have never lost any bees from fighting, nor have I ever lost a queen when colonies were united in this way.



HIVE-COVERS.

How the Alexander Super-covers are Made; Retaining the Heat in the Spring.

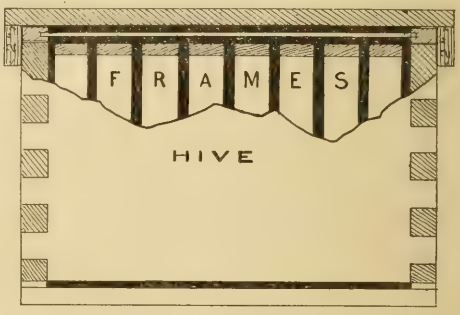
BY E. W. ALEXANDER.

A subscriber wishes to know how the under covers to our hives are made. I will say that they have a rim ⅞ wide and ¾ inch in thickness, with a groove in the center ¼ inch wide. In this groove we slide a board ¼ inch thick, which leaves a ¼-inch space on each side of the center board.

The tops of our frames are flush with the top of the hive, so when we lay this cover on top of the hive and frames there is a ¼-inch space between the under side of the cover and top of frames. Then when our outside telescope top is put on, which has a 2-inch rim all around on the under side, and rests on top of this under cover, there is another ¼-inch space between the two covers. This, we find, makes an ideal top. It is warm in cool weather and cool in warm weather.

We also use, in addition to this under cover, during spring and fall, a piece of heavy duck No. 8, or, as some would call it, a piece of light canvas, over the top of the frames under the under cover. This helps much to retain the heat of the colony during the spring, as it furnishes a perfect packing around the top of the hive.

The rims of these under covers are mortised together at the corners, similar to a wood-zinc queen-excluder, and then nailed.



CONSTRUCTION OF THE ALEXANDER COVERS.

They are strong and durable, and at the same time light and handy to handle. With the outside cover well painted, no water or cold air can enter our hives from the top during the spring season.

We are all learning fast that it is very important to retain all the heat we can during early spring. We also close the entrance until it is so warm in the hive on a fair day that the bees will fan the air at the entrance as they usually do in mid-summer. This causes the old candied honey to liquefy, and prevents the bees from carrying it out of their hives, where it is lost.

Old candied honey in a weak colony in the spring is of but little use, and I can not see any more consistency in feeding bees in September in order to induce spring breeding than there would be in feeding our cows in July to increase the flow of milk the following May. Do all you can to retain the heat of the colony to its hive during about nine months of the year, and you will find your bees will be the better for it.

Delanson, N. Y.

TRUE WASPS OR HORNETS.

BY PROF. A. J. COOK.

I enclose a picture of some paper hives. I would suggest that a few remarks from Prof. Cook, to go with the picture, would be of interest. A. E. Willcutt.

Swift River, Mass.

[The above letter and the accompanying photograph were sent to Prof. Cook, whose interesting letter follows.—Ed.]

The "paper hives" illustrated are the paper nests of the common wasps or hornets. These hymenopterous insects are of special interest to bee-keepers, as they are nearest to the bees in structure and habits, and are peculiar in being the best paper-makers among animals, if we may except man him-

self. Indeed, in one respect they are even ahead of man, for they were first by a long period to invent the paper-making habit. The wasps make this paper by scraping old logs, boards, or twigs, and mixing with the scrapings saliva from their own glands, and thus they form a pulp which they fashion with the same mandibles or jaws that they use to do the scraping, into a string, which is laid on to the place where it is to remain, when they thin and spread it with the jaws till it takes the shape that they wish.

Some of the wasps build the nests in the ground or in hollow trees, or other concealed places, while others place them under cornices, or in buildings, while others place or build them right in the open, attached to a tree or other support. One genus, *Polistes*, places its horizontal comb under board or cornice, etc., with no cover. These are so common that all have seen them. Another genus, *Vespa*, often known as yellow-jackets, make several of these horizontal combs, one above the other, and surround all with a paper cover, often of several thicknesses. The one sent by you is of this kind. These are often very large, and are better supported sometimes by being built around branching twigs, like these you have photographed. These nests are enlarged the summer through, and to do this the wasps are constantly tearing the sides away, building on to the combs, and then renewing the covering wall. Thus these yellow-jackets rival the bees in industry.

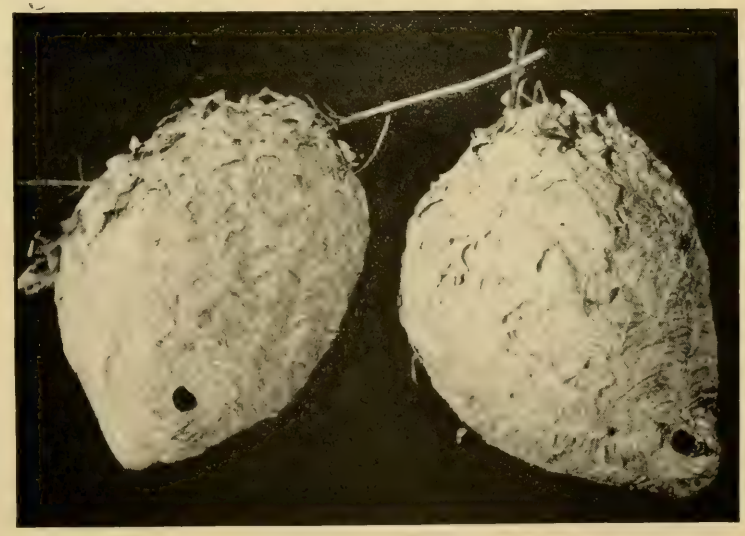
These paper-making wasps are like bees in being social, and, like bees, may have a great many individuals in the colony by the end of the season. They are like bees also in having queens, workers, and drones, or males in the colony. Each sex is produced as is the same with bees. The drones come as a result of parthenogenesis, that is, the eggs are not fecundated. The queens are developed further as the result of a better table in the early or larval stage, while the workers, less well fed, are not developed sexually, and so are abortive females.

They differ from the honey-bee, and are like the bumble-bees in that all die in the fall but the young queens. In the spring the large queen starts the nest, and at first does all the work. In three or four weeks from the egg-laying, the first wasps hatch out, or come forth from the cells, and are all workers, and smaller than the queens. For a time all are workers, and these now do all the work, and the queens lay only eggs. In midsummer the unfecundated eggs are laid, and the brood, or some of it, is better fed, and soon the males, also larger than the workers, and the young queens come forth. These fly forth to mate as do our bees; and as soon as the cold of winter comes on, all die but the young queens, which seek some nook where they may hide and be protected from the cold.

There are three ways that we may know these wasps. When at rest their front larger wings fold lengthwise; they all make paper nests, and they are social, like bees, and are unlike bees in being much more hairy, and in not having their hind legs widened for pollen-baskets.

There are three genera of these vespids. The first, *Vespa*, makes the spherical, covered nests, and are known as yellow-jackets and as hornets; the second, *Polistes*, are longer than the *Vespa*, and the abdomen tapers into a short stem-like origin at its base, instead of being broad as it is in bees and in *Vespa;* while in the third, *Polybia*, found only in California, it is still broader, so it looks like a long stem.

All of these wasps are our good friends, as they are engaged all the live-long day in catching insects that otherwise would eat up



PAPER NESTS OF THE COMMON WASPS OR HORNETS.

our plants. We can not measure the good that they thus do. They chew up this food, and very likely add some secretion, and then dole it out sparingly to the larva workers, and give it liberally to the young of the prospective queens.

These wasps are like bees in another respect—they have very effective stings which they are as free to use in self-defense as

are bees. They are cruel stingers, but are not likely to sting if not molested. I had a fine nest of the big white-faced hornet, *Vespa maculata*, one year close by my door, and used to go repeatedly close to the opening and watch the wasps, and never was I disturbed. I could have brought on war speedily by a jar or a quick motion. I was very careful not to do so.

These wasps not only feed on insects, but like fresh meat and blood, and so are often seen about meat-shops. They also like nectar and the juice of fruits, and so are wont to pierce grapes, apples, pears, etc., and so do harm that is often laid to bees, as the latter do not attack the fruit till wasp or bird has made the wound and caused the juice to flow. In this way wasps are often annoying; but we must remember that they do untold good in destroying our insect enemies, and in pollinating fruit and other bloom, and must not charge their evils against them with no account of the much greater benefits.

There is one thing more that shows that these earliest manufacturers are brainy fellows. We may tear the roof off their nests by raising the board that holds it, and they will commence at once to reroof it, though this is altogether different from their common work. They seem to show some power to think and to plan in a way that is not their wont.

Claremont, Cal.

A YOUNG HELPER IN THE APIARY.

BY G. W. KELLER.

I am sending you a photo of my apiary, showing you a bee helper, a girl ten years old. She can catch and cage queens and bees as fast as any man, and she does it without veil or gloves. She is holding a frame now. She has been with me ever since she was three years old, and has learned the knack of the business. She expects to try queen-rearing.

King's Creek, N. C., July 18.

APIARY AND FAMILY OF GEO. W. KELLER, KING'S CREEK, N. C.

LIQUEFYING HONEY IN 60-LB. CANS.

No Vent Necessary if the Honey is not Overheated.

BY G. C. GREINER.

Mr. Atwater's utterances on the above subject, pages 334, '5, are not entirely in harmony with my views and experiences. I always enjoy Mr. A.'s writings, coming, as they do, from the pen of an experienced bee-expert; but, like the rest of mankind, he is not infallible; his article above mentioned is open to a gentle criticism on several points.

The trouble he speaks of, in the line of wasting, running over, exploding, burning, etc., is all caused by overheating. If the liquefying process is not hurried too much, if as little heat as possible is applied, no trouble of this kind need be encountered, and the honey will be all the better for it. If any of my honey had been subjected to a temperature that would burn a person I should consider it a spoiled and wasted lot for my trade. I would not offer it to my customers. Occasionally I have, by neglect, overheated honey, allowing it to come near or quite to the boiling-point. Then it has that flat, inferior taste. The best part of it, its fine flavor, is gone.

A 60-lb. can of honey can be liquefied with the top left on tight, the same as a glass bottle, without the cork being drawn, providing it is done very gradually. I have done both successfully with moderate heat. The cubical contents of a square straight-sided receptacle will increase sufficiently to allow its contents to expand slightly by its sides and ends bulging out. An explosion can occur only when the temperature is getting too near the steam-generating point. But, to be on the safe side, Mr. A.'s suggestion, not to open the can until cool, should be heeded.

Mr. Atwater's lifting-arrangement is undoubtedly a great help in handling cans; but it proves that the complaints and suggestions of "common-sense bee-keeping" are not entirely without foundation. In my estimation a piece of clothes-line, long enough to reach several times around the can, and tie, will do just as well, and be much simpler and fully as handy.

Some of Mr. A.'s sug-

A THOUSAND-ACRE COTTON-FIELD IN TEXAS.
—*See Bee-keeping in the Southwest, page 1313.*

gestions are not very commendable. He himself admits it by cautioning, "But don't tell any one." Secrecy is always a hiding place, and I would strongly object to any manipulation that would in any way be detrimental to my business if made public. I would not object—in fact, I should enjoy to have a crowd of my customers follow me up in every move I make in the production of extracted honey, from the hive to the retail package. I should consider it a most helpful advertisement.

Mr. Dayton's can and hood scheme, page 182, is all right providing our stock of granulated honey is in shape to be readily accessible; but if we should wish to melt up honey in 60-lb. cans and save the cans, we should have to do it in some other way. It seems to me the amount of work that is required to dig out the granulated honey, and then have so many dishes to handle when filling the retail packages, would be quite an objectionable feature to Mr. D.'s *modus operandi*.

La Salle, N. Y.

BOTTOM STARTERS IN SECTIONS.

Is it Advisable to Do Without Them? the Proper Dimensions.

BY DR. C. C. MILLER.

A correspondent who has not made a success with bottom starters in sections asks to have some questions about them answered in GLEANINGS. Before doing so it may be well to say that bottom starters are not absolutely essential. Indeed, a section may have in it nothing more than a triangular starter of such small size that the cost for foundation will be only a tenth as much as where top and bottom starters entirely fill the section. But I am in company with many who think it a loss instead of a gain to attempt to economize on foundation in that way. If sections are not to be shipped any considerable distance, there is not the same need for bottom starters as when long shipment makes it important that the comb be securely fastened to the bottom-bar of the section.

Some say they can find no need for bottom starters If any one can have his sections filled out just as well in every way without them, it may not be advisable to use them. Still, it must be remembered that there is no additional cost for foundation if the section is to be filled any way. It costs no more to fill it with two pieces than with one. The only difference is the labor of putting in, and it would be a serious mistake to suppose that it takes twice as long to put two starters in a section as to put in a single starter. There is no additional picking up of the section or laying it down; the bottom starter is put in, and then the section is quickly turned over and the other starter put in before the section leaves the hand.

I'm not sure I understand how some can get as good work done without the bottom starters, unless it be by crowding the bees at least a little in the supers. This I think objectionable on two grounds. One is, that crowding tends toward swarming. The other is, that it tends to make the bees use honey to make burr-combs. On the whole I think I should lose money to do without bottom starters. And now let me answer specifically the letter of my correspondent.

More than twenty years ago, when I wrote "A Year among the Bees," I had had little experience with bottom starters; and as I was the originator of the idea I had only my

own experience to go by—at that time I wrote that a bottom starter should be not less than an inch in depth. Further experience showed me that so deep a starter would too often lop over, and now for years I have used nothing more than $\frac{5}{8}$ of an inch; so when you use such a very great depth of bottom starter as $1\frac{1}{4}$ inch, you may be very sure it will not maintain an upright position.

The size and shape of the upper starter has something to do in the case. Your top starter is a "triangle coming down half way." That leaves at least $\frac{5}{8}$ of an inch between the upper and lower starter—a space so large that the bees will not recognize that there is any particular relation between the two; or if the bees should attempt to build the two together there is abundance of time for the lower starter to topple over before the upper can be built down to it. But if the space between the two starters is not more than $\frac{1}{4}$ inch, the bees seem to understand that their first work is to cement the two together, and they are not slow about doing it.

Even with only $\frac{1}{4}$ inch between the two starters, if the upper starter is triangular the two can be built together only at a single point at first, and before the outer parts of the lower starter can be fastened to the upper they may be somewhat demoralized.

The weight of the foundation makes a difference. The thinner the foundation the less firmly it will stand up. I use "thin super," there being other reasons why "extra thin super" is not so satisfactory.

Understanding these requirements in the case you will probably have no trouble if you act in accordance therewith. Cut square starters of thin super foundation, of such size that the combined depth before they are fastened in the section shall be $\frac{1}{8}$ inch less than the inside depth of the section. If you fasten your starters with a hot-plate machine, it is likely to melt away a little of the starters, and the space between may be anywhere from $\frac{1}{8}$ to $\frac{1}{4}$ inch.

THE LID OPENED WITH THE TREADLE.

LOSSING'S COMB-CARRYING BOX.

BY WILLIAM LOSSING.

The accompanying engravings show my newest style of the detachable automatic cover, mounted on a Daisy wheelbarrow, as described in GLEANINGS for Oct. 1st, 1906. The device is used for quickly closing the lid over a comb-carrying box on a wheelbarrow, so as to prevent robbers from getting at the honey. The small box shown is a cage for catching and confining the robbers.

This is the third one I have made, and it quite fills the bill. A few days ago I extracted all

WM. LOSSING'S AUTOMATIC ARRANGEMENT FOR CLOSING THE COMB-CARRYING BOX ON A WHEELBARROW,

day with a strong wind, and it kept the bees down to a minimum.

Phœnix, Ariz., June 27.

[Mr. Lossing has a good thing; and the idea of having a robber-trap to catch stray robbers which, unless taken care of, would be the cause of a great deal of annoyance, is also excellent.—ED.]

CHAFF HIVES.

Colonies in Such Hives go Through the Severest Winters Without Loss.

BY THOS. H. CLARK.

In reading GLEANINGS, p. 93, I notice Mr. Stanley says the "chaff hive" has seen its day. I don't agree with him on this point. As I never used the Danzenbaker hive I know nothing of its merits for wintering or for producing honey.

The winter of 1903 was a very severe one for bees. My colonies were packed in chaff hives. They had brood in January, February, and March. My first swarm was on May 8. That winter two-thirds of the bees in this locality perished, all of which were wintered on summer stands. Not one colony in this section that I know of had any protection, either by packing or in cellar. They were also well supplied with stores; three or four of the outside combs were frozen solid. The cause was nothing more than continued extreme cold weather. The hives were of various makes, including the Danzenbaker hives. What few happened to pull through were late in getting built up, as the first swarms from them were the last of May and in June, while my last swarm issued May 23. I never lost a colony of bees wintered in a chaff or planer-shaving-packed hive. Mr. Stanley speaks of its requiring several days of warm weather to warm up a chaff hive sufficiently to have the bees fly. This is new to me. Is not a colony properly packed in a good chaff hive already warm? In my experience bees so packed need only a few hours of the first warm day when I find all of my bees flying in fine shape. I have never failed to find bees flying from my hives on the first fine day if warm enough, even if the day previous had been too cool. I do not wish to have it understood that I am condemning the Danzenbaker hive nor Mr. Stanley's explanations of the hive. For wintering it may be all right for most locations; but I would say to him that, if he were situated in my location, about two miles from the south shore of Lake Erie, to make much success in wintering bees without loss he would soon find he would need some protection for them other than the summer stand, wintering in hives of any shape.

Ashtabula, O.

A COLONY OF BEES THAT BUILT COMB AND LIVED IN THE OPEN AIR.

BY M. A. SALAZAR.

I inclose a picture of a colony of bees that was discovered on the 11th of June by my boy, six years old, about 130 feet from our back door. When we cut them down, on the 12th, they had a good bit of honey, eggs, and larvæ, and a few cells of sealed brood.

Falfurrias, Texas, June 17.

A COLONY OF BEES THAT BUILT COMB, AND LIVED IN THE OPEN AIR.

[It is not often that bees hanging on a bush or tree will build combs like this. However, if they remain over night and then depart for a more permanent home one may find little spurs of wax clinging to the limb or point of support. In rare instances it happens that a colony does not seem to have any location picked out in advance. During their state of uncertainty they will begin comb-building, and this almost immediately suggests the idea of permanency. The illustration herewith is a case of this kind. Such a colony out in the open is almost sure to die from exposure in our northern climates. —ED.]

DEEP SPACES UNDER BOTTOM-BARS.

Slotted Dummies to Contract this Space Without Reversing Bottom-boards.

BY DR. C. C. MILLER.

I think it is no presumption on my part to claim to be a pioneer, if not the pioneer, in the way of advocating a deep space under bottom-bars. So-called deep bottom-boards are now in common use, generally ⅞ inch deep, but I want nothing less than two inches for the part of the year when deep bottoms are needed.

During the time when bees are building and storing, it will not do to give the bees too much room below bottom-bars. To meet the want for a deep space part of the time and a shallow space at other times, I invented the reversible bottom-board. It may seem a trifle inconsistent for a man to go back on his own invention; but reversing bottom-boards twice each year makes a good deal of lifting, and I thought I could avoid that by having a plain bottom-board two inches deep, not reversible, but having the space partly filled during the time of year when not needed. So I put in a false bottom, 1½ inches deep, a little before the honey-flow, and took it out when the honey-flow was over. It was simply a shallow box made of thin stuff, turned upside down. It worked nicely, only if I left one end open, as I did at first, the bees sometimes filled it with honey.

It troubled me to think that I couldn't leave the bees the whole space during the

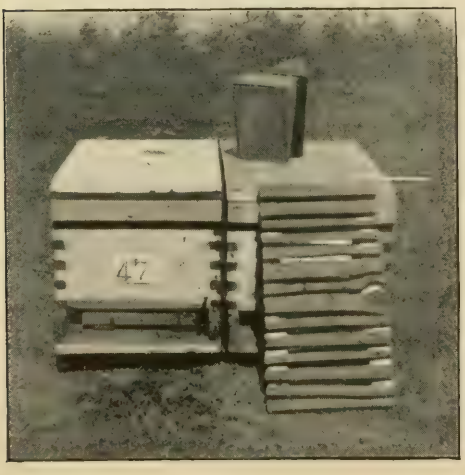


FIG. 1.—DR. MILLER'S BOTTOM-RACK TO BE INSERTED UNDER THE FRAMES TO PREVENT THE BEES FROM BUILDING COMB IN THE 2-INCH SPACE.

summer, making it cooler and pleasanter for them; but if I did so they would build down under the bottom-bars, and that wouldn't do. Finally it occurred to me that I could at least compromise the matter, and instead of the box I put in what may be called a bottom-rack, as shown in Fig. 1.

You will see it is very simple. Two pieces, each about 18 inches long, lie parallel, and upon these are nailed pieces 10 to 10½ inches

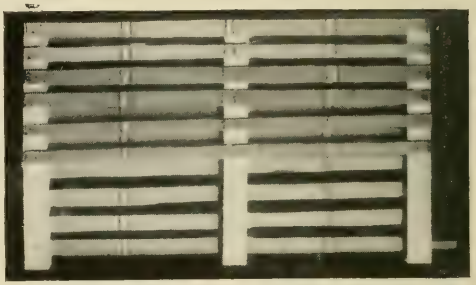


FIG. 2.—ANOTHER FORM OF THE BOTTOM-RACK.

long, with a space of about ½ inch between each two pieces, the whole being of such sized stuff as to leave a space of ½ inch between bottom-bars and rack. Any old stuff will answer, and you will see in the picture that there is no regularity about the width of the pieces. Just saw off boards in 10½-inch lengths, and then split up with an ax. For a year or more some of these bottom-racks have been in use with much satisfaction.

Not only is it easier to put in one of these racks, or to take it out, than to reverse the bottom-board, but I think it is better—better by the increased amount of air it allows under the bottom-bars.

I think this can be improved. The problem is to try to fill up that two-inch space with just as little of any thing but air as possible, and at the same time prevent the bees from building below the bottom-bars.

Illustration Fig. 2 approaches what I think is the ideal bottom-rack. There are three cross-pieces, each 10½×1×⅜; and wood separators about 16¾ inches long are split into pieces a little more than ½ inch wide and nailed on to the cross-pieces about ½ inch apart. The strips are nailed on below and above, break-joint fashion, as you will understand by looking at the picture. In order that the construction might be more clearly shown, the upper strips are left off in the upper part of the picture. Of course, the strips must be nailed on here to complete the rack. Underneath, at each side, is a rider upon which the bottom-rack is nailed, these riders projecting an inch or so at the front end of the hive, for convenience in drawing out the rack. At the upper left-hand corner you see one projecting end. Unfortunately the other doesn't show. Thickness of rider is ¾ inch, which makes, as you will see, ¾ in. between rack and floor, and ¾ between rack and bottom-bars.

This last bottom-rack has never been put into actual use; and although I *think* it will work all right, one never knows for certain till the opinion of the bees has been obtain-

ed. I don't know yet for a dead certainty whether bees will not build in so large a space as ¾ inch below the brood-nest; and if they do, then the thing must be changed. If it works all right you will easily see that it will interfere very little with free air under bottom-bars in hot weather.

In the fall, or any time after storing ceases, the bottom-rack is taken out, and during winter the entrance is left wide open; but in the spring, just as soon as the hive is set on its stand, the entrance is closed as seen in Fig. 3.

The board that closes the entrance is 12× 4×¼, fastened in place by two small nails partly driven in. At the right-hand lower corner of the board you will see a hole about an inch square—perhaps less. At the left-hand lower corner it looks like a hole, but there's no hole there—it's merely a shadow. I think that closing down to this small entrance before the bees begin to fly, after being taken from the cellar, has no little tendency to prevent "drifting" of the bees—that is, a number of the bees settling on some particular hive not their own. At any rate, years ago, when I had shallow entrances I wasn't troubled with "drifting." After adopting deep bottom-boards and allowing bees to take their first flight with entrances

FIG. 3—HOW THE ENTRANCES ARE CONTRACTED IN THE SPRING.

wide open I did have trouble that way, which trouble has ceased since using the small entrances shown in Fig. 3.

The entrance-boards are taken away when the smallness of the entrance seems to discommode the bees; and unless a colony is very strong, that does not happen so very long before time to put on supers.

BUILDING UP WEAK COLONIES BY GIVING THEM YOUNG BEES.

BY LOUIS F. WAHL.

This spring I had some very weak colonies, each consisting of a queen with only a small handful of bees and about two square inches of brood. We had cold rainy weather all through the month of May, and ice formed even as late as the 25th. To let the little colonies go for themselves meant certain death; and to build them up—that was the problem to me.

LOUIS F. WAHL.

I read of the Alexander and other methods; but this time I happened to think of something new which proved a great success. My first thought was to supply more bees; but I was afraid these strange bees would kill the queen, so I endeavored to give young bees only. I went to a strong colony, on a warm day, and shook the bees off from three or four combs into a hive-cover, shaking them slowly, being careful to see that the queen was left in the hive from which I took the combs.

By shaking slowly the old bees took wing and flew back to the old hive, while the younger ones remained in the hive-cover. I then carried the young bees, about a pint, over to the weak colonies, and let them in at the entrance. To-day, June 12, those little colonies that would have died have two frames of brood, and are prospering.

Chili Center, N. Y.

EUCALYPTUS.

BY C. F. ENGLAND.

On page 327 I notice an article by W. K. Morrison, stating that it is rather difficult to get literature on the subject of these trees. The New Zealand government published a most valuable book in 1905 entitled "Tree Culture in New Zealand," by Henry J. Matthews, chief forester. It can be obtained from the government printer, Wellington, N. Z. The price is 60 cents. The book contains 126 pages of print, and 64 plates from photos, and it fully describes the methods adopted in raising young trees, transplanting, etc. It states that the blue gum of Tasmania is now taking an insect blight in some parts of the colony; that it will not stand the severe frosts in certain parts of the South Island, and extensive planting of the blue gum has practically ceased in New Zealand.

Mr. H. J. Matthews gives the following in their order of hardiness as observed by him:

E. pauciflora ascends to 4000 feet in Tasmania

E. gunnii ascends to 5600 ft. in Australia.
E. coccifera ascends to 4000 feet in Tasmania.
E. Urnigera suffers little damage in Scotland, York, and Devon from frost.
E. Muellerii withstood 26° of frost in Otago, New Zealand.
E. Stuartiana, fastest growing of all hardy eucalypts.
E. Sieberiana, small plants have withstood 20° of frost.
E. amygdalina, small plant, and grows in Tasmania at 4000 feet elevation.
E. regnans has withstood 22° of frost in New Zealand.

I have no knowledge of the value of these trees for honey-bearing, but perhaps Mr. I. Hopkins, New Zealand Government Apiarist, Wellington, N. Z., could tell us.

My bees work on the blue gums around my house in latitude 40°, and I believe the honey they gather is very nice.

Tawanui, N. Z., April 12.

A YELLOW SPIDER CAUGHT IN THE ACT OF KILLING A BEE.

THE YELLOW SPIDER.

A Formidable Enemy of the Bee.

BY CHARLES HECHT.

The engraving shows what sometimes happens to bees on dandelions. The spiders are of the same color as the dandelion, and they catch the bees by the neck and suck all the honey from them. I don't think they eat the bees. Afterward the bees are found to have lost their stings.

Rockford, Wash.

REMOVING BEES FROM BUILDINGS.

A Few Cases Treated by an Illinois Bee-Doctor.

BY M. L. BREWER.

Ours is a prairie country, hence hollow trees are not convenient at all times for absconding swarms; so any opening around the dwellinghouses prove attractive to them; and when they become troublesome, Brewer the bee-doctor is sent for. Armed with his outfit, consisting of smoker, veil, gloves, saws, chisel, and hammer, he seldom fails to give relief as well as a stock of genuine sweet. A few cases treated might interest some workers in that line.

Three years ago this summer I was called to a home where the bees had taken possession of an unused chimney. The house being two stories high, with a steep roof, it was with some difficulty that I built staging up so I could reach the peak of the roof; and when at the point I found that the mason, in building, had failed to fill the joints properly with mortar, which furnished an entrance to their brick abode. After removing the board covering I found about ten pounds of pure white honey. During the past fall, carpenters were sent to the same house to repair the portico, but returned, saying that when Brewer had done his work first they would return.

We found the swarm between the plaster and upper floor, and well stocked. So after removing the weather-boarding I began removing the combs, the space they occupied being 8×16 inches, with 16 feet to work in. As the combs got further away I got a trimming-knife, the handle and blade being about three feet long, slid a piece of the weather-boarding alongside the combs to let them drop on as they were cut loose, till I could draw them out. About 25 lbs. of honey was taken. The last combs took the full reach of the knife and arm to cut them loose.

Here is another case. A wagon at the side of the house, with a ladder 16 feet long set in the box, furnished a way to reach the eaves of the roof, where I removed three rows of shingles, then with hammer and chisel I cut away enough of the sheeting-board to get to the opening in the old-fashioned box cornice, where I found about 50 lbs. of as fine honey as it was ever my privilege to take in chunk form. That was two years ago this summer, and last year another swarm took up quarters in the same place. In a humble little home with outside boards perpendicular, in a four-inch space

between walls, I got 15 lbs. for good old auntie to enjoy.

The past summer I was called to a brick house where a colony had been for a number of years. The joists between the floors extended to support a porch. Mortar had loosened around the sides of them, and allowed an entrance. Either a castoff of their own or some other took up quarters under the same porch (which happened to be the one principally used by the family); then the trouble began. There was no way to make an entry but through a brick wall or tear up hard-wood floor. I saw no way but to close all entries and leave them to their fate. I am sorry to say that, in all these cases, it meant the destruction of the bees, as the season of the year or conditions were such that it was next to impossible to save them. As to charges for my work, I count time from leaving home till I return at 30 cts. an hour, parties to furnish conveyance unless it is where I can use my wheel conveniently.

Philo, Ill.

[You do not say any thing about the use of a bee-escape over the entrance into the cavity in the building so as to trap the bees out, and into a hive with its entrance close by. If this hive contains a frame of brood, bees, and a queen, the bees that can not get back into their old quarters will unite with the bees in the hive. In the course of three or four weeks nearly all of the bees will be out of the building, at the end of which time the bee-escape is removed, when the honey will be robbed out and placed in the hive. This may then be removed. There is thus no mutilation of the building.—ED.]

A TURNTABLE FOR PASSING FRAMES IN AND OUT OF A HONEY-HOUSE.

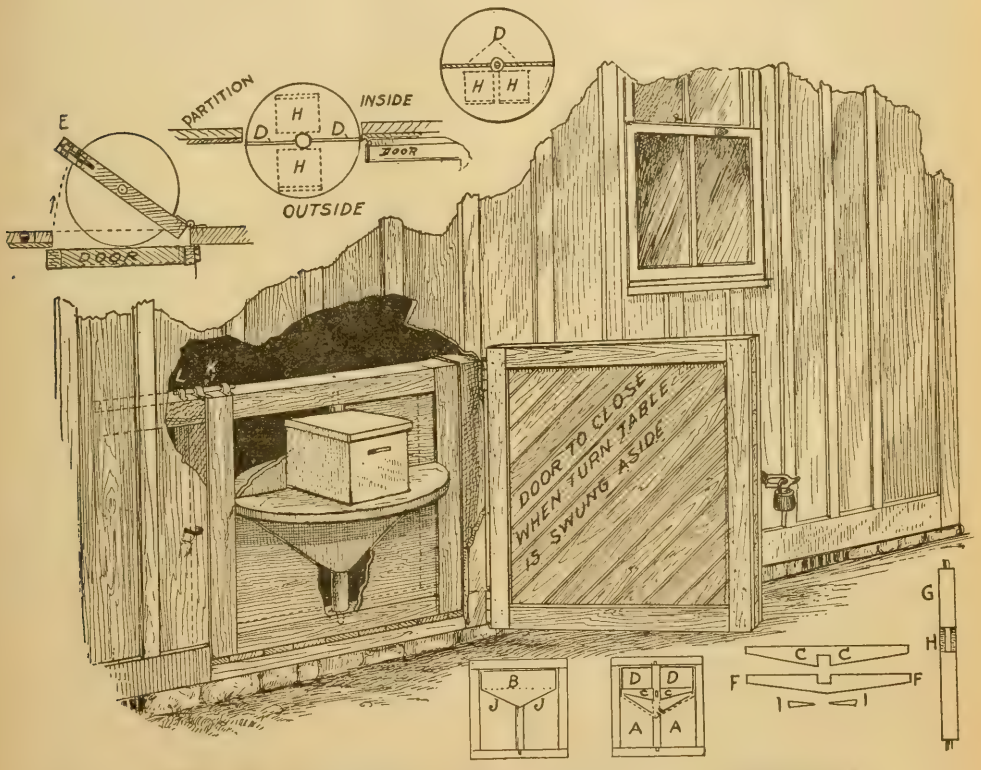
BY E. P. ST. JOHN.

I inclose a sketch of a device for putting supers in my honey-house.

The man in the apiary can wheel his supers up to the building and set them on the turntable, and, after giving it half a turn, the supers will be inside. When the operator inside has his frames extracted and replaced (he might give a tap on a bell), the man outside wheels up another load, setting them on as before; give another half-turn, honey is inside, empty supers outside.

Alpine, Cal. E. P. ST. JOHN.

[While this plan would undoubtedly be successful, yet it would seem like a pretty



TURNTABLE FOR PASSING SUPERS IN AND OUT OF A HONEY-HOUSE.

A, A, board to close space below table; B, board to close space above table; C, F, turntable arms and wedges; G, shaft; J, brace below table; E, turntable with its hinged frame pushed in to enable outer door to close.

expensive arrangement for an apiary unless it were one conducted on a very large scale. For extracting-yards of any ordinary size the sliding-door plan described on page 1574 of the Dec. 15th issue for 1906 would be more practical. It may not be true in this case; but sometimes a labor-saving device costs more than the labor which it saves.—Ed.]

THE PLURAL-QUEEN SYSTEM.

Some Doubts Expressed as to the Benefits to be Derived from Such a Plan.

BY ABRAM TITOFF.

Gleanings has devoted a great deal of space to the discussion of the practice of what might be called "the two-queen system" This magazine, with its world-wide circulation, succeeded in interesting even foreigners in this question. In proof of this I can point out that I received some inquiries from Russian bee-keepers. They ask me how we can do such a thing as to keep two queens in one colony, and also what benefit can be obtained from it.

So far as I can see, all the literature on the above-mentioned subject gives us nothing but the report of the possibility of having, for some time, two queens in the same colony; but no one as yet tells us in detail whether it is really possible to put it into general practice and obtain good results from it.

I am, personally, very much interested in this question, and should be greatly pleased if any one would tell me the full details of practicing the two-queen system, and also about the profit that could be derived from it.

While waiting for such information I wish to express a view of my own on the subject. I confess that I do not believe that much benefit can be obtained from the practice of the two-queen system, or, perhaps, it will be more correct to say that I do not believe that the two-queen system could be put into general practice with satisfactory results under ordinary conditions. Speaking so, I base my doubts on the fact that it would not be possible to keep two queens in the same colony for the greater part of a year. They could be kept there for a limited time only, for a few weeks during the heavy honey-flow; but I do not think it will be practical to keep two queens at that time. We do not need them then. There are many bee-keepers who, during the heavy honey-flow, allow even a single queen the freedom of only two or three frames, in order to obtain more honey.

I am trying to get along with my bees according to the laws of nature, and I do not believe either in the limiting of the action of a single queen or in having another one at the time of a heavy honey-flow, for I know that the bees which will hatch 20 days later, or those which will be able to fly into the field after the honey-harvest is over, do not amount to very much. It is true we need young bees for winter; but one queen, if she is good, is quite able to produce a sufficient amount of these.

Some will say that we need two queens in the spring to build up colonies to get ready for the harvest. I also deny such assertion as impractical. The colony in the spring does not need two queens. It needs the warmth and the food more than any thing else. If a colony lacks these two things you can not help it, even by introducing half a dozen queens.

No matter how strong a colony you prepare for winter, it naturally comes out somewhat weaker in the spring, and it is often observed that there are not enough bees to attend and warm the eggs and larvæ that are produced by one queen. The colony is not in want of eggs, but the attendants for them. We are aware of the fact that a queen is able to lay, say, 3000 eggs in a day, on an average; but in the spring they lay much less than that because there are not enough bees in the colony to clean the cells, to nurse the brood, and to go to the field. Put the colony in the most favorable conditions in this respect and you will see that a good queen will be able to supply a colony with the needed amount of eggs. Remember that it was the good queens which forced one of the most practical bee-keepers of this country, Mr. Charles Dadant, to enlarge the frame and to adopt a larger hive, and it was done for the purpose of giving room enough for the action of a good queen. From my own experience I also know that a good queen is able to produce bees enough to gather 480 lbs. of honey in one season (in California), and therefore I think the only thing we need to do in order to get a strong colony is to have one good well-developed queen of good strain, instead of bothering ourselves about assistant queens, especially as, after all, the benefits of the practice are at present very doubtful.

I will not speak at length about the difficulties of introducing another queen into the colony, and the difficulties of saving reserved queens during the winter; but in conclusion I wish to point out one more thing: When we intend to help the bees by our own labor we must do it according to the laws of nature, and we ought not to interfere with their life as far as this interference will break these laws, and the two-queen system does break them. We know that such a thing as the presence of two queens in one colony, when the latter is under ordinary conditions, does not exist. When a colony prepares to swarm, the old queen goes out from the old hive long before the young one is hatched; and if a colony is not inclined to issue the second swarm, the first young queen, immediately after hatching, destroys all the other queen-cells that are in the hive, and remains alone to govern it. If a colony did need two queens it would seem that it needs them after swarming more than at any other time to develop the strength of the colony and to maintain the former dignity of the commune. Yet in nature we never meet with such a state of

*This article, as will be seen, was written before the article by E. W. Alexander was published in our issue for Sept. 1, page 1136.—Ed.

affairs; therefore, we may conclude that the second queen would be of no advantage whatever.

Ioamosa, Cal., Aug. 2.

BEE-KEEPING IN THE WEST INDIES.

How it Differs from American Methods; Brood-rearing in Winter; Negro Labor.

BY A. BUTSCHE.

Although an article from the West Indies is not very likely to interest the readers of GLEANINGS particularly, there are certain items which, thanks to our continued warm weather and long honey-flow, we can more easily test than can be done in colder climates.

We notice, for instance, that there are quite different opinions prevailing concerning the use of queen-excluders. Some, like Mr. Greiner, claim that excluders considerably interfere with the crop of honey; others find them useless, as their queens never lay in the supers. The only reason I can assign for the fact that some bee-keepers have no trouble with brood in the supers is that their colonies, on account of winter losses and short honey-seasons, are never really strong. Our colonies slacken brood-rearing in December and January. The result is that, during the logwood flow in February, they are not strong enough to rear brood in the supers, although they will draw combs and store honey in two or three full-depth supers at one time. But when we come to June and July, talk about queens not going into the supers! Have I not met them crawling over the top-bars of a fifth full-depth super with eggs and brood all the way down to the bottom-board? A man here, after using excluders for one season, would no more dream of keeping bees without them than of keeping bees in box hives. Talk about Mr. Green having from one to twelve queens trespassing in the supers! I'll bet my life that, if I were to remove all my excluders, in less than three weeks there would not be a single broodless super in any of my apiaries.

Another item that interested me very much was the numerous hive-lifting devices brought out of late. I can see no earthly advantage in them in a country like this, where you can get a dozen iron-headed Congo niggers to carry you a house 15×20, three miles away, on their heads, for 10 shillings 6 pence. And then, what about the danger of one of those hive-lifting devices toppling over with five heavy full-depth supers hanging at the end of it? A man would be a fool if he ventured to set one of those engines agoing before making his testament. I think hive-lifters would just make matters worse. There are so many things already a poor fellow has got to hold with only two hands that I do not see how I could operate a hive-lifter unless it could be done with the teeth. If God in his wisdom had wished the generality of men to be bee-keepers, I should not be surprised if he had given us a third hand. He might even have judiciously added another pair of legs, especially if he had meant us to keep hybrids

Bee fever is a comparatively new malady here. The place was first infected when Mr. Morrison passed here lecturing on bees. I happened to be in New York at the time; but on my return, some months later, I unconsciously caught the disease by passing one day round the corner of the building in which Mr. Morrison had been lecturing.

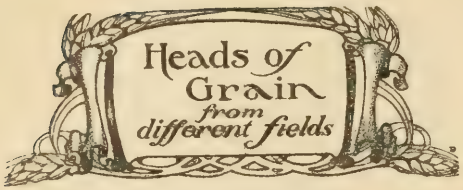
Mr. Alexander's articles leave one simply dumbfounded. Several queens in one colony at the same time! I think it was a pretty well established custom in hive politics that, when one queen came to the throne, she invariably killed her sisters, and even mother, to reign undisturbed, exactly as a sultan of Turkey would strangle all his brothers at his advent in order to cut short all plotting to dethrone him. We all have been accustomed to look upon a hive as a perfect specimen of the most absolute monarchy. If Mr. Alexander goes on like that I should not be surprised if, one of these good days, all of us poor bee-keepers should wake up millionaires. He seems to be wielding the magic wand, for at each stroke there is something more extraordinary turning up.

How strange there should be at the present time so many bee-keepers with endless associations and publications, especially in France and Germany, where, 20 years ago, one might have roamed about the country for months without ever stumbling over a hive! In all my wanderings I have met a hive but once before keeping bees myself. It was in Brittany (France), during the dreary years of my *ologies*, as Mr. Crane puts it. I think there were three or four straw hives near a big patch of buckwheat. How it did us fellows good, after pondering for months over the tedious works of Francis Bacon, Thomas Aquinas, and others, to get a lesson of more practical and more wholesome philosophy from a hive! I guess some of us preferred the merry hum of the bees to the clumsy mediæval Latin, which was the only language we were allowed to speak then.

The great trouble in bee-keeping here is the insatiable stealing propensity of the nigger. He will take any thing and every thing loose about an apiary, such as covers, bottom-boards, stands, etc. There is nothing the West Indian nigger won't take, from an old horse-brush to an old bottle of medicine. The hive alone he lets stand—on its own merits, I suppose. Bee-stings are evidently not much to his taste. It is even trouble to get help at extracting time, especially when one keeps hybrids as I do. The screaming and wailing that fills the air round an apiary on extracting days is enough to remind one of a Russo-Japanese battlefield.

Our average yield here is about 120 lbs. per colony. Our honey sells from 20 to 28 shillings per 112 lbs. This would correspond to about 5 to 7 cents per lb. in American money.

Castries, St. Lucia, West Indies, May 10.



THE VALUE OF A PROTECTED LOCATION; PROVIDING FOOD AND WATER FOR BEES IN THE CELLAR.

Regarding this important matter of wintering bees, Mr. Alexander says, on page 28, that, when father Quinby used to meet with them, the question of using well-packed hives in cold cellars was discussed. Well, this reminds me of what I did. In three of my yards I placed large clamps, holding eight hives, in the cellars, packed around the sides and on top, the same as those left outside. The results were rather disappointing. They were all large, airy, light cellars; but I hung cloths in front of the flight-holes, facing the light.

In the cellar at the Noble yard, five out of eight died on the average, as also those outside. In the Mitchell yard, four out of eight died, both inside and out; but in the Glemy yard none died, either inside or out. This cellar was damper than the other two, and had an open wooden cistern in one end. Furthermore, in this yard the bees were under a rise of ground to the northwest, and the house sheltered them in that direction also. In this yard the bees had been rapidly increasing, while those of the two other yards had been dwindling. The colonies in these two yards first mentioned were much exposed, the clamps being either completely buried with snow, and strong colonies overheated, or else all the snow was blown away and biting winds whistled round the bleak hives from day to day.

The first year I kept bees I found water recommended by Langstroth, so I placed shallow pans of both honey and water on top of some hives in the cellar, and the bees would come up and eat the honey, but leave the water entirely alone. If Mr. Alexander had only happened to read this, and try it, likely he would have been amazed at the avidity with which the bees would have devoured it. R. F. Whiteside.

Little Britain, Ont., Can., Jan. 12, 1907.

TERRIBLE EFFECT OF MOTHS ON FINISHED COMB HONEY.

I had a good many sections of the handsomest honey I harvested utterly ruined, soon after taking from the hives, by moth-worms. I've had some trouble of this kind for eight years, since living here, but never any thing like this. When I found out it was so serious I stood my sections an inch apart on shelves in a warm room. While this stopped the matting of sections together with webs, it made no other difference. The worms were persistent, and the sections dusted over with fine stuff like yellow flour or sawdust. Before all this, and at once upon taking from the hives, I packed this honey in honey-crates, and immediately wrapped the whole case tight in newspaper and tied each one securely. Imagine my disappointment, when I untied this for sale, to find it devastated by the moth-worms! I can find little that is very definite in the A B C book, nor a picture of any convenient device for brimstoning the sections, if, as it is intimated, some believe the worms may be exterminated by that means.

I think most apiarists presume that the eggs of these worms are laid by moth-millers flying after the honey is brought into the honey-room or a honey-house. But no miller could get into my cases after such secure wrapping. This looks as if the eggs were on the combs before the sections were removed from the colonies. If you have a cut of some contrivance for effectually disinfecting crates of completed sections, can you not show it in Gleanings for the sake of those who have this special plague to deal with?

T. Chalmers Potter.

Glasgow, Del., Jan. 10.

[The honey should have been fumigated after taking it off the hive, as directed in the A B C book, either with bisulphide of carbon or sulphur, as directed in said book. No special apparatus is needed except a little room, tight box, or a set of supers containing the sections piled one on top of the other. If the bisulphide is used, a dish of the liquid should be set on top in an empty super, with the cover on, and the evaporating fumes allowed to settle down through the sections. This should have been done in the first place. This is where you made your mistake.—Ed.]

A RECORD IN TAKING OFF HONEY; SPACED FRAMES ALL RIGHT FOR A TEXAS EXTRACTING-YARD.

We harvested a good crop this year, and I made a record in taking off extracted honey. I should like to see this surpassed by some of the plain-frame men. In ten hours two boys and myself took off extracted honey, put all the combs back, and cased 350 gallons of honey. I took off every comb and wheeled them to the tent in a wheelbarrow, four ten-frame bodies at a time. That talk about its being so hard to get self-spaced combs out of hives is all nonsense. The day before we made this record we took our outfit 14 miles, and put the tent and every thing in working order, and extracted 300 gallons. But we had to get up at 2 A.M.; but that shows what can be done if one gets in a rush. A. H. Knolle.

Hondo, Texas, July 24.

TWO LAYING QUEENS IN ONE HIVE.

To get strong colonies for the first of March I have kept two queens in a hive, using an excluder between the supers of the smaller hives, or a division-board excluder in the

middle of the large twelve-frame colonies. In each case I get a much stronger colony than the ones with the single queen, brood-frames to be packed in every cell; but, unfortunately, in this locality, the method does *not* completely control swarming. I am anxious to hear Mr. Alexander's account of keeping two or more laying queens at large in one hive; and if he is successful at all times of the season, without cutting their stings, he has succeeded in an experiment where I utterly failed.

Sierra Madre, Cal. HAROLD DAVENES.

DO BEES "STING" UNRIPE PEACHES SO AS TO MAKE THEM ROT, ETC.?

Mr. Root:—I write to call your attention to a question asked of the editor of the *Country Gentleman*, in its issue of Sept. 19. This question is asked by Amateur, how to protect his peaches "from bees and other pernicious insects." Amateur, of course, can be excused for his ignorance in regard to honey-bees; but a paper so old and popular, and edited by such highly efficient and widely known authority on agriculture, should certainly be called to time for their weak and ignorant answer to their subscriber. T. J. CROSS.

Campbell Hill, Ill.

[Below we give the entire query and reply taken from the *Country Gentleman:*]

How can I protect my peaches, which I am fast losing, from bees and such-like pernicious insects? The peaches are stung while unripe, and directly begin to rot. AMATEUR. *Detroit, Mich.* [Perhaps the best way to preserve peaches will be found in picking them before they are ripe enough to be molested They will ripen, even if picked rather green. Otherwise the only sure preventive would be found in covering the trees with netting. The expense of this method would render it unadvisable except with very choice fruit. A mixture of honey and sugar or glucose might be tried to see if the bees and wasps would take it instead of attacking the fruit. Is the writer positive that the bees attack sound fruit? It is possible that the birds break the skin, and that the insects then feed on the sweets exuding from the wounds. We should be glad to hear the results of observations to determine this point from any one troubled in this manner.—ED.]

[My good friend, are you not a little severe on the *Country Gentleman?* The main blunder is in failing to assure Amateur and others that he is entirely mistaken in thinking that bees sting peaches while green, or ripe either, for that matter. I judge from some experience of my own, that, in their answer, they failed by omission to touch on this point. Amateur's mistake is right along in line with that of many other people who know nothing about bees. They seem to think that bees have no mission in this world but to sting and destroy, whereas the sting is never used except to protect themselves and their stores from enemies. The *Country Gentleman* should remember the famous Utter lawsuit about bees and peaches that occurred in their locality. This man Utter would have it that the bees not only made the peaches rot, but killed the trees outright by the poison of their sting. I can not think that it is ever necessary to use netting, as suggested, to keep away the bees. If all the overripe and rotting peaches are taken from the trees, as they should be, there will be nothing in the peach-orchard to attract the bees, and that is the proper way to handle the fruit crop, even if no bees or other insects were anywhere about.

Our stenographer suggests that the man who writes to the *Country Gentleman* had somehow got it into his head that bees sting fruit something in the way the curculio "stings" plums, cherries, and even apples. Now this latter insect does the stinging in order to deposit the egg that produces the worm in the fruit. The writer fails to recognize the fact that *bees* do not lay eggs in unripe fruit, and that they are an insect of an entirely different order, etc.—A. I. R.]

BOX-ELDER AS A HONEY-PLANT.

The box-elder has given the bees a treat in its time. It is earlier than other maples. One near the door was fairly alive with bees merrily humming. NELLIE M. REEK.

Neenah, Wis.

IN THE A. I. ROOT CO.'S APIARY.

BY JOHN THURMAN GRAVES.

I love to while an hour away
Among the vines and trees,
Where healthful breezes freely play,
And watch the honey-bees.

They seem too busy with their work
To even think of fun,
And they can start an idle shirk
Into a lively run.

All day the little fellows toil,
Regardless of the hours,
And ask no owners of the soil
About the fragrant flowers.

O'er boundary lines they boldly pass—
No ownership they know;
All blossoms are in one free class,
To which they quickly go.

No deed nor mortgage they require,
No contract, weak or strong,
But, straight away, each busy flyer
Goes, humming a sweet song.

They know no difference in the taste
Of flowers that gently wave
On well-kept lawns or weedy waste
Or decorated grave.

We see them in the shady woods,
We meet them in each field,
And in the stores, where sugared goods
An easy harvest yield.

They gather up the wealth of one
Hard-working human brother,
And, e'er you know what they have done,
They've given it to another.

They seem to hum a warning call,
And do such curious things
That I admire them, love them all—
Well, all—except their stings.

But we shall have to let those pass,
As we do "tainted money,"
And wish that people, as a class,
Were like pure clover honey.

All well ones, then, would work and live
Without a fear or sorrow,
And save to-day, and freely give
To needy ones to-morrow.

Medina, O., May 1.

OUR HOMES

by A. I. ROOT

All things work together for good to them that love God.—Rom. 8:28.

In meeting the readers of Gleanings as I travel about the country I frequently find people who say, "Mr. Root, your little prayer, 'Lord, help,' has been my prayer for many years past," etc. Well, I told you some little time ago that I had at times changed that prayer, especially when I felt discouraged, to "Lord, help me up and let me stand." You remember the hymn that I learned at that Bingham Sunday-school. Well, just recently an unusual number of cares and perplexities have assailed me, and so many distressing events—that is, from our point of view—that I have gotten hold of another prayer. It is this: "Lord, help us to learn the lesson thou art striving to teach us" This comes in line with our text at the head of this talk, and with many other of God's most gracious promises. I have been referring to this idea several times of late, particularly when I mentioned our difficulties in finding hired girls, especially those who love babies and like to work in a home where there are babies and small children. I told you this difficulty with all other seeming difficulties was simply God's effort to teach us lessons we ought to learn, and that we need not be discouraged or disheartened, nor feel like giving up if we will just keep it in mind, or, better still, keep it right before our eyes, that these perplexities are simply reminders that we are at least in some way in the wrong, and that God is troubling us, even as he troubled the children of Israel in order that they might stop and consider the error of their ways and turn about and get into the straight and narrow path where God would have them (or *us*, if you choose) tread. Now let me tell you how my little prayer worked during one short week.

Mrs. Root and I had been talking all summer about a trip to the cabin in the woods; but we both were needed so much here at home that it was put off till peaches began to get ripe. We have a little peach-orchard in our northern home; and they have great crops of apples, peaches, and other kinds of fruit in the region around Grand Traverse Bay, Mich. We were waiting the time when they should be ripe, and finally received from a neighbor the following:

Mr. Root:—Your yellow peaches will be ripe next week. Can you and Mrs. Root come out? or what shall I do with them? Shall I can some for you?

Mrs. Anna Heimforth.

Bingham, Mich., Sept. 7.

Accordingly our plans were made, our grip-cases were packed, and we were within two hours of train time when Helen Maude's mother had a sudden attack which the doctor said might result in pneumonia, and he advised us to postpone our trip for at least 24 hours; but as my arrangements were all made, and I knew those peaches had to be cared for, I decided to go on without Mrs. Root. After the doctor made his statement Mrs. Root said, "Well, what shall we do *now*?" I decided it would be best for Mrs. Root to remain with the week-old baby and the sick mother.

At Toledo I found that I could get a fifteen-day excursion ticket to Traverse City and return for only $7.65. Before taking the ticket, however, I told the agent I must visit Manistee as well as Traverse City; that I was well aware that that low-priced ticket would take me to either of the above places and return; but could it be so arranged that this one ticket would enable me to visit *both* places and return? After examining the folders and rules and regulations he said I could get off at Baldwin Junction, and go over to Manistee and come back to Baldwin, providing I was gone only one day. He thought that possibly I might be away for two days. He said I could get over there one day, *sure*, if that would answer my purpose. I replied, "I think I can make one day do very well, and will, therefore, take a ticket providing the railway company will permit this and no mistake." He said there could be no possible mistake if I stopped off at Baldwin, because that was the junction where I would have to change cars any way, so I took the cheap ticket. When I arrived at Traverse City I showed my ticket to the agent there, and told him under what condition I had purchased it. To my surprise he said I could do no such thing. He replied, "I do not care what the ticket agent at Toledo or anybody else told you. The ticket in your hand reads plainly, 'no stop over,' etc."

All the difference it made to me was that I should be about five dollars out of pocket, besides the loss of a day's time. It compelled me to purchase a ticket from Traverse City to Manistee, and back again to Traverse City; but as there seemed to be nothing more to be said in the matter I let it drop, but made up my mind that the contradictory declarations of those two agents should be reported to headquarters. Let me digress a little right here, friends.

It is right and proper to complain of the railway companies or anybody else when they do not stick to an agreement; but at the same time it is not only unchristianlike but certainly it is unwise to be making a fuss continually about a few cents, or it may be even a few dollars. Our constant aim in these busy lives of ours should be to do right before God and before our fellow-men. We should strive to take such a course as will be most likely to win all mankind to Christ Jesus.

I went out and purchased supplies to sustain me in my lonely cabin home without Mrs. Root's presence and company. As I had but little idea how many peaches there would be, I purchased a few such crates as the express company advised, in order to

have the fruit sent by express to Medina. At that time peaches were selling at $5.00 a bushel here at home, and not very good ones at that, while in Traverse City they were only $1.50 to $2 00.

It was raining when I left Medina, and it was still raining 24 hours later when I reached the cabin. Weeds and tall grass were all over the premises around the cabin door, etc.; and I felt lonely and homesick, especially as Mrs. Root was not along to give orders about tiding up and making the place look homelike. When my eye caught sight of the peach-trees, however, bending under their loads of blood-red peaches I said, "But won't I have fun now in gathering this fruit and putting it in those neat little six-basket packages to be expressed back home to the children and grandchildren!"

Even though it was raining I pushed out through the wet grass, selected a peach that looked just right, and took a bite of it. To my great surprise, however, the beauty was all on the outside. While it was as yellow as gold under the blood-red skin, it was insipid and tasteless. That branch, however, was partly broken under the weight of fruit, and I decided that that fact accounted for its lack of flavor. But to my great disappointment I found they were all alike. There were seven trees bending with this beautiful fruit, but not a peach that was worth shipping home. I felt more homesick and discouraged than ever. My little prayer came quickly to my aid—"Lord, help me to learn the lesson thou art striving to teach me." No blame at all could attach to Mrs. Heimforth; for, when she wrote me, the peaches were nicely colored up but had not begun to get soft. She said *she* was greatly disappointed when they came to taste the first ones that ripened. As nearly as I can make out from my record these seven trees were of the variety named "Switzerland," and most of the fruit began rotting as soon as it was soft enough to eat. A good deal of the fruit began to rot, even before it was really ripe. I think it was this rot that spoiled the flavor. Another thing, they had been having a long drizzling rain for many days, with little or no sunshine. This contributed, no doubt, to the development of rot. But the principal fault, probably, was the variety, for the few trees of other varieties that first began to ripen were as sweet and well-flavored as any peaches I ever tasted.

It was still raining that Wednesday night as I sat by the fire in my lonely cabin. It was prayer-meeting night at the little church over among the hills, and I had looked forward to meeting the dear friends there; but Orville Heimforth, who stopped in, felt so sure there would be no meeting on account of the severe rain that I did not go over to the church. In fact, I felt too tired to go anywhere. But if there *was* a meeting that night I shall feel guilty to think I did not make a harder effort to get there.

After figuring out that it would be some time before any more peaches would be ripe, and as there were particular reasons why I ought to be at home before Sunday, I decided next morning on a hurried trip back home. In order to catch the morning train for Manistee I was up before daylight, and worked hard on the place until an hour before train time. Then I carried my heavy suit-case something over a mile through the woods, down into the valleys, and over the hills toward the depot. All at once I pushed my hand in my side coat pocket where I always carry my ticket. I stopped in the middle of the road in dismay. My ticket was not there! It was not in any of my pockets. I opened my suit-case, unfolded my overcoat, felt in all the pockets, but no ticket. While I was busy I had hardly noticed a big stalwart man who came across the fields. He leaned on the fence, with a comical look on his face, and said:

"Mr. Root, it appears to me I read in some magazine a while ago about a man who told how many pockets he had. He said he had a pocket for each particular thing; that he had one particular pocket where he always put his railroad ticket when traveling. He never put any thing else in that pocket, and he never put his ticket in any other pocket. The result was he was never obliged to stand confused before the conductor while he felt first in one pocket and then in another and then not find it."

"My good friend, what paper was it in which you read that account?"

"Well, I do not remember now what magazine it was. It was pretty well gotten up, and I did not know but you might have noticed it, and *may be* you are the fellow himself."

Time was passing, and the train would soon be coming. I felt too much vexed to be civil to the man who so kindly put a big joke on my poor self. I had, however, good sense enough to stop then in the middle of the road and say mentally, "Lord, help me to learn the lesson thou art striving to teach me."

The minute that prayer was breathed, the answer came. I went over and shook hands with Mr. Miller, who had brought the answer, and thanked him for having given me a just rebuke. I said, "My good friend, you have solved the problem for me. When I was doing the rough work around the cabin this morning I put on another coat. While at work something came up, and I wanted to see my ticket. I went over to the window where my best coat hung on a nail and took the ticket out of the ticket-pocket. Before I put it back in its place I crossed the room to my secretary and then stupidly shoved it into the ticket-pocket in my old coat. Just before I started for the train I took off my old coat and put on my best one. So you see I *did* put my ticket in the proper pocket just as I said in that article about pockets. And now if you will excuse me I will see if I can not get back over to the cabin and still not miss my train."

Notwithstanding my prayer that should have quieted my excitement and disappointment at my blunder, I was stirred up. I got

back to the cabin in twenty minutes; but I hurried so that I was sweating profusely. On the back track I had to face a strong northwest wind from off Lake Michigan. I was pretty sure I should catch cold, and would have given a dollar for my overcoat that was over there in my suit-case. I still thought I might catch the train, and may be I could prevent catching cold by walking fast. It did not work. I did take cold, and it lasted me more or less for two weeks. I suppose friend Terry would say that, if I had been sticking to the uncooked food, even such an exposure would not have harmed me. I hope he is right, but I do not feel sure. When I heard the train whistle when I was yet a long distance away I gave up and took things easy. I said once more, "Lord, help me to learn the lesson," etc. I was tired enough, and ready to pay somebody well to give me a ride. A man came down along the hill behind me. His wagon was loaded with fruit. A basket full of plums was on the seat beside him. I told him I would pay him well if he could make arrangements to take me to Traverse City. Although it made him some trouble he set the plums on top of his load and gave me a seat. I was tempted again, as I often am, to keep still once in my life and not talk. But I could not help admiring his beautiful fruit and asking some questions. He said he had never practiced spraying at all. His remedy was to pick up every apple, peach, or plum as soon as it dropped, and feed it to the pigs or destroy it so no insect would hatch out. He said he thought it was almost as good as spraying, and for him it was less trouble; and his beautiful fruit was in evidence as to the wisdom of his plan. He asked me if I was buying fruit, etc. I finally told him who I was. His face brightened up immediately. He said he heard me talk two or three years ago at a Sunday-school convention. My subject was "Path-making." He said he would always remember it.

Said I, "My good friend, do you go to Sunday-school as well as to Sunday-school conventions?"

He said he did, regularly.

"And you go to church also, and I presume you are a member of that church in that beautiful Keswick meeting-house." (Keswick is four miles north of Bingham, and the same minister preaches in both places.) I shall long remember the way his face lighted up as he replied. He really seemed glad to find somebody who was interested in the *welfare of his soul* as well as in the success of his plan of growing fruit. He said that, while he was not a member of the Keswick church, there was no reason that he knew of *why* he should not be.

Now, dear friends, do you not see how God was leading me by disappointment and perplexities, if I would but put my whole trust in him and stand before him a ready pupil? I could not help thinking of Philip and the man riding in a chariot. See latter part of 8th chapter of Acts.

When I knelt with my wife I asked God to show us the lesson he was striving to teach us, the answer seemed to come at once that I was to go alone. Mrs. Root was greatly needed to look after Blue Eyes, first and second edition. But she was *not* particularly needed in Michigan, for the peaches that were ripening were not good. When I asked again for guidance the answer came promptly that God needed me elsewhere. When I stupidly lost my ticket, and was vexed by my blunder, he wanted me to ride with this young friend with his load of fruit, and give him counsel and encouragement (that, may be, the pastor of that church or the deacons had failed to give), I was cross about it. When that particular pastor sees this journal it may remind him.

Well, that is not all. I laid my plans that morning so as not to return to Traverse City before going to Manistee. As it was, I got into Traverse City unexpectedly. When I came to the ticket-office the agent recognized me and said, "Oh! I have investigated in regard to getting off at Baldwin Junction and going over to Manistee. While your ticket demands that you take the first train from any junction without any stop-over, you can, while you are at the junction, choose your route home. If you decide you want to go back by way of Saginaw to Toledo you will have to wait for the evening train, and this will give you time to go over to Manistee and stay from noon till night and still catch the Saginaw train. This is what our agent in Toledo had in mind; but he was in error in telling you that you could stop over one day, and in not explaining to you exactly how you could comply with all the conditions of the ticket and yet make a visit of five or six hours at Manistee."

Now, this information was, under the circumstances, worth a good deal to me. I had been cherishing an unkind and unchristian spirit toward railway companies, and especially toward that ticket agent at Toledo. I had been taught a valuable lesson in the way of charity, even for great railroad companies, and I got a further valuable lesson. I replied to this Traverse City ticket agent, and he certainly is a very fine and gentlemanly fellow, even if I did think on my first trip that he was needlessly severe. I said, "My good friend, your people ought to know me. I have traveled over your road for many years, and you ought to know that I do not want any crookedness in the way of giving me any favors. I do not ask for any privileges that are not granted to everybody else who travels, even though I have done your road favors in times past, and you have kindly accommodated me in many ways. I am very glad to know that the agent at Toledo was right, or partly so."

Then he replied:

"Mr. Root, we are so hedged in by the interstate-commerce laws that most people can not understand why we can not deviate just a little to accommodate. The fact is, we may get ourselves into serious trouble by deviating in even the smallest degree. I am glad you understand it and appreciate it."

Now, because we hear so much said about the needless severity of ticket agents and other railway officials should we not be a little careful? and should not all of us who love God, who love our fellow-man, who love a "square deal," as our good President has put it, thank God for the Interstate Commerce Commission—a commission that has done so much of late to give every man the same chance, whether he be rich or poor, millionaire or day laborer, so that now whoever travels on our great railroads will pay the same price as anybody else — no more, no less? And when it comes to shipping goods, may God be praised that there is a prospect just now that even the Standard Oil Co. with all its millions can not secure any favor that other people can not enjoy as well. When the small farmer or oil-producer has something to ship by rail he can compete now with the great syndicate, because the interstate-commerce law declares it must be so; and they are punishing severely those who think they can by trickery or cheat secure privileges that common people, even though they are young or inexperienced, do not enjoy. And there is a bright outlook before us — a glimpse of a nation that is governed by laws that are "*of* the people, *by* the people, and *for* the people."

Now, friends, is it not true that God is striving to teach us great and valuable lessons if we are only willing to be taught? And is it not true, also, that "all things *shall* work together for good to those who *love God*"?

"CIVILIZED OUT OF EXISTENCE."

Myself and a young companion were making a hurried trip on a train that stopped at a station only ten minutes for supper. It was after our supper time, and we were both hungry. I suggested to my young friend that it was not well to eat so hurriedly as to get through in ten minutes, and therefore we would each get a lunch in a paper bag and eat it at our leisure on the train. Without inquiring the price I called for a leg of fried chicken for each of us, and a sandwich and a piece of pie. I suggested to the boy that, if he cared for coffee, he would have time enough to drink that and take his lunch afterward. The waiter misunderstood, and brought *two* cups of coffee. I very seldom drink coffee; but I decided that, to save trouble, I would take the cup. Besides, I wanted to experiment a little as to the effect of a big strong cup of coffee. I cautioned my young friend when I found it was what the great traveling public would call "excellent coffee." It was very strong, with plenty of cream in it. At first I thought I would not drink it all, as it was so much stronger than I was accustomed to; but afterward I decided I would, just to study the effect. More of this later.

I threw down a dollar, but found that was not enough. The leg of chicken was 30 cts.; sandwich, 10 cts.; pie, 10 cts.; coffee, 10 cts., making $1.20 for both of us. (I wonder how much the poultry-keeper gets as his share of the 30 cents for a chicken leg.) Now, I am not grumbling and finding fault. It was a splendid lunch-room. I have visited it many times, and there are always great crowds patronizing the long tables. The food is all excellent in quality, smoking hot, and ready for you to grab at a moment's notice and jump on the train. Of course, you have to pay extra for such accommodation. It is just what the rushing people of this great country demand. It is one of the evidences of our wonderful "civilization" that you can get a good square meal so quickly, and push ahead on your journey. But I wish to make a little protest on two grounds. It is an extravagant way to live, and it is certainly injurious to the health. The greater part of the crowd ate their full meal, toward the close of the day, inside of ten minutes, and standing up. There is no time to chew the food. We are wondering what causes appendicitis, cancer, consumption, and a score of other ills. Eating in such haste, and eating so much, especially without chewing, is one of the troubles. I should greatly have preferred a cent's worth of rolled wheat, another cent's worth of butter, and a little fruit, and perhaps some nuts if you choose, all costing when *at home* not over five cents.* You may put in an egg and call it six cents instead of *sixty* as at the lunch-counter.

Some of you may think that I am in small business having so much to say about economy in our food. People who get fair wages, and especially those who have plenty of means, do not stop to count pennies or nickels; and sixty cents for a meal in traveling is not unusual or extravagant. But there are lots of people, as you may know to your sorrow, who do not pay their debts. There are people in every community who do not pay their grocery-bills, to say nothing of bills at the clothing-store and shoe-store. Some of them do not even pay their doctor's bills; but if you lived as Terry and I do the bills for food and the doctor's bills would not exist—at least they would cease to a considerable extent.

Now a word about the cup of strong coffee. The boy, sixteen years old, drank it right down. He said it was not a bit too strong for him — the stronger the better. I usually feel very sleepy between nine and ten

* By the way, it is my custom when traveling to have some sort of lunch always in my grip-case. I tell Mrs. Root to give me some rolled wheat, or zwieback, and a bit of cheese, and to be sure to have all of the lunch something that will not spoil if I have no occasion to use it. Of course, I want a little jar of butter to go with my rolled wheat; and sometimes I carry along a jar or tumbler of the delicious cheese that can now be found in first-class city groceries. Such a lunch keeps me in health very much better than patronizing lunch-counters such as I have described.

at night; but under the stimulus of that *good* coffee I felt very bright and wideawake until after twelve that night. I had some disturbing experiences that kept me awake, but I should have been very faint if it had not been for the unusual stimulus of that coffee. Some of you may say, "Why, Mr. Root, you have just given us a most excellent testimonial to the effect that coffee is a gift of God for those who are obliged to be up while traveling on important business, etc." I do not agree with you. If I had the same experience to go through again I would go without the coffee. Remember what the Wright Brothers said about abstaining entirely from coffee on the day they were going to make a test of their flying-machine. I do not want nature lulled to sleep or unduly whipped up to greater exertion by means of whisky, morphine, headache-powders, nor even coffee. When the time comes for nature to demand sleep I want to respond to it.

Next day I passed the same lunch-counter in going back home, and the train stopped just ten minutes a little after the noon hour. I took a little more time and found two boiled eggs in a little dish with the shells removed. To my surprise these were only a nickel. A good-sized sandwich was a dime, and two apples a nickel, the whole dinner costing 20 cents instead of 60, and it was all the dinner I needed.

Before I left the train the car was crowded, and a bright looking man came and sat down by me. After a little talk he asked me how the Wright Brothers were progressing in France and Germany with their flying-machine. I could not answer him, and I can not answer you *just now* either. He was a construction engineer on a new trolley line that is running across our State. I told him I rejoiced to see what the electric lines were doing, and also to think I might live to see flying-machines outstrip every thing we have at present; but I told him I felt sad to see some things that the world calls civilization and progress. He asked me to explain. As he was soon to get off the train I told him I would be brief. I mentioned the lunch-counter business, and I said something like this:

"My friend, we *are* certainly making progress from one point of view. Everybody is busy, getting good pay, and has plenty of money to pay sixty cents for a ten-minutes meal when traveling. I am one of a family of seven children. My mother brought us all up, took care of us with the help of the older ones, gave us a fair education, and lived to be almost ninety years of age. She enjoyed life, and did not think she had a hard time. *Now* when a baby comes into a family a trained nurse must be kept for two or three weeks at three dollars a day, and you are lucky if you do not have to pay four. The hired girl must have her wages increased or else she will throw up her job. Another woman must be employed to do the washing, sometimes a fourth one to do the ironing. This is only a brief illustration of our magnificent civilization you have been defending. Young married people are telling me on every hand they can not *afford* to have a baby in the home; and a good many bright young men say they can not afford to get married. If they have any children at all, one is about all they can take care of; and where there is only one child in a family the chances are very great that that child will be spoiled. Now, if no more babies are to be born, how long will it be before there will not be anybody to patronize the lunch-counters or to make trained nurses and all these other things? Don't you believe that you and I were lucky that we have had a 'chance to be born,' as Emerson T. Abbott expressed it a while ago?"

At this point my friend was near his destination; and as he got up he put out his hand and said he was glad of the privilege of having a talk with me, and said something like this:

"Mr. Root, to put it short you are afraid that, if the present stage of civilization keeps on, we may finally get to a point where we shall be 'civilized out of existence;' and to be frank about it I do not know but you are more than half right. Good by; and do not forget to tell us about the flying-machine."

Now, my good friends, whoever you are and wherever you are, don't you think our good President has called attention to one of the most important things to be considered by this present generation? He calls it "race suicide;" and my friend the bright educated engineer termed it "getting civilized out of existence." May God *help us* to learn the lessons he is trying to teach us.

PURE AIR FOR POULTRY AND FOR PEOPLE.

Our friends are well aware of how much I have had to say in regard to an abundant ventilation for sleeping-rooms, our homes, public buildings, and everywhere else where people congregate indoors. Well, the poultry-keepers of the whole world are just waking up to the fact that poultry diseases are largely the result of poorly ventilated domicils. And now the cattle-raisers have got hold of it and are taking out their glass windows and putting in their place sashes covered with muslin or muslin curtains. See the following, which I clip from the *American Poultry Advocate:*

> Such practical proof of the decided benefits of ventilating through muslin curtains in cold weather is most convincing. The gentle admission of the pure outdoor air seems to give exactly right conditions of passing out the vitiated air and steadily passing in the pure air from outside, resulting in better health for the stock, and better health means greater profits. It is so simple a thing that it is almost humiliating to think we have been so long a time in working it out; but now that it has been worked out, and we are coming to realize how great a help it is to us, the right thing to do is to accept it with thankfulness, and help others to an equal share in the benefits. The adoption of the curtain-front for poultry houses has solved some of the perplexing difficulties which have confronted us. We gladly welcome its aid, and pass it along to our fellows.

There is just now so much being said in our agricultural papers about the curtain-front poultry-houses and curtain-front sta-

bles that I have begun to think that curtain-front bedrooms for extremely cold weather would soon be coming. When zero weather with fierce storms comes, it is rather tough on most elderly people to have the windows open very much. Now, why not take out the sash and put in a frame of sash covered with cloth? A thing that has proved to be of such wonderful benefit to chickens and cattle must be good for human beings also. Sleeping in a tent, that has been quite the fashion during the past summer, is along in the same line; and, by the way, a young man who is in the Y. M. C. A. work here has had a tent sleeping-room in our orchard for several weeks the past summer. It is not only occupied by himself and wife, but in very warm weather some of the nearby neighbors have accepted their invitation and slept in the same spacious tent in place of a hot and comparatively poorly ventilated bedroom indoors. Down in Florida you can live in a tent quite comfortably winter and summer if you choose.

Here is something more from friend T. B. Terry, which I clip from the *Practical Farmer:*

You will not be able to get one of our greatest physicians now to say that any thing is incurable. There have been too many times when doctors have so concluded, only to have the patient get well in spite of them. For example, there is a case on record where the doctor gave up a pneumonia patient — said it was no use for him to come any more; nothing could be done; the man would die. The patient then said to his wife, "I must die any way. Op n the door and windows, and at least let me die in fresh air." She did so, and he got well. I have used this illustration for a purpose. Nature could not save that man without fresh air. With it she was able to and did Similar results can be given in almost any line of disease.

May God be praised that we are finally having a crusade that promises to be world-wide for fresh air, and plenty of it, for all animated creation.

PURE AIR AND TEMPERATE LIVING — THE IMPORTANCE OF THEM AWAY OVER IN TASMANIA.

Somewhere years ago, I read in your notes about the value of God's pure air. It is about this that I wish to write in particular. Since that I have proven to my entire satisfaction that you were *absolutely correct*, and I should like to give you my experience.

Once I was as subject to colds as any one; but since I have slept with my bedroom window open and the door wide open I have had only two colds in about ten years, and that was while away from home both times, when I slept in bedrooms that were not sufficiently ventilated.

My mother is now nearly eighty years old, and has not had a cold for years. She, too, sleeps with her window open a little at the bottom, winter and summer.

I sleep with my window up four inches, and lie so the wind can blow over my face, and that in the winter. Be temperate in all things, and get all the fresh air you can, and you need never fear colds. Overeating and badly ventilated rooms are two things to avoid if you would be healthy.

One has only to look around here in this island state, which is a very healthy one, and we see people with colds which hang on them for weeks, and they wonder why. We do not wonder, because we have the light.

Yes, dear friend, hammer away on those lines, for you are on the right track. I thank God it has been my privilege to become a subscriber to GLEANINGS, and thus enjoy the benefits of its teachings.

Ramsgate, Tasmania, Aug. 11. G. H. SMITH.

SWEET CLOVER—IS IT A NOXIOUS WEED?

A. I. Root:—I enjoy reading your notes in GLEANINGS, Our Homes, travel, camping, health notes, poultry, gardening, temperence, right living, bee-keeping, and the whole outfit, until you begin to sing the praises of sweet clover. Then I get very tired, as I have many a time in trying to destroy the pest, as a pest it is for us. It gets in waste places, along roads, in water-courses. I would just about as soon have rattlesnakes or Satan. Talk about its winter-killing! You must have different winters from ours, and we have some hard winters here. If I had to choose between bees and sweet clover I would cut out the bees and then kill the sweet clover—*if I can.* About the only way to exterminate the stuff is to pull it and keep at it, and that is some work. I am getting too old. Now, likely you catch on to what I think of sweet clover. Yours for the good things of life, but down with the mean things. W. F. DELINE.

Cannon Falls, Minn., Sept. 9.

Why, friend D., I am surprised at you, especially if you have been reading what we have had to say about sweet clover. Do you consider and take notice that sweet clover is a legume—that it is a clover, and, as our experiment station puts it, none of the clovers can be consistently called noxious weeds? Yes, it does grow in waste places and along the roadsides, for it is the most hardy clover known; but if the ground is leveled off, and it is cut down and given to stock—that is, if it is cut down often enough, it makes about as handsome a roadside as any thing I can think of. If it comes on to your fenced fields, turn in the horses and cattle, pigs and sheep. Haven't you seen in our past numbers abundant evidence that all kinds of farm stock can be taught to eat it with great avidity? Besides its value for stock, it has been recently demonstrated that it is probably the most valuable plant known to turn under for enriching the soil. It is the very easiest and readiest means of inoculating soil with the nitrogen nodules; and the very best and quickest way to fit a piece of ground for alfalfa is first to get it to growing sweet clover.

I thank you for your kind words in closing; but I wish you would write us again and tell us frankly just why you do not utilize the sweet clover, that grows so rank and strong, for feeding stock or for fitting your ground for tremendous crops of any thing you wish to grow. We are glad to know you have talked out thus plainly, because we want to know every good reason against the general dissemination of this exceedingly valuable legume. See the following:

MORE ABOUT SWEET CLOVER; ITS VALUE TO FARMERS, ETC.

About 20 years ago I became interested in bees through an advertisement of A. I. Root in the *Farm Journal.* I got the A B C of Bee Culture, and that is the first I knew of sweet clover. I found at that time in an orchard on our own farm, about 80 rods from

home, a nice patch, probably planted there by an old settler. I now live just across the road from that orchard, and that patch is there yet. The land is farmed all around that orchard, but not a plant of that sweet clover can I find in the field ten steps away, without any pains whatever to eradicate it except to till the land as usual.

A few years ago many of my neighbors were afraid of it, but now they know better. One of them asked me if I could sell him half a bushel of the seed last fall, as he wished to seed a little patch of bottom ground where the river had washed away the soil. Several of my neighbors have begun to sow sweet clover on low ground where the river washes badly. About two miles from here there is lots of sweet clover along the roadside. Near that place are 12 acres of bottom land that was made almost worthless by high water sweeping the soil off. An enterprising young farmer bought this land at about half price, he having noticed that the rains had washed the sweet-clover seed from along the road above, down across this field, and it had become thickly set to sweet clover. This field had lain idle for one year then; and as the high water came down again the next spring this sweet clover caught lots of the sediment, and sweet clover and all was plowed under. That land is now good for 60 to 75 bushels of corn every favorable year. That one transaction did more to gain friends for sweet clover than ever so many arguments.

About eight years ago I lived in Henry Co., Ill., and I cut and put up a small stack of first year's growth of sweet clover, and in the winter the cows seemed to relish it as well as red clover, and much better than timothy.

This spring I tried a little experiment. I had dug a well 57 feet deep. The last dirt was dumped in one pile. This was blue clay and soapstone. I then went and dug up a plant of sweet clover and transplanted on this pile. That plant grew as thrifty as any, and blossomed, and bore an abundance of seed. Bees were seen on the blossoms for several weeks. This proves that sweet clover is one of the most wonderful nitrogen-gathering plants in existence. I should like to ask if sand vetch will grow on such soil. Some time ago I saw an account where a jar of soil was analyzed, and then a soy bean planted in it. After the bean had made its growth it was removed, and the soil was again analyzed, and the jar of soil found to contain more nitrogen than before the bean had grown in it; so the soy bean not only got all its nitrogen from the air, but even stored some from the air into the soil. The soy bean is considered a good nitrogen-gatherer, but I doubt whether it would grow well on soil taken 50 feet below the surface. Of course, sweet clover must have also potash and phosphorus, but I think my experience shows that these elements are at a considerable depth in the earth. The sweet clover would not only gather nitrogen from the air and store it in the soil, but it would, with its long roots, gather the other elements from quite a depth and bring them near the surface. Many worthless farms could be made very valuable with this sweet clover, as no high hill or poor steep side-hill is too poor for sweet clover to grow on.

The wheels, etc., that move the seed from place to place along a public highway also move the nitrogen-gathering germs there, for it grows so well along the highway, even in barren clay banks.

Much has been said discouraging the planting of any thing for honey alone; but when we plant sweet clover on poor soil the enriching of that soil is well worth the trouble and expense, saying nothing about honey. The value of sweet clover is just beginning to be known. It deserves much more credit than it has ever received from either the farmer or bee-keeper.

J. E. Johnson.

Williamsfield, Ill.

CHESTNUT, PECAN, AND OTHER NUT-TREES.

I am a reader of Gleanings, and do not miss much appearing from your pen. A short time ago you mentioned having a chestnut-tree that was failing to fruit after blossoming, and that the experiment station thought it might be because no chestnut-tree stood near it to pollenize its flowers. I believe this is an error. All nut-trees I have ever known were self-fertile. I have on my grounds a pecan-tree, the result of a nut planted 15 years ago, and which is now nearly if not quite 50 feet high, and which has been bearing since it was 8 years old. The first year it had male flowers (catkins); it bore nuts, but I could not find any female flowers, and did not until the next year. Have you ever examined a nut-tree when in blossom, looking for the female flowers? They are very inconspicuous, and could be easily overlooked even by the careful observer. On the other hand, the male flowers are very conspicuous, and appear always, I believe, on the last year's or earlier growth, while the female or fruiting flowers always appear on the tip of the present year's growth, and are little more than minute waxy nuts. My pecan-tree has excited considerable interest, as it was not generally known that it was hardy in Ohio. So far as I could see, not a bud was injured, even during the winter of 1899, when the thermometer registered more than 30 below zero, and the tree bears every year, not as the hickory, on alternate years only. The nut is as sweet as any I ever tasted, and quite free from the usual pignut flavor so common with the natural pecan. The nut I planted was sent to me by Judge Miller, of Missouri, a well-known writer on horticultural subjects, and he said it was from a tree which bore nuts of unusually large size and good quality. I also have growing on my place Persian or English walnuts, one of Burbank's hybrid walnuts, and a tree that would seem to be a hybrid between the Persian walnut and the butternut, but none of these have yet fruited.

The pecans are wholly free from worms, I never having seen one nut in the seven years the tree has fruited that had a worm or a wormhole in it. Hickorynuts here are very wormy, nuts from some trees being more than half wormy, while none are free.

Sidney, O., Feb. 14. E. P. Robinson.

Many thanks for the information you give us, friend R. You are doubtless right, and I will keep a more careful watch on our chestnut-tree. When I am again in your vicinity I promise myself the pleasure of seeing a bearing pecan-tree in Ohio.

Temperance.

GOOD FOR THE METHODIST CHURCH—AN ADVANCED MOVEMENT.

We clip the following from the Cleveland *Leader*, dated Columbus, Ind., Sept. 27:

Charles W Fairbanks, Vice-president of the United States was defeated to-day for delegate to the quadrennial conference of the Methodist Church after one of the most bitter contests that was ever waged in a religious assembly.

The temperance laymen, many of them long associated with Mr. Fairbanks in the church, refused to condone what they regarded as an offense against temperance. The distinguished candidate went down because of having served cocktails and three kinds of wine at the dinner given to President Roosevelt on Memorial day at the Fairbanks home.

May the Lord be praised that we have at least one church that is not afraid to "call down" even the Vice-president of the United States when he so far forgets himself or fails to "sit up and take notice" of what the good men and women of all churches in this land of ours are now demanding along the lines of temperance reform.

Later.—We clip the following from the *Woman's National Daily:*

Of deep political significance is the defeat of Vice-president Fairbanks for delegate to the Methodist conference. It probably means that whatever small chance he may have had for the presidential nomination has been destroyed. The Republicans are not going to have any cocktail issue in the next campaign. They are not going to offend the temperance people, because the temperance vote may mean very much in the next contest. It is extremely significant that a man like Fairbanks is turned down simply because he had cocktails and wines on his table at dinner to the President. It shows that the prohibition advocates are growing stronger and stronger in the country, and must be reckoned as a factor in political contests of the future.

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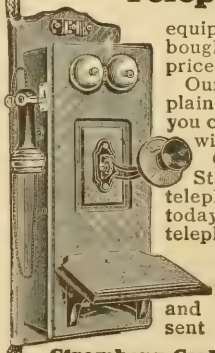

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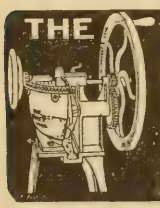

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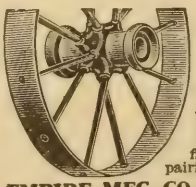

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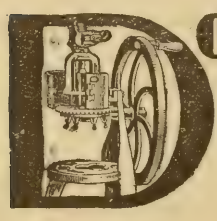


DOUBLE YOUR EGG YIELD

Fresh, raw, green bone contains over four times as much "protein" and other egg-making materials, as grain. It takes the place of worms and bugs in fowls' diet; **that's why it gives more eggs—greater fertility—stronger chicks—earlier broilers and layers—larger market fowls, and bigger profits.** You can cut it most easily, rapidly and **best** with

Mann's Latest Model BONE CUTTER

Automatically adapts cutting to your strength. Never clogs. Cuts all adhering meat and gristle. We send it on **10 DAYS FREE TRIAL. No money in advance.** Catalogue free.

F. W. MANN CO., Box 37, Milford, Mass.

THE BEE & POULTRY INDUSTRIES DOVETAIL

and go well together

In poultry culture the main thing is health, and

Conkey's Poultry Remedies

Are the World's Standard

This is the season for Roup and the sneezing, wheezing, swollen headed fowls should be quickly restored to health, usefulness and profit. You cannot afford to experiment, so use

CONKEY'S ROUP REMEDY

Just a thimbleful in the drinking water and they cure themselves. Our absolute guarantee goes with it, and it means your money back should it disappoint you.

Conkey's Book on Poultry Free for 4c in stamps and names of two others interested. It solves the whole poultry problem and is worth dollars to any poultry raiser. **GET IT TODAY.**

THE G. E. CONKEY CO.

315 OTTAWA BLDG , CLEVELAND, O.

Conkey's Poultry Remedies are carried by A. I. Root Co. at their branches, New York, Philadelphia, Washington, Chicago and Medina.

HOW TO GET MORE EGGS

Help your hens. Feed them fresh cut **green bone** and you'll get more eggs—you'll get eggs in winter when eggs are worth while. The **Standard Green Bone Cutter** prepares bone right for feeding, quickly—easily. Prices $8.80 and up; sold on **guarantee**—sent on **trial.** Write for catalog.

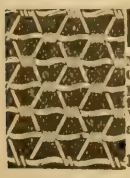
Standard Bone Cutter Co. Milford, Mass.

FIX YOUR ROOF

5c Per Square.—We will guarantee to put any old leaky, worn-out, rusty, tin, iron, steel, paper, felt, or shingle roof in perfect condition, and keep it in perfect condition for 5c per square per year.

Roof-Fix **The Perfect Roof Preserver,** makes old, worn-out roofs new. Satisfaction guaranteed or money refunded. Our **free roofing book** tells all about it. Write for it today.

The Anderson Manufacturing Co., Dept. 24, Elyria, Ohio



FENCE *Strongest Made*

Made of **High Carbon Double Strength** Coiled Wire. **Heavily Galvanized** to prevent rust. Have **no agents.** Sell at **factory prices on 30 days' free trial.** We pay **all freight.** 37 heights of farm and poultry fence. **Catalog Free.**

COILED SPRING FENCE CO.

Box 101 **Winchester, Indiana**

PATENTS

No attorney's fee until patent is allowed. Write for "*Inventor's Guide.*"

Franklin H. Hough, Loan & Trust Bldg., Washington, D.C.

THE "BEST" LIGHT

The only light that **makes** and **burns** its own gas at the extremely low cost of 2c per week and gives perfect service with **NO GREASE, DIRT, SMOKE OR ODOR.** Every burner equal to 100 candles burning at one time. Think of it—brighter than electricity or acetylene and cheaper than kerosene. You cannot afford to be without it. Over 100 styles. Every lamp warranted. **Agents Wanted Everywhere.**

THE BEST LIGHT CO., 306 E. 5th St., Canton, O.

SAVE HALF YOUR FUEL

BY USING THE

Rochester Radiator

Fits any Stove or Furnace.

Guaranteed to do all we claim or money refunded.

Write for booklet on heating homes.

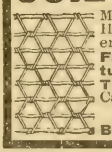
Rochester Radiator Co.,

50 Furnace St., Rochester, N. Y.

Price from $2.00 to $12.00

For hard or soft coal, wood or gas

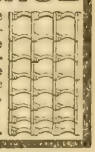
COIL SPRING FENCE



Made of high carbon Steel Wire Horse-high, Bull-strong, Chicken-tight. **Sold direct to the Farmer at lowest manufacturers prices on 30 Days Free Trial,** freight prepaid. 160 page Catalogue and price-list free.

KITSELMAN BROS.,

Box 21 **MUNCIE, IND.**



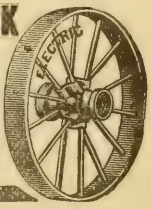
SAVE YOUR BACK

Save time, horses, work and money by using an

Electric Handy Wagon

Low wheels, broad tires. No living man can build a better. Book on "Wheel Sense" free.

Electric Wheel Co. Box 95, Quincy, Ill.



SPRAY PUMPS

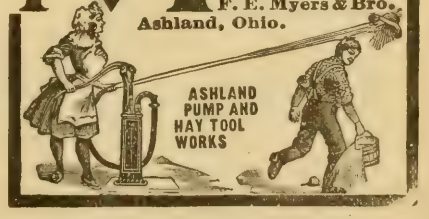
"TAKE OFF YOUR HAT TO THE MYERS"

MYERS

The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers. Pumps, Hay Tools & Barn Door Hangers. Send for catalog and prices.

F. E. Myers & Bro.

Ashland, Ohio.



BUSHEL CRATES.

Very best make with beveled corners, all hard wood, made up, 11 cts.; in flat, 8 cts.

Full line of Dovetailed hives, sections, smokers, and every thing needed in the apiary, and sold at a discount.

Honey and Beeswax wanted, cash or trade.

Send for free catalog.

W. D. SOPER, Jackson, Mich.

W. H. Laws says, If there is a queen-breeder who can boast of better stock let him trot out the proof. Testimonials enough to fill this book. Will give you only one. Mr. J. C. King, Washington, D. C., writes, "For two years I have had one of your queens in my apiary. Each season she has given me over 200 lbs. comb honey; last season she actually stored while other colonies starved. I have over twenty strains in my three apiaries, but yours is the best."

Now is the time to get a fine breeding queen; stock up this fall and double your crop of honey the coming season. Single queen, $1.00; 6 for $5.00. Extra select breeders, $5.00. Safe arrival and satisfaction guaranteed.

W. H. LAWS, Beeville, Bee Co., Texas.

Moore's Long-Tongue and Golden

Queens

Fine select untested queens, $1: 6, $4.50; 12, $8. Tested, $1.25; 6, $6 50. Breeders, $3.00. Safe arrival gar'd.

W. H. RAILS, - ORANGE, CAL.

QUEENS

We beg to remind our customers the season for breeding queens here in Medina is rapidly drawing to a close. At present we are able to furnish all grades by return mail. Now is the best time to requeen. A young queen is more vigorous than an old one in spring, and not nearly so liable to swarm.

Prices of Home-bred Italian Queens

Untested queen	$1.00
Select untested queen	1.25
Tested queen	2 00
Select tested queen	3.00
Breeding queen	5.00
Select breeding queen	7.50
Extra select " " 1 yr. old.	10.00

The A. I ROOT COMPANY
Medina, Ohio

Northern New York Bee-keepers.

10 PER CENT DISCOUNT.

We have a large stock of shipping-cases and feeders, and all orders for same will be filled promptly. Beeswax and old combs wanted; cash or trade; 10% discount during the month of Oct. on every thing but cases and feeders. Comb honey wanted; write stating how put up, kind, and lowest cash price deliver'd in Watertown, N. Y.

A. H. REEVES & CO., 17 Morrison St., WATERTOWN, N. Y.

PATENTS.

Twenty-five Years' Practice.

PRINDLE & WILLIAMSON,

Second Nat'l Bank Bldg., Washington, D. C.

Patent practice in Patent Office and Courts.
Patent Counsel of The A. I. Root Co.

QUEENS of MOORE'S STRAIN OF ITALIANS

Produce workers that fill the supers, and are not inclined to swarm. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Mr. W. Z. Hutchinson, editor of the *Bee-keepers' Review*, Flint, Mich., says: "As workers, I have never seen them equaled. They seem possessed of a steady, quiet determination that enables them to lay up surplus ahead of others. Easier bees to handle I have never seen."

My queens are all bred from my best long-tongued three-banded red-clover stock (no other race bred in my apiaries), and the cells are built in strong colonies well supplied with young bees.

PRICES: Untested queens, 75c each; six, $4; doz., $7 50. Select, untested, $1.00 each; six, $5; doz., $9.00.

Safe arrival and satisfaction guaranteed.

I am now filling orders by return mail.

Descriptive circular free. Address

J. P. Moore, Queen-breeder, Rt. 1, Morgan, Ky.

ROSE LAWN QUEENS

ABHASIANS: In order to distinguish our superior Caucasians of the genuine imported Abhasian stock from the common dark Caucasian, we have termed them "ABHASIANS." These are the YELLOW CAUCASIANS and possess all the valuable characteristics of the race in addition to their color, which commends them to the lover of bright color.

Untested queens, $1.50; tested, $2.00.

BANATS: Choice untested queens from imported stock, at $2.00.

ABHASIANS OR BANATS imported direct to customer, $6.00.

Golden and red-clover Italians ready for shipment.

ROSE LAWN APIARIES, College View, Neb.

Yellow from Tip to Tip!

My Adel bees and queens are very handsome. Every queen a breeder, and guaranteed to produce golden queens and beautiful bees; non-swarmers, very gentle, and hustlers for honey. Each queen, $1.00. Catalog ready. **H. ALLEY, Wenham, Mass.**

Taylor's Strain of Italians is the Best

Long tongues and goldens are the best of honey-gatherers; 18 years a specialty, breeding for the best honey-gatherers. Untested, 75 cts. each, or $8.00 a dozen; tested, $1.00 each, or $10.00 a dozen; select tested, $1.50 each. Breeders, the very best, from $3.00 to $5.00 each. Carniolans same price as Italians. Try them. We sell nuclei and full colonies. Bees in separate yards. Safe arrival guaranteed. Send all orders to

J. W. TAYLOR & SON, Beeville, Bee Co., Texas.

If You Want the Bee-book

that "covers the whole apicultural field more completely than any other published," send $1.20 to

Prof. A. J. Cook, Claremont, Calif.

FOR HIS

"Bee-keepers' Guide"

Liberal Discount to the Trade.

Classified Advertisements.

Notices will be inserted in these classified columns at 20 cents per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Wanted, Situations.

WANTED.—A job on a bee-farm the coming season.
LEROY CREACH, Dewitt, Neb.

Help Wanted.

WANTED.—Queen-breeder for the East for season of 1908. Prefer a young married man who has had at least several years' experience, and is familiar with modern methods, and who would expect to continue the engagement indefinitely if both parties are satisfied State experience, salary wanted, and give references. Let the first letter be clear and explicit on every point. Address ARTHUR WHITMAN,
c Gleanings in Bee Culture.

For Sale.

FOR SALE.—Opaline honey-jars, all kinds; send for price list. HAROLD E. SHORE, Germantown, Pa.

FOR SALE.—Fine job-printing outfit.
C. A. STEBBINS, Broad Creek, Va.

FOR SALE.—Pecans; buyers wanted for any amount up to carload lots. For prices write
R. W. ROGERS. Lometa, Texas.

FOR SALE.—Shipping-cases for Ideal sections at reduced prices on account of overstock.
A. G. WOODMAN Co., Grand Rapids, Mich.

FOR SALE.—Homestead farm crops in their season, consisting of honey, grapes, pears, apples, etc.
C. J. BALDRIDGE, Kendaia, Seneca County, N. Y.

FOR SALE.—Or will exchange for offers, two new stovepipe Rochester radiators, large and small size.
R. DON MILLS, Highland, Mich.

FOR SALE.—New 60-lb cans, used but once, emptied without steam or water, bright and clean, two cans in a case; per case, 35 cts. E. R. PAHL & Co., Broadway, Milwaukee, Wis.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1907 send your name and address to FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE.—One two and a half H. P. engine and boiler in good working order. Used not over 150 days. Cost $150. Will sell for $70. J. W. UTTER.
Amity, Orange Co., N. Y.

FOR SALE.—Seeds of honey-plants yellow and white sweet clover, catnip, motherwort, cleome, seven-head turnip, Chinese mustard, touch-me-not, wild cucumber, etc.; 5c per pkg. H. S. DUBY, St. Anne, Ill.

FOR SALE.—600 combs (brood and extracting) in L. frames, over four-fifths wired, and built from full sheets of foundation; also uncapping-can. German wax-press, and two-frame extractor. For prices and particulars address H. A. BUSHBY, Rydal, Kan.

FOR SALE.—Scotch Collie pups sired by Champion Ellwyn Perfection. Positively no pups sold under $15. Satisfaction guaranteed
CHARLES C. SCHNEIDER, North Detroit, Mich.

Real Estate for Bee-keepers.

FOR SALE.—Farm of 70 acres; fine location; good buildings; new honey-house, 225 colonies Italian bees: crop of 1906, 14,500 pounds of comb honey.
WARD LAMKIN, King Ferry, N. Y.

FOR SALE.—Five-acre tract, good house, barn, honey-house, and improvements; some fruit; 200 colonies bees, all in eight-frame hives; 400 supers. Bees averaged better than $8 per colony this year; fine climate, close to city of 7000. For particulars address
L. C. MCCARTY, Longmont, Colo.

Poultry Offers.

FOR SALE.—A few fine barred rock cockrels, $1.25 each, if taken before Nov. 1. H. J. AVERY, Katonah, N. Y.

Bees and Queens.

FOR SALE.—100 colonies of bees.
D. M. HOWARD, Rossville, Kan

FOR SALE.—About 30 missmated Italian and hybrid queens, at 25 cts. each.
W F. STUART, Ottawa, Kan.

FOR SALE.—16 colonies of bees in 10-frame chaff hives; also two residences and five lots. Address
C. W. LITTLEFIELD, Remington, Ind

FOR SALE.—400 colonies of bees; 2 apiaries in Delta, Colorado; 2 apiaries in New York, in the buckwheat location. W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—100 colonies Italian bees in 8-frame hives. Will sell in any quantity. $4 00 each.
E. A. SIMMONS, Greenville, Ala.

FORSALE.—A few dozen 1-year-old tested Italian queens, 60 cts. each; 2 year old, 40 cts. No one stock.
W. F. STUART, Ottawa, Kan.

FOR SALE.—30 colonies of Carniolans—Italian bees. A fine strain of honey-gatherers. In Langstroth brood-chambers. Will take $100 for the 30.
W. L. WOMBLE, Raleigh, N. C.

FOR SALE.—125 colonies of bees, and fixtures for extracted honey; 75 two-story hives; 66 cases 60-lb. cans; also driving mare, single harness, and buggy.
ERNEST W. FOX, Hillsboro, Wis.

Wants and Exchange.

WANTED.—500 colonies of bees in Texas, Arizona, or California. N. E. MILLER, Box 373, Logan, Utah.

WANTED.—A physician to locate here. Fine opening for a good doctor. Extra good location for bees. Write to BEE-MAN, box 73, Filion, Mich.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

Honey and Wax Wanted.

WANTED.—White ripe extracted honey; will pay cash. GEO. RAUCH, No. 5343 Hudson Boulevard,
North Bergen, N. J.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.
R. A. BURNETT, 199 S. Water St., Chicago, Ill.

WANTED.—To buy basswood, clover, and amber extracted honey for cash. Best prices paid. Send sample, and quote price delivered in Preston
M. V. FACEY, Preston, Fillmore Co., Minn.

WANTED.—Fancy clover honey, both comb and extracted. Send average sample of extracted honey, and give lowest price.
J. E. CRANE & SON, Middlebury, Vt.

WANTED.—To buy for cash, comb and extracted honey, also beeswax. ROBT. A. HOLEKAMP & SON,
4263 Virginia Av., St. Louis, Mo.

WANTED.—I will pay 9 cts. per lb. for well-ripened white-clover honey in 60-lb. cans f.o.b. here; or will sell sweet-clover honey of like quality at the same price. B. WALKER, Clyde, Ill.

WANTED.—Comb and extracted honey, car lots or less; paying 8½ cts. F. O. B. Milwaukee for extracted clover or basswood. Cash on arrival.
E. R. PAHL & CO., Broadway, Milwaukee, Wis.

WANTED.—No. 1 and fancy comb honey; 4x5x1⅞ section preferred. Also light extracted. Must be guaranteed pure. Write, stating grade and how put up, and lowest cash price.
C. M. CHURCH, Arnold, Pa.

Honey and Wax For Sale.

FOR SALE.—Well-ripened clover and buckwheat extracted honey in new 60-lb. cans and 150-lb. kegs.
A. E. WOODWARD & SON, Rt. 1, Rexford Flats, N.Y.

FOR SALE.—800 pounds of pure beeswax for sale. Refuse from wax-extractors wanted. Will pay cash.
W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—Basswood and buckwheat extracted honey in 60-lb. cans and 200-lb. kegs.
W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—Fine white honey, two cans in case, 124 lbs. at 9 cts. per lb.; 10 cases, 8½ cts. Sample, 10 cts. I. J. STRINGHAM, 105 Park Pl., New York.

FOR SALE.—Extra quality clover and basswood extracted honey in new 60-lb. cans.
F. W. LESSER, Sta. A, Syracuse, N.Y.

CHOICE TABLE HONEY.—Direct from apiaries, f.o.b. car. One can, 60 lbs. net, $4.25; two cans, $8 10.
CHEEK & WALLINGER, Las Animas, Colo.

FOR SALE.—Fall-gathered honey, with sufficient buckwheat to give it a buckwheaty flavor. In 60-lb. cans. Sample, 10 cts.
JAMES MCNEILL, Hudson, N. Y.

FOR SALE.—5000 lbs. of white-clover and basswood extracted honey in new 60-lb. cans at 11 cts. per lb. by the case, or for the entire crop. Two cans in a case. Cash to accompany order. This honey was left on the hives all summer and is of finest quality.
LEONARD S. GRIGGS, 711 Avon St., Flint, Mich.

FOR SALE.—Raspberry extracted honey—thick, ripe, rich, delicious; been left on the hive for weeks after it was sealed; flavor unapproachable and delightful; honey put up in new 60-lb. cans, two in a case, and offered at ten cents a pound. W. Z. HUTCHINSON,
Flint, Mich.

FOR SALE.—Three tons of comb honey—A No. 1, white, $4 per case; No. 2 white, $3.50; amber or buckwheat, $3 per case; 24 Ideal sections in glass-front case, less than four-case lots, 25 cts. per case extra; honey all well ripened, amber extracted, in sixty-pound cans, two to case, eight cents per pound.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

FOR SALE.—I have about 20 cases of Uvalde County comb honey put up in 60-lb. cans, two cans in a case. The comb is well sealed, well ripened, and heavy body; excellent quality; nearly pure catclaw honey. This is the honey that made Uvalde County famous. The price for this superior honey is only 12½ cts. per lb. Sample, 10 cts. E. BLECKSCHMIDT,
Knippa, Uvalde County, Texas.

Bee-keepers' Directory.

QUEENS.—Clover stock. Experience and methods count. Write me. H. G. LARUE, LaRue, Ohio.

ITALIAN queens bred for honey, untested, 75c each.
GEO. H. PLACE, 816 No. 49th St., Omaha, Neb.

Extra honey queens and choice mountain honey.
Francis J. Colahan, Bernardo, San Diego Co., Cal.

QUEENS.—Pure Gold, Red-clover, Caucasian, Banat.
ROSE LAWN APIARIES, College View, Lincoln, Neb.

ITALIAN QUEENS.—Golden and leather, 60c each; worth $1.00. G. W. BARNES, Box 340, Norwalk, O.

Bee-keepers' supplies, Italian queens. Send for a free catalog. ARTHUR RATTRAY, Almont, Mich.

ITALIAN BEES and queens—Red-clover strain imp'd mothers. A. W. YATES, 3 Chapman St., Hartford, Ct.

ITALIAN BEES, queens, and Root's bee supplies.
E. SCOGGIN, Carlsbad, N. M.

I club a high-grade Italian queen with GLEANINGS, new or renewal. W. T. CRAWFORD, Hineston, La.

ITALIAN BEES and queens—red-clover and golden strains. E. A. SIMMONS, Greenville, Ala.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York City.

ITALIAN bees and queens bred for honey; price list free. B. F. YANCEY & SON, Angleton, Tex.

FINEST Golden and red-clover queens, Caucasian and Carniolan. DANIEL WURTH & GRANT, Pitkin, Ark.

ITALIAN AND CAUCASIAN bees and queens of best quality; price list free. A. E. TITOFF, Ioamosa, Cal.

MAPLEWOOD APIARY.—Choice comb honey, Italian bees and queens. GEO. H. REA, Reynoldsville, Pa. R. 2.

ROOT'S SUPPLIES at factory prices; wholesale and retail. ANTON G. ANDERSON, Holden, Mo.

ITALIAN BEES, queens, comb and extracted honey.
A. T. DOCKHAM, Rt. 1, Box 95, Eagle Bend, Minn.

FOR SALE.—Bee-keepers' supplies. Write for catalog. Lengst & Koenig, 127 S. 13th St., Saginaw, Mich.

FOR SALE.—Golden and red-clover Italian queens.
WM. A. SHUFF, 4426 Osage Ave., Philadelphia, Pa.

ITALIAN BEES and queens—red-clover and golden strains. E. E. MOTT, Glenwood, Cass Co., Mich.

SWARTHMORE Golden-all-over, Caucasian, Banat, Carniolan, Cyprian queens. E. L. Pratt, Swarthmore, Pa.

GOLDEN yellow Italian queens—my specialty. Price list free. E. E. LAWRENCE, Doniphan, Mo.

ITALIAN BEES, queens, honey, and ROOT'S bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

FOR SALE.—Root's bee-supplies, wholesale and retail; factory prices; catalog free. Beeswax wanted.
W. E. TRIBBETT, Staunton, Va.

GOLDEN-ALL-OVER Caucasian Banat bees and queens. We book orders for early queens from our best imported breeding stock for honey, with 600 twin mating-boxes. THE SNYDER APIARIES, Lebanon, Pa.

QUEENS.—Improved Red-clover Italians bred for business; June 1 to Nov. 15, untested queens, 60c; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

I must say to my friends, please do not send me any more orders for queens this season, as my health is so poor I find it impossible to continue queen-rearing. Thanks to all my friends for their very liberal patronage. W. W. CRIM. Pekin, Ind.

IMPROVED ITALIAN QUEENS now ready; nuclei and colonies about May 10, Danzenbaker or L. frames; 20 years a queen-breeder; 500 colonies to draw from. Circular and testimonials free.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

ANGEL'S GOLDEN BEAUTIES and his bright three-banded Italian Queens have but few equals and no superiors. A fine large queen of either strain for $1.00; an extra select breeder for $2.50. I have had 12 years' experience at queen-breeding. Address
SAMUEL M. ANGEL, Route 1, Evansville, Ind.

JOSEPH HORNE COMPANY,
PITTSBURG, PA.

Rhadame Tussah Silk, 40c Yd.

A washable fabric, a mixture of silk and cotton.

For afternoon dresses and evening costumes, for party dresses, it has no rival among inexpensive fabrics.

It is 27 inches wide and the patterns are neat little jacquard designs.

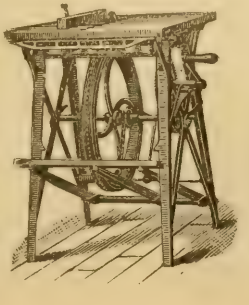
The regular price of this material is 65c.

We bought 22,500 yards, and the weaver will not make any more unless the retail price advances over 65c.

Colors are champagne, light blue, pink, nile, golden brown. There is also black.

We'll mail samples with pleasure, but if we were in your place we'd send right away for a dress pattern of this choice inexpensive material.

BARNES'
HAND and FOOT POWER
MACHINERY



This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, etc.

MACHINES ON TRIAL

Send for illustrated catalog and prices. Address
W. F. & JNO. BARNES CO.
545 Ruby Street,
ROCKFORD, ILLINOIS.

Convention Notices.

The fall meeting of the Middlesex Bee-keepers' Association will be held in the City Hall, London, Ont., on Saturday, Nov. 2, morning and afternoon sessions. An interesting time is expected.
E. T. BRAINARD, Sec.

I write to say that arrangements have been made for holding the annual convention of the National Bee keepers' Association in the audience-room in the State Department of Public Instruction in the new State capitol building, at Harrisburg, Pa., October 30 and 31. There will be a room for exhibition purposes, and an audience-room adjoining. If the exhibitors desire they may ship their material in my care. The headquarters will be the United States Hotel on Market St., which will give special rates of $1.25 and $1.50 per day.
H. A. SURFACE
Oct. 11. Economic Zoologist.

The fourth annual meeting of the Pennsylvania State Bee-keepers' Association will be held at Harrisburg, Oct. 29, the day before the National, in the capitol building. The first session will convene at 1 P M., and be devoted to business. In the evening there will be an informal meeting without any fixed program.

The National and the United States Hotels and the Hershey House have offered to accommodate those attending the convention for $1.50 cents per day. The Y. W. C. A. will entertain the ladies for 75 cents per day. Owing to the unsettled rate conditions no reduction in railroad fare will be granted to us this year. A cordial invitation is extended to all who are interested in bees. There will be exhibits of honey, and all are invited to contribute to them.
FRANKLIN G. FOX, *Sec.*
205 Ninth St., S. W., Washington, D. C.

ANOTHER BEE-KEEPERS' ASSOCIATION ORGANIZED.

On Friday, Sept. 13, 1907, in the booth of the apiarian display of H. S Duby, at the fairground of Kankakee Co., met several bee-men and organized the Eastern Illinois and Western Indiana Bee-keepers' Association, to hold a two-days convention in Kankakee some time in December. J. Roberts, of Watseka, was elected president, and Ray Ensinger, of Kankakee, secretary. Members of the Kankakee Business Men's Commercial Club tendered the use of their fine hall free of charge. The members of the committee expect to make this convention equal to the Northwestern in attendance and importance. Reduced rates will be secured at hotels, and a committee on reception will be appointed. Parties desiring information should write to either of the officers named, or to the undersigned. H. S. DUBY. St. Anne, Ill.

IT IS JUST OUT

Root's A B C in German

We have just been informed by our printers that the work of printing the A B C of Bee Culture in German has been finished, and that in a few days 1000 copies will be in our hands for distribution. The price is $2 postpaid. Send in your order now if you wish a copy hot from the press.

A. I. Root Co., Medina, O.

AND ALL AGENCIES

CUTS USED IN THIS MAGAZINE ARE FROM THE MUGLER ENGRAVING CO.
MUGLER BLDG. CLEVELAND, OHIO.

DISAPPOINTED AGAIN.

We have been still further disappointed and delayed in the delivery of a car of glass honey-jars, No. 25 and Simplex. Some orders are beginning to move direct from the factory on No. 25, which are in stock in Philadelphia, New York, and Chicago, and will soon be on hand here. The Simplex are delayed for want of caps which the factory is having no end of trouble in making, according to their reports to us.

SWEET-CLOVER SEED.

It would seem as though our call for seed of sweet clover was a little late in the season, especially for the yellow variety, which matures earlier than the white. So far we have heard from only two parties having white sweet-clover seed to offer, and none of yellow. It will be a pity if those who have this variety have not saved any seed, as there is a good demand for both kinds. We have not yet secured enough of either, and trust some of our readers have seed to offer or know of some available. If so, let us hear from you with sample and price.

CHANGES IN PRICES FOR 1907-8.

Up to this time we have determined on the following changes in list prices. During the past season we have worked off our surplus stock of No. 2 plain sections so that from this date forward, until further notice, the price on B grade or No. 2 plain sections will be 25 cents per 1000 higher than the rate given in our catalog.

We cut out the dozen rate on No. 30 wire on spools, and increase the 5-lb. coils to $1 00 each.

B. P. S. paint for hives is advanced to $1.75 per gallon; 90 cts. per ½ gallon; 50 cts a quart; 30 cts. a pint.

Painted wire cloth is advanced to 2½ cts. per foot for cut pieces; 2 cts. in full-roll lots. Galvanized wire cloth, 8 mesh, is advanced to 8 cts. per sq. ft.

The A B C of Bee Culture, very greatly enlarged and improved, printed on enameled paper, is advanced to $1.50 postpaid; $1.25 with other goods by freight or express. The new edition will not be completed till November. Half-leather editions will be $2.00; full leather, $2.50.

There has been an advance of over 30 per cent in material for bee-veils, and new prices are adopted as follows: No. 1, all silk tulle veil, 90 cts.; No. 2, cotton tulle with silk face, 60 cts.; No. 3, all cotton tulle, 50 cts.; No. 4, mosquito-bar veil, 30 cts.; bee-hat, 30 cts.; silk tulle per yd., 60 cts.; cotton tulle per yd., 25 cts.; mosquito-bar, per piece of 8 yds., 75 cts. No change in globe veil.

EARLY-ORDER CASH DISCOUNT.

We have been obliged to cut down the early-order cash discount below that offered in former years; but it is still sufficiently liberal to pay transportation charges quite a distance, or to pay liberal interest on the money invested in supplies early, and should attract those forehanded people who know pretty well what they want for the coming season.

The following is the schedule of discounts for early cash orders for bee-keepers' supplies, subject to the conditions below:

For cash sent in			October,	deduct	5 per cent.
"	"	"	November,	"	4½ "
"	"	"	December,	"	4 "
"	"	"	January,	"	3½ "
"	"	"	February,	"	3 "
"	"	"	March.	"	2½ "
"	"	"	April,	"	2 "

The discount is only for cash sent before the expiration of the months named, and is intended to apply to hives, sections, frames, foundation, extractors, smokers, shipping-cases, cartons, and other miscellaneous bee-keepers' supplies. It will not apply on the following articles exclusively; but where these form no more than about one-tenth of the whole order the early-order discount may be taken from the entire bill: Tinned wire, paint, Bingham smokers, Porter bee-escapes, glass and tin honey-packages, scales, bees and queens, bee-books and papers, labels, and other printed matter, bushel boxes, seeds, and other specialties not listed in our general catalog.

A TREE-LOVER'S BOOK.

We have just received a copy of a newly published book which we believe is destined to occupy a unique place in the literature of North American trees. The full title of this volume is "Handbook of Trees of the Northern States and Canada," and it is all that and perhaps a little more for good weight. The author and publisher is Mr. Romeyn B. Hough, Lowville, N. Y., who has already achieved a national reputation for his meritorious "American Woods." The idea underlying this new book on trees is to convey a large part of the information by means of pictures, and this has been accomplished very happily and beautifully. There are still some who believe that photography has nothing to do with art; but these unbelievers would have to revise their opinion if they should carefully examine the illustrations in this book. Trees lend themselves splendidly to pictorial illustration, and the book now before us shows how well it can be done. It is a work of art in the best sense. North America is famous for its many beautiful (and at the same time valuable) trees; and any one not conversant with them will be pleasurably astonished at the number and beauty of our American forest-trees. Except in the tropics there is nothing like them.

To the bee-keeper a book of this kind has a charming interest; for many of the trees here described are familiar nectar-producers. For example, the following liberal honey-yielders are illustrated and described: Willows, elms, magnolias, tulip-trees, sweet-gum, plane-trees, wild apples, red-buds, coffee-tree, yellow-wood, locusts, sumacs, hollies, maples, basswood (or linden), tupelos, rhododendrons, laurels, sourwood, persimmons, catalpas, figworts, and some of lesser note. Now that we are close up to a timber-famine these trees become more important than before; and truthful, accurate information as to the habits, range, rate of growth, and general value of our native trees, is more desired than ever. As a rule, even farmers who are familiar with most of these trees are not well informed as to their value and habits. Even the lumbermen are not, and much remains to be known.

Two things of vast importance have been discovered in recent years: First, that many trees can be grown very closely, and that they grow fast when properly planted. Then, too, we have learned to know just where each tree will grow well and to the best advantage by carefully studying its habits. This forms a rural education in itself, well worth having; and if you are a country resident it is a sort of disgrace not to know the trees. With Mr. Hough's book you may soon learn to recognize and name correctly the trees of your neighborhood, and begin to take an intelligent interest in them.

Some of them, of great beauty, you will want for your dooryard and around the farm, and probably your wife will be as keenly delighted with this volume as you will be, causing you to adorn the old homestead with these charming additions to the landscape—trees. It will give a new zest to tree-planting. The illustrations of the tree itself, the fruit, the leaves, the bark, and even the grain of the wood, should enable any intelligent person to name properly the trees of his locality, thereby adding very considerably to his stock of scientific knowledge. For teachers, therefore, we should think the work indispensable. The price is high; but it is a large book, handsomely bound, with fine paper, and all done in the highest style of the printer's art. W. K. M.

We can supply this book at publisher's price, $8.00.

Special Notices by A. I. Root.

BASSWOOD-TREES FOR FALL PLANTING.

Up to the present date, Oct. 11, we have had no frosts sufficient to make the leaves fall; but we expect them to come very soon now. As soon as the leaves drop we are in the habit of shipping basswood-trees. Perhaps spring planting would be preferable to fall planting; but as the basswood is a very hardy tree I think if they are put out with ordinary care at any time during the fall, winter, or spring, when the ground is not frozen, few should fail to grow. In our locality we very seldom have the ground frozen up so but that we can ship trees readily any time during November; and sometimes we can, during a thaw,

take them up more or less during December. We are now ready to ship such sizes and at prices as are given in the table below.

	Per 10	Per 100
One foot and under, each -	.05	.30	$2 00
The above by mail, " - -	.08	.35	2.25
One to five feet, " -	.10	.75	5.00

They had better go by mail or express. We would not recommend sending them by freight, although when carefully packed we have had them grow after being out of the ground for several weeks. I think trees not over five feet high give, as a rule, better satisfaction than larger ones, and the expense of shipment is very much less on little trees.

SASHES FOR HOT-BEDS, COLD-FRAMES, AND LITTLE GREENHOUSES.

Now is the time to begin to think of giving some protection to plants and flowers that are to be wintered over; and there is not only pleasure but profit in seeing stuff grow all winter long. With a few sashes you can make a cold-frame that will grow lettuce, cabbages, and a lot hardy stuff without any heat; and when you get ready toward spring, with fermenting stable manure you can get both pleasure and profit from the hot-beds. With a dozen sashes or less you can make a greenhouse opening out from your cellar so you can grow vegetable-plants and other things; and with present prices for almost every thing grown under glass you can make a profitable investment of your time on stormy days, and even keep your hired help busy that would otherwise be unemployed. Any one who does just a little in the way of market-gardening should have some sashes and start a little greenhouse. Now, I have just sent for samples (so as to be up to date) of the latest and most improved patterns of hot-bed sashes to be found in and around our largest cities; and while we are making them of late of cypress, the best wood in the world for the purpose, our prices are still unchanged. We keep constantly in stock, ready to ship, sashes both in the flat and nailed up.

PRICES OF OUR LATEST IMPROVED COLD-FRAMES OR HOT-BED SASH MADE OF CYPRESS.

Price of one sash, in the flat, for sample, without glass, 90 cts.; 5 in the flat, 85 cts. each; 10 in the flat, 80 cts. each. Glass, 8x10, just right for the above, $2 90 per box of 90 lights; 5 boxes, $2.80; 10 boxes, $2.70.

Sash put up, no glass or paint, 10 cts. each extra; 10 cts. each extra for each coat of paint, and $1.15 each extra for glass set in place, making the sash put up, painted two coats, and filled with glass, at $2 25 each in lots of 5. The risk and freight charges are so much more shipped put up with glass that we do not recommend you to order this way, and we can not well pack less than five safely.

We would not advise shipping a less number than five; but if you take our advice you will have all your glass sash shipped in the flat. In this case they go as fourth-class freight; whereas, all complete they will have to go as first-class, and some roads rate them as double first-class.

Awards in Photographic Contest.

In accordance with the terms of our prize contest for photographs relating to bee-keeping the following awards have been made:

AWARDS.

Class A.

First.—W. W. Lawrence, Centerville, Texas.
First.—(Foreign) E. Bondonneau, Paris.
Second.—Henry Schmieder, Roxboro, Philadelphia, Pa.
Second.—(Foreign) J. Rinaldo, Italy.
Third.—Charles M. Harris, Rochester, N. Y.
Fourth.—(Foreign) A. Demieere.
Fifth.—(Foreign) O. R. Bostock, New Zealand.

Class B.

First.—Rev. Dr. Wagner, Cincinnati, O.
Sixth.—Irving H. Childs, Benson, Vt.

Class C.

First.—W. E. Patterson, E. Springfield, Pa.
Second.—(Foreign) St. Mary's Abbey, Eng.
Third.—W. A. Stewart, Elkin, Pa.
Fourth.—Rev. A. J. Kline, Brainard, Neb.
Fifth.—D. Meuser, Elmwood, Ontario, Can.
Sixth.—J. S. Gilfillan, Newark, Del.
Seventh.—Barnard Cummings, Chicago, Ill.

Class D.

First.—D. L. Blocher, Pearl City, Ill.
First.—(Foreign) Eugene F. Mason, Haiti.
Second.—(Foreign) Joseph Baptiste, Haiti.
Third.—(Foreign) E. Anthony, New Zealand.

Class E.

First.—Walter Garabrant, Chester, N. J.
Second.—Joseph Peterson, Clover, Utah.

Class H.

First.—(series) J. S. Gilfillan, Newark, Del.

Class I.

Second.—John D. Blair, Arminto, Ky.

Class J.

First.—(Foreign) St. Mary's Abbey, England.
Second.—C. B. Peterson, Chicago, Ill.
Third.—George Fenton, Pine Island, Minn.
Fourth.—(series) Charles G. Macklin, Morrison, Ill.
Fifth—William Thompson, W. Roxbury, Mass.
Sixth.—Scott W. Jackson, Dundee, Mich.

We hope there has been no oversight in any way. We are disappointed in not being able to award the full list of prizes in each class. In some there are very few entries, and in others the photographs were so poor that we could not make any award to them.

Notwithstanding the smaller interest in this than in some of the previous contests, we may have another to announce next year; but whether one is announced or not, we shall be glad to get really nice photographs of any subject relating to bee-keeping, at any time, and will pay fair prices for the same. If any error is discovered in the awards we shall be glad to make the matter right on hearing from the interested party.

1907 A B C of Bee Culture will be mailed to prize-winners as soon as the books are completed, probably within two or three weeks. Other prizes will be sent at once.

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Bee-Breeding.

A bee-book that's different.

Yes, really. It attacks this subject, of such vital interest to bee-keepers, in a way that no other book does. Every bee-keeper should have a copy. Don't think that, because you do not rear queens, you do not need the book. It doesn't tell how to raise queens—other books do that. If you have but a colony of bees it's valuable to you.

It's a beautiful little book—art cover and India-tint paper printed in two colors. You will be pleased with it all the way round; or if for any reason after you get the book and look it over you don't think it's worth the price I will refund your money.

CONTENTS

THE IDEAL BEE.
The necessity of a fixed standard.

THE PROBLEM.
Going into details of the question.

ENVIRONMENT.
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HEREDITY.
An important subject briefly touched.

SELECTION.
How to attain your ideals.

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Making clear some points.

NUTRITION.
Explaining how development is effected.

CORRELATION.
Explaining how to judge unseen qualities.

HONEY-PLANTS.—A closely related problem.

TESTIMONIALS

Dear Mr Green:—I am in receipt of your letter of the 26th inst. and also the copy of your little book, "Bee-breeding," for which I wish to thank you. The book should help arouse more interest in a branch of apiculture long neglected by the masses and but little touched by specialists.
Providence, R.I., Sept. 28. ARTHUR C. MILLER.

My Dear Mr. Green:—I thank you very much for the excellent little book, "Bee-breeding." It is good, both from a scientific and from a popular standpoint. Yours very truly,
PROF L. B. WALTON.
Department of Biology, Kenyon College,
Gambier, O., September 13.

Dear Mr. Green:—Since you were here yesterday I have had an opportunity to look over the book entitled "Bee-breeding," and write to express my appreciation of your thoughtfulness in handing me a copy of it, and to compliment you on the work in preparing the manuscript, and on the way in which you have had it so attractively bound. It covers a field which, in my opinion, is altogether too much neglected; for, as you say, "We need better bees." Yours very truly.
Medina, O., Sept. 5. ARTHUR L. BOYDEN.

Dear Sir:—Your handsome little book is received, and I agree with you that it is the "finest yet" brought out in the interest of the honey-bee. I shall place the gem among my treasures.
Yours in apiculture,
Swarthmore, Pa., Sept. 12. SWARTHMORE.

Price 25 cts. postpaid.

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Stephen N. Green,

Box 96,

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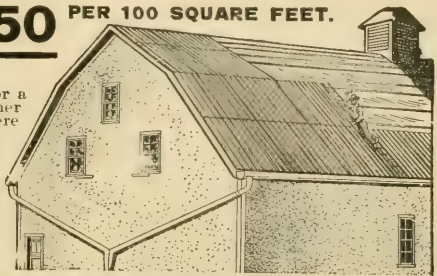

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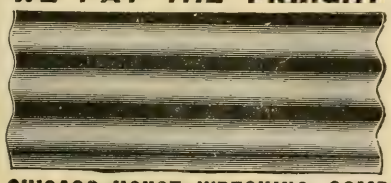

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The A. I. Root Co., Medina, O., U. S. A.

Entered at the Postoffice, Medina, Ohio, as Second-class Matter.

Vol. XXXV November 1, 1907 No. 21

HONEY PACKAGES

OUR CASES are the non-drip "Root Quality" kind. Also can supply you with glass and tin packages for extracted honey. . . . . .

BUY NOW FOR NEXT YEAR

and get four and one-half per cent cash discount for cash orders in November. We will quote you prices on the goods you will need for next season. Get your goods ready through the winter before the rush in the spring. ¶ We carry the Danzenbaker Hive, the Comb-honey Hive.

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BEE-SUPPLIES

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If in the market, state quantity and we shall be pleased to quote you prices.

C. H. W. WEBER

Office and Salesroom, 2146-48 Central Ave.
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CINCINNATI, OHIO, U. S. A.

Honey Markets.

GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct, to the retail merchant. When sales are made by commission merchants, the usual commission (from five to ten per cent) cartage, and freight will be deducted, and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

ZANESVILLE.—There is a fair demand for honey, both comb and extracted. Though large consignments of western honey are being received, the market thus far has been but slightly depressed. For No. 1 to fancy white-clover honey, producers are receiving from the jobbing trade here 16 to 17, and for best clover and raspberry extracted in 60-lb. cans, 9 to 10, delivered. Jobbers and commission men are receiving from the retail grocery trade 19 to 20, net weight, for fancy, and 18½ to 19 for No. 1 comb; extracted, 11 to 12½; 29 cash or 30 in exchange for bee-supplies is offered for beeswax. But little wax is sold on this market in a wholesale way. While small lots bring frequently 40 to 45, larger quantities can be unloaded only at a great reduction from these prices. EDMUND W. PIERCE,
Oct. 18. 136 W. Main St., Zanesville, O.

CINCINNATI.—The receipts of both comb and extracted honey have fallen off considerably within the past two or three weeks, which is probably due to the shortness of the honey crop throughout the country excepting the far West. Many carloads of Western comb honey have been placed upon this market, which has weakened the demand. Quote our fancy comb honey at 16 to 17½. The demand for extracted honey is exceptionally good. We are offering our fancy water-white extracted honey in barrels and cans at 10 cts.; amber in barrels at 6 to 7½, according to the quality. For choice yellow beeswax, free from dirt, we are paying 30 cts., delivered here.
THE FRED W. MUTH CO.,
Oct. 15. 51 Walnut St., Cincinnati, O.

INDIANAPOLIS.—The demand at this market is principally for white-clover honey. A deluge of alfalfa honey is being distributed here, and dealers are nervous lest the deluge of Western honey should break the market. High prices thus far have not been a detriment to prompt sales. Fancy white comb sells to the retail grocery trade in lots of one to five cases at 19 to 20 cents per pound, actual weight. Finest extracted in five-gallon cans sells from 11 to 12 cents per pound. Alfalfa and sweet-clover honeys sell at slightly lower prices. Beeswax is offered freely, and sells for $35 per 100 pounds. WALTER S. POUDER,
Oct. 19. Indianapolis, Ind.

ST. LOUIS.—There is no change in our honey market since our last of the 10th. The receipts are more liberal, however. We quote as follows: Fancy white comb honey, 17; No. 1, 16; amber, 15 to 16; broken or defective honey sells at considerably less, and is difficult to place. Extracted white in cans, 8 to 8½; amber color, 7½ to 8 in barrels; in half-barrels, one cent less per lb. Beeswax firm at 29 for choice pure; all impure and inferior, less. R. HARTMANN PRODUCE CO.,
Oct. 19. St. Louis, Mo.

ALBANY.—Comb honey is steady; and although receipts are increasing we do not look for much change in prices. Fancy white comb, 16 to 17; No. 1, 15 to 15½; No. 2, 14½ to 15; buckwheat and mixed, 14. Extracted, receipts very light so far, and prices high. White, 8 to 8½; light amber, 7½ to 8. There is a particularly good demand for buckwheat and dark extracted at 7½ just now. Beeswax steady at 32. H. R. WRIGHT,
Sept. 12. Albany, N. Y.

CHICAGO.—The demand is active at present with increasing receipts. No. 1 to faacy white comb honey brings 17 to 18; the discolored (if travel-stain only) brings quite as much. The crooked and mixed colors, from 2 to 5 cts. less; amber grades do not sell well, as the honey is dark when cut, yet a light amber of good flavor brings 15 to 16, with dark grades 2 to 3 cts. lower. Beeswax, 30. R. A. BURNETT & CO.,
Oct. 18. Chicago, Ill.

KANSAS CITY.—The supply of comb and extracted honey is fair, demand good. We quote: No. 1, white comb, 24-section cases, $3.50; No. 1, amber, $3.25; No. 2 white and amber, $3.00; extracted white, 8½; amber, 7½ to 8. Beeswax, 25 to 28.
C. C. CLEMONS & CO.
Oct. 19. Kansas City, Mo.

SCHENECTADY.—Receipts have been somewhat larger during the past week; many producers are complaining about not getting their shipping-cases yet, so we look for the free arrival of stock the rest of this month. No change in prices. We could place some fancy white in tall sections to good advantage.
CHAS. MACCULLOCH,
Oct. 19. Schenectady, N. Y.

ST. PAUL.—This market is cleaned up; offering 20 cts. for No. 1 white clover. W. H. PATTON,
Oct. 19. St. Paul, Minn.

WHAT HAS MUTH GOT NOW?

Genuine **Orange-blossom Honey.** Genuine **Black-sage Honey.** Genuine **White-clover Honey.**

(All in crates of two 60-lb. cans each)

and Fancy Comb Honey in 24-section cases, averaging 22 lbs. to the case.

You better write for prices; this honey is too good to stay long on our hands.

THE FRED W. MUTH COMPANY,

51 WALNUT STREET. The Busy Bee Men. **CINCINNATI, OHIO.**

NEW YORK.—There is a good demand for all grades of honey. Arrivals are now coming in more freely; and in good-sized lots, and find ready sale at good prices. Fancy sells at from 16 to 17c; No. 1, at 15; No. 2, white, at 14; dark and buckwheat, at 12 to 13c. Extracted also in good demand, with sufficient supply, principally from California. We quote water white at 9c; white sage, at 8½; light amber, at 8; dark and amber, at 7 to 7½, according to quality. Southern und West India honey, in barrels, at from 70 to 80c per gal., according to quality. Beeswax quiet, at 29 to 30c. HILDRETH & SEGELKEN,
Oct. 24. New York.

CINCINNATI.—The market here for white clover extracted is bare. There is a good demand for white extracted honey, selling in cans from 9½ to 10 cts. No. 1 white clover comb honey at 17 cts.; alfalfa at 16½. Amber extracted, from 6 to 6½ cts. Market is good. Beeswax selis here at 30 cts.
C. H. W. WEBER,
Oct. 23. Cincinnati, O.

SAN FRANCISCO.—Stocks of honey here are very light, and the visible supply is small, with no large lines arriving. The market is very firm, with prices as quoted last week. Light amber, extracted, 7 to 7½; water-white comb, 16 to 17; white comb, 15; water white, extracted, 8 to 8¼. *Pacific Rural Press.*
Oct. 12.

PHILADELPHIA.—The sales of honey have been quite active in this market during the past few weeks. We quote: Fancy comb honey, wholesale, 17 to 18c; No. 1 white, 15 to 16; amber, 14; extracted honey, water-white, 7½ to 8;; amber, 6½; dark, 6: beeswax, 30. We are producers of honey, and do not handle on commission. WM. A. SELSER,
Oct. 25. 10 Vine St., Philadelphia, Pa.

BUFFALO.—White clover honey is very scarce in this market; very little has come in so far this season. There is not a big demand for it, although any that arrives sells at very good prices, and cleans up on arrival. Buckwheat is in good demand, but mixed is slow sale, or any good honey that does not show up well. No. 1 to fancy white comb honey, 17 to 18. No. 2; 13 to 15. buckwheat, 12 to 13; No. 1 white extracted, 7½ to 9; No. 1 dark, 6½ to 7½; beeswax, 28 to 30.
W. C. TOWNSEND,
Oct. 26. Buffalo, N Y.

Unusual good demand for

Honey

this season. We invite your correspondence, and your consignments of both Comb and Extracted Honey, and Beeswax. Commission 5 per cent. Liberal cash advances and prompt returns.

H. R. WRIGHT,
ALBANY, N. Y.
Estab. 1875.

Highest Market Price
for your Honey.

A. H. DOOLITTLE, 180 Perry St., Buffalo, N.Y.

Extracted
Honey
Wanted

We are always in the market.

If you have any to sell, mail small average sample to

NATIONAL BISCUIT COMPANY
Purchasing Department,
205 La Salle St., Chicago, Illinois.

WE WILL BUY AND SELL
HONEY
of the different grades and kinds.

If you have any to dispose of, or if you intend to buy, correspond with us.

We are always in the market for WAX at highest market prices.

HILDRETH & SEGELKEN,
265-267 Greenwich St. 82-86 Murray St.
NEW YORK.

I WILL BUY YOUR
HONEY
for cash. Send sample, and mention quality, style of package, and price.

ONE CAR OF ALFALFA HONEY WANTED.

M.V. FACEY, Preston, Fillmore Co., Minn.

Established 1873. Circulation 32,000. 72 pages. Semi-monthly.

Gleanings in Bee Culture

$1 per year. When paid in advance: 2 years, $1.50. 3 years, $2.00. 5 years, $3.00.

Devoted to Bees, Honey, and Home Interests.

Published by
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J. T. CALVERT, Business Manager

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Handsomely illustrated catalog free.

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908 Jefferson Av., Toledo, O.

Gleanings in Bee Culture

Combination and Club Offers.

Last season, without intending to show any partiality, a premium list was issued in the interest of subscription work. A wide choice of books and papers on bee-keeping, poultry-raising, fruit culture, and kindred subjects was open to any one who could devote a little leisure time in securing GLEANINGS subscriptions, either new or renewals.

ONE RESTRICTION—that a renewal for one's self did not entitle the sender to a premium—caused an occasional protest.

Fair to Everyone

During the season 1907–8, both old and new subscribers may secure a year's subscription to GLEANINGS IN BEE CULTURE, and choice of any of the following books, papers, or articles, by sending a small additional amount to subscription price, as specified under terms of the offer which meets his needs. We feel certain that these offers will be appreciated by all, especially by any who may have felt that the list last season was too restrictive.

Offer No. 1 B.—A B C OF BEE CULTURE (1907 edition), postpaid, and GLEANINGS one year, for $2.25. This edition of A B C will be ready to mail about November 1.

Offer No. 2 B.—HOW TO KEEP BEES, postpaid, and GLEANINGS one year, for $1.50. A handbook for those who keep bees for happiness and honey, and, incidentally, for money. It serves as an introduction to more extended manuals, such as the A B C of Bee Culture.

Offer No. 3 B.—FORTY YEARS AMONG THE BEES, by Dr. C. C. Miller, and a year's subscription to GLEANINGS, $1.75, postpaid.

Offer No 4 B.—STANDARD ROOT SMOKER, postpaid, and GLEANINGS one year, $1.85. One of the best smokers made, both in principle and construction.

Offer No. 5 B.—WHAT TO DO AND HOW TO BE HAPPY WHILE DOING IT, by A. I. Root. This book postpaid, with GLEANINGS one year, $1.35.

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Offer No. 8 B.—BEE-GLOVES. One pair of cloth bee-gloves, with or without fingers, with GLEANINGS one year, $1.35, postpaid.

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THE A. I. ROOT COMPANY, MEDINA, OHIO.

Gleanings in Bee Culture

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THE YOUTH'S COMPANION.

Have you read our advertisement of the *Youth's Companion*? If you have not, we wish to point out that all good American boys and girls read this famous journal. No matter what station in life the children of America may be placed in, they all read the *Youth's Companion* on a common level; and their parents read it too.

The subject-matter of its pages is so carefully selected that we never heard of a complaint from any one about the reading-matter. Equally great care is used in selecting the advertisements, so that, taken all together, it may be used as a model for all young people's papers for all countries as well as ours where the English language is spoken.

Nothing could be more appropriate by way of a birthday or Christmas present than a subscription to this periodical. It is unnecessary to ask if the recipient will appreciate it. There is no doubt about that, so go ahead if you wish to present something nice to a bright young niece, nephew, cousin, or young friend.

You probably have a lively recollection of the time when you received as a Christmas present a year's subscription from Uncle John or somebody else; and how eagerly you looked forward to the arrival every week of the weekly number!

On the principle that it is more blessed to give than to receive, we hope all who should do so will go and do likewise. Keep the practice up. It is a good one. To the older folks who wish to keep young, nothing better can be thought of than a perusal of the *Youth's Companion;* and not for next year alone, but for all the years that are to come.

THE AMERICAN BOY.

There have been many journals for boys started of late years, many of which have died; but one which had striking merit in it has succeeded in creating for itself a unique place in the hearts of our boys. We allude to *The American Boy*, advertised elsewhere in this journal.

We have watched its steady growth for some time past with pleasure, as it has a clean moral tone about it which is commendable, and yet it is a real boy's paper, full of adventure and dash. No molly-coddle business is allowed in *The American Boy*. The result is, it has a fine circulation, and it desires more; hence our offer to club with it at $1.65. If you are looking around for a real boy's paper which is all right in every way we beg to suggest this periodical, as in this way it does not cost much, and yet it fills the bill for a truly boy's paper, such as a lively healthy boy hankers after. You may let the boy himself be the judge, and send for a sample copy.

A boy likes pluck and grit, and the stories in *The American Boy* have plenty of both; but at the same time there is nothing rowdy or rough. It caters also to the boy who wants to invent and make things, and most boys want to do that. Please consider the offer made, and decide soon, because the average boy does not appreciate long wants. No boy is made that way. Perhaps you will leave the consideration of the offer to him as suggested. You can take GLEANINGS while he takes *The American Boy*, and then we believe every thing will be satisfactory all around.

The celebrated firm of mill-makers, Wilson Bros., of Easton Pa., have again placed their usual advertisement with us this season. This concern has a world-wide reputation for its mills, which are made for many purposes. They have large factories, and are perfectly reliable in every way, so that no one need hesitate to do business with them at long range. Their catalog is always sent for the asking.

Elsewhere in this issue the reader will find the advertisement of the National Biscuit Co., a concern which buys, for spot cash, whole trainloads of honey. Such a company as this hardly needs any introduction to our readers; and we hope that any subscriber who has honey to sell, of the particular kinds which they use, will at once enter into correspondence with them.

The A B C of Bee Culture

(and the X Y Z as well).

IT is only two years since we undertook to revise a new edition of our A B C, numbering 15,000 copies; yet the general advance along all the lines of bee-keeping, and the demand for the A B C, have been so great that we have been compelled to go completely over our work again and issue another edition, larger and better than the last.

A COMPLETE REVISION.

When we started on the work of revising the A B C book we had no intention of submitting it to any great changes, more particularly as we were in a hurry to get it out, as the old edition was nearly exhausted. But as the work of revision progressed, we found it necessary to make extensive alterations and additions—so much so that the book itself will be considerably larger. To meet the demand for better illustrations we had to provide a higher and more expensive grade of paper. These two factors compelled us to raise the price of the new edition, for, as most bee-keepers are aware, the A B C is sold on a very small margin of profit.

PRACTICALLY A NEW WORK ON BEES.

In addition to our regular staff of Root experts we have been assisted by W. K. Morrison, who has entirely rewritten many of the articles having to do with the scientific side of bee-keeping, besides reading and editing much of the other work as it went along. Mr. Morrison has traveled over all sections of the United States, almost every island in the West Indies, a large portion of South America, and also in Mexico, Central America, and Europe, so that the new A B C will be world-wide in its application, and sectional ideas largely eliminated. While the new book is American in its make-up from start to finish, in no sense can it be termed local to this country, and we believe it will be found as useful to a bee-keeper in Mexico, Cuba, West Indies, Argentina, Brazil, Canada, Europe, South Africa, Australia, New Zealand, and other countries, as it has been found to the bee-keepers of the United States.

VERY PRACTICAL.

In doing this the practical side of bee-keeping has not been slighted; on the contrary we have kept the dollar and cents side of the bee-business constantly in view, for we recognize the fact that bee-keeping must be made to pay or it ceases to exist.

LARGER THAN BEFORE.

While the new edition is larger than its predecessors, it is in no sense padded with useless material; on the contrary much of the work is necessarily condensed after the manner of an encyclopedia. We recognize the fact that the average bee-keeper has not a superabundance of time on his hands, and we have tried to meet his views of the matter.

THE NEW PURE-FOOD LAW.

In conformity with the changes now going on, new articles on sugar, honey, glucose, and nectar have been provided; also others on the law of bees, and foul-brood laws. These features alone are valuable.

HONEY-PLANTS.

The question of honey-plants is very important in estimating the value of a locality for bees, and this has been carefully rewritten, in many cases, so that the beginner in most parts can get a fair conception of the value of his locality for bee-keeping. In every case the scientific name accompanies all common names of honey-plants, so that the information conveyed will be found useful in all parts of the world.

QUEEN-BREEDING.

As the readers of GLEANINGS are fully aware, rapid strides are being made all along the line in scientific queen-breeding, and the usual article on this subject has been recast to suit the times.

MAKING AND RENDERING WAX.

As most of our readers know, improvements have been recently effected in this department, necessitating an entire change in this subject. Mr. H. H. Root has written this after much study and many experiments.

POWER-DRIVEN EXTRACTORS.

These have been dealt with under the subject of "Extracted Honey," so that the owner of such an outfit, or the bee-keeper who desires to get one, will have the necessary information at his elbow at all times.

DISEASES OF BEES.

So much has been learned about the inner workings and origin of bee-diseases that this is absolutely new in this edition. While the article under this head is necessarily brief, it covers the whole subject as it now stands. E. R. Root, the editor-in-chief, has gone to a great deal of trouble to get this so that the average bee-keeper can thoroughly understand it.

ILLUSTRATIONS.

The A B C of Bee Culture has always been famous for its illustrations, which are calculated to arouse the enthusiasm of the average bee-keeper, making him more determined than before to excel in his chosen pursuit or avocation. Price $1.50 postpaid; $1.25 by freight or express, not prepaid. For sale by all booksellers and supply dealers.

THE A. I. ROOT COMPANY, MEDINA, OHIO.

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Fourteen lines to inch.

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One page..... 40.00

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Preferred position, inside cover pages 50 per cent additional.
Outside cover page, double price.
Reading notices, 50 per cent additional.
Cash-in-advance discount, 5 per cent.
Cash discount, if paid in 10 days, 2 per cent.
Bills payable monthly.
No medical or objectionable advertising accepted.

Save Freight on Your Roofing, and Save One-half the Dealer's Price by Buying from the Factory.

Everybody will be interested in knowing that the Gordon, Van Tine Co., of Davenport, Iowa, have taken the final step which enables people to get good roofing at one-half the price charged by local dealers and other concerns for lumber and other roofing material. This reliable and progressive business house has established warehouses in nearly all parts of the United States—Chicago, Kansas City, Memphis, Minneapolis, Philadelphia, etc. Henceforth, when a man orders roofing from Gordon, Van Tine, it will be shipped to him at once from the nearest warehouse, at an enormous saving in freight charges for the customer. The public ought to appreciate this accommodation, for it is really the consumer and not Gordon, Van Tine that is directly benefited by getting such a big reduction in freight rates. If interested in the roofing question send for a copy of the free Gordon, Van Tine roofing book, which is a complete encyclopedia of roofing, and which they send to any one in the United States who sends his name and address.

How to Keep Bees

By Anna Botsford Comstock

228 pages. 32 pages of illustrations.

A charmingly written manual describing clearly and in detail the outfit, first steps, and methods. The author's well-known literary ability has combined with her enthusiasm for a subject to produce a very unusual volume. It is a handbook for those who keep bees for happiness and honey, and incidentally for money. It serves as well as an introduction to the more extended manuals already in the field. "Finally with all due deference to the authors of the excellent books on bee culture which we have already, my opinion is that this new book, 'How to Keep Bees,' is the best one for a beginner, or one who does not wish or expect to keep more than a dozen colonies, that has yet come before the world."—*A. I. Root, in Gleanings, July 1, 1906.*

Chap. 1, "Why Keep Bees," urges honey, perhaps money, recreation, love of nature study, and the need of bees in "a perfect garden," as good reasons for keeping bees. The second chapter tells "how to begin" in a small way, and we may get all the necessary detailed information for management from later chapters, arranged in order of demand for information.

Price $1.00. Postage 10 cents extra.

Money refunded to any dissatisfied purchaser.

The A. I. Root Co., Medina, O.

MR. MOORE'S STATEMENT.

To give you the report of an advertiser new in the field, having no former results on which to base his conclusions, would not be so convincing as the evidence from one who has had years of experience.

Mr. J. P. Moore, one of the best queen-breeders of this country, has been using the columns of GLEANINGS in season for about 26 years. Four years ago he said: "As a result of my advertising in GLEANINGS I have customers in every State in the Union, and in several foreign countries. My advertising in GLEANINGS has paid me exceedingly well." Wishing to know whether he still considered his advertising as profitable as formerly we made an inquiry recently to which we received a letter in reply as shown below.

The Rearing of Italian Queens a Specialty	OFFICE OF J. P. MOORE, PRACTICAL APIARIST	Descriptive Circulars and Price List Free to all Applicants

MORGAN, KY Sept. 17 1907

M The A. I. Root Co.
Medina O.

Dear Sir : Yours of 9/13 ~~enclosing $~~ received. Please accept thanks.

In reply, would say that my advertising in Gleanings has been one of the most profitable investments I ever made. It has brought me more orders than I could fill — more than I expected.

I consider Gleanings a first class advertising medium.

Wishing you continued success,

I am

Yours very truly
J P Moore

It should be borne in mind that Mr. Moore's use of and success with GLEANINGS advertising is not that of a transient advertiser, but it has been a paying investment for him *year after year*. It is representative of a large class of substantial advertisers in many different lines. The readers of GLEANINGS who patronize so liberally a queen-breeder who sells his product at good prices are naturally good buyers of other products as well.

If you have reliable articles to advertise, try the columns of GLEANINGS, circulation 35,000 copies, rates 20 cts. per line, $2.80 per inch. Do not expect to get into our columns, however, unless you have reliable goods and can give evidence that you can serve our readers satisfactorily. This is one of the reasons why those using advertising space with us get such results. Better send your reservation for space, but, for further information, address

ADVERTISING DEPT. GLEANINGS IN BEE CULTURE, MEDINA, O.

Our Clubbing Offers!

Gleanings in Bee Culture 1 year. . $1.00

The Hunter-Trader-Trapper 1 year 1.00

Total . . .$2.00

BOTH FOR
$1.50.

THE WHOLE FAMILY GROUP—

The Delineator,
McClure's Magazine,
World's Work,
Gleanings in Bee Culture,

COMBINED PRICE,
$3.75.

Canadian postage, $1.90 extra per year.
Foreign postage, $3.88 extra per year.

The Garden Magazine (two years),
The Farm Journal (two years),
Garden and Farm Almanac (one copy),
Gleanings in Bee Culture (one year),

CLUB RATE,
$2.65.
Canadian postage, $1.30 extra.

The American Boy

A Profusely Illustrated Monthly for BOYS.

Without Question the Most Entertaining and Practical Magazine in the World for Young Americans.

COVERS IN COLORS.
36 Pages, size of Ladies' Home Journal.

Serial and Short Stories by Stratemeyer, Tomlinson, Trowbridge, Munroe, Shute, and others, the best writers for boys in the world.

Departments relating to all Boy Hobbies, edited by experts.

It preaches the religion of "DO," and not that of "DON'T."

Is doing more for the Uplift and Encouragement of Boys than any other agency.

Approved by parents and educators. Boys (250,000 of them) everywhere enthusiastic for it.

The subscription price of The American Boy is $1.00 per year.

The American Boy (1 yr.) . . $1.00
Gleanings in Bee Culture (1 yr.) 1.00
Total $2.00

BOTH FOR **$1.65**

Address
The A. I. Root Co., Medina, O.

. . . . . Address all orders to . . . . .

THE A. I. ROOT COMPANY, :: :: :: MEDINA, OHIO.

Gleanings in Bee Culture
PREMIUM OFFERS

CONDITIONS

The following offers are self-explanatory in most cases. Their purpose is to induce both present and prospective subscribers to interest *others* in GLEANINGS IN BEE CULTURE.

Please Observe Carefully the Following General Rules

1. Trial subscriptions are offered only for uniform time of six months, and must in each case be a new name—that is, the name of some one who has not been a subscriber to GLEANINGS during the preceding year. One sending in a trial subscription for himself is *not* entitled to a premium.

2. Any one, whether a subscriber or not, may take advantage of the offers given on this page by complying with given conditions, except that no one is entitled to a premium for his own renewal unless he sends two or more subscriptions besides his own. It then counts the same as the name of any other renewal he may send.

NOTE.—We have, however, provided a list of CLUBBING OFFERS and COMBINATIONS, including GLEANINGS, which we are very glad to extend to our old subscribers. In those offers a renewal for oneself may be sent; and by making payment of additional postage required, a book on bee-keeping, subscription to some other paper, or something in the line of bee-keepers' supplies, may be secured for an amount only slightly in excess of the regular subscription price of GLEANINGS. (For more detailed information see page 1357.)

3. Please note that our premiums are divided into three classes as follows: For six months' trial subscriptions (new only); for yearly subscriptions; for yearly renewals (for some one else).

4. Premiums should be claimed when orders are sent. Please order your premium as numbered and lettered, and also specify the article or articles desired.

5. All former premium offers are canceled at this date.

For New Six Months' Trial Subscriptions

SEE Rule 1 given above. As many premiums may be claimed as you send subscriptions. A subscription to one of the papers will apply to either new or renewal subscription to that paper.

Premium 1C. For one trial subscription we will advance your own subscription three months.

Premium 2C. One year's subscription to Farm News and a copy of Prof. Holden's Corn Book, postpaid.

Premium 3C. Two years' subscription to the Farm Journal (Philadelphia).

Premium 4C. One year's subscription to Farm and Fireside.

Premium 5C. One copy of "Child Training," an excellent little book by one who is herself a lover of children, and whose life work has been teaching in primary grades.

(The next five premiums are books in the Swarthmore Library.)

Premium 6C. One copy of "Increase." The first of the series. Any one desiring to enlarge his apiary should learn the Swarthmore way.

Premium 7C. One copy of "Baby Nuclei." The using of little frames and a handful of bees for mating queens has created a stir in the queen-rearing business. From this booklet you get your information direct.

Premium 8C. One copy of "Commercial Queen-rearing." A complete description of the Swarthmore method of queen-rearing in regard to cell-getting.

Premium 9C. One copy of "Simplified Queen-rearing." It tells the honey-producer how to rear queens by the simplest method ever published. Good queens for little money and little trouble, giving an effective and economical plan for the bee-keeper who works for profit.

Premium 10C. One copy of "Forcing the Breeding-queen to Lay in Artificial Cell Cups." This little book is fully explained by its title; and, though it may be considered a small book by some, it contains important information of great value to a queen-breeder, which can not be obtained elsewhere. A queen-breeder must have it. It says the last word on this great subject of queens.

For New Yearly Subscriptions

ANY one of the following premiums may be selected for each new yearly subscription sent to us with $1.00. As many premiums may be claimed as you send subscriptions. If a subscription to one of the papers is selected, it will apply to either new or renewal subscriptions to that paper.

Premium 1. For one new yearly subscription sent to us with $1.00 we will send GLEANINGS to your own address one year, or one Style D. GLEANINGS binder; postage 15 cts. extra.

Premium 5. How to Keep Bees, one copy, cloth-bound, by Anna B. Comstock; postage 10 cts. extra.

Premium 6. One Doolittle's Queen-rearing, cloth-bound; postage 10 cts.

Premium 7. One Langstroth on the Honey-bee, revised; postage 15 cts.

Premium 8. One Forty Years Among the Bees, by Dr. C. C. Miller; postage 10 cts.

Premium 9. One Standard Root smoker; postage 25 cts.

Premium 10. One fountain pen, postpaid; as good as any $1.00 pen on the market.

Premium 11. One untested Italian queen, leather color, to be sent at our convenience during the season of 1908.

For Renewal Yearly Subscriptions

SEE condition under Rule 2 given above. Any one of the following premiums may be selected for each renewal yearly subscription for *some one else*, sent to us with $1.00. If a subscription to one of the papers is selected, it will apply to either new or renewal subscriptions to that paper.

Premium 11C. One copy of any of the following books, the publisher's price of which is 50 cts: Poultry-house and Fixtures; Artificial Incubating and Brooding; The Chick Book; Eggs and Egg-farming; Plymouth Rocks, Leghorns, Asiatics; Ducks and Geese, Turkeys, Bantam Fowls.

Premium 12C. Either of the following books described in our book catalog; The A B C of Strawberry Culture; The A B C of Potato Culture.

Premium 13C. One untested Italian queen, Southern bred, to be sent at our convenience in season of 1908, when we have a surplus.

Premium 14C. For a renewal yearly subscription (not your own) we will advance your own subscription six months, or send you a GLEANINGS binder, Style C, postage 10 cts. extra.

Premium 15C. One Junior Root smoker; postage 20 cts. extra.

Premium 16C. One pair cloth bee-gloves with or without fingers; postage 7 cts.

Premium 17C. One Porter honey-house escape, postpaid.

Premium 18C. One year's subscription to the American Poultry Journal.

Premium 19C. One copy of any of the following books: Fox-trapping; Mink-trapping; Deadfalls and Snares (a book on trapping); Biggle Horse Book; Biggle Berry Book; Biggle Cow Book; Biggle Pet Book; Biggle Orchard Book.

Premium 20C. One copy of "What to Do and How to be Happy while Doing It," by A. I. Root. Postpaid.

Send all subscriptions to The A. I. ROOT CO., Medina, Ohio

Some Good Offers for You

The American Bee Journal, on July 1, 1907, was changed from a 16-page weekly to a 32-page monthly, at 25 cents a year. September 1st the yearly subscription price was placed at 50 cents, which is very low indeed when you consider what the Journal is. It is now in its 47th year—the oldest bee-paper in America. We want *you* to see a copy of it; if you have not already seen it, send us a postal-card request at once and we will mail it.

A Few Special Combination Offers

1. One Untested Standard-bred Italian Queen (in Sept. or Oct.), with the American Bee Journal one year—both for only one dollar. (Queen alone, 60 cts.)
2. An Ideal Hive-tool (postpaid) with Bee Journal one year—both for only 60 cents. (Tool alone, 30 cents.)
3. One Queen-clipping device (by mail) with Bee Journal one year—both for only 60 cents. (Device alone, 25 cts.)
4. Ten Bee and Teddy Bear Souvenir Postal Cards (by mail) with Bee Journal one year—all for only 60 cents. (10 cards alone, 25 cents.) Address

GEORGE W. YORK & COMPANY,
118 W. Jackson, Chicago, Ill.

Now Is the Time

TO LAY PLANS FOR NEXT SEASON.

Before you plan, investigate the merits of our Divisible Brood-chamber. There is NO DOUBT of the shallow hive giving better results in control of swarming and the securing of FANCY COMB HONEY.

The A. I. Root Company
Syracuse, New York

THE YOUTH'S COMPANION

THE BEST PAPER FOR FAMILY READING.

New Subscribers who send $1.75 at once for The Companion for 1908 will receive eight issues Free (see offer below).

IT COMES EVERY WEEK THE YEAR ROUND.

The Contents of the 52 issues for 1908 will include:

250 Good Stories
— Serial Stories, Stories of Character, Adventure and Heroism.

350 Articles
Sketches and Reminiscences by Distinguished Men and Women.

1000 Notes
on Current Events, and Discoveries and Inventions in Nature and Science.

2000 One-Minute Stories
Bits of Humor and Miscellany, the Weekly Health Article, Timely Editorials, the Children's Page, Etc.

EVERY NEW SUBSCRIBER
Who cuts out and sends this slip (or mentions this publication) at once with $1.75 for The Companion for 1908 will receive

FREE

D 70
The eight issues of The Companion for Nov. and Dec. 1907.
The Thanksgiving, Christmas and New Year's Holiday Numbers.
The Companion's 4-Leaf Hanging Calendar for 1908 in full color.
Then The Companion for the 52 weeks of 1908—a Library of the Best Reading for Every Member of the Family.

Send for Free Sample Copies and Illustrated Announcement for 1908.

THE YOUTH'S COMPANION - - BOSTON, MASS.

"If goods are wanted quick, send to Pouder."
Established 1889

The Foresight of the Busy Bee.

By the Bee Crank.

The industry and thrift of the bee has for so long been a favorite theme with moralists and philosophers that it should not be necessary to cite bee-men, of all people, to the example of their own tireless little workers.

And yet the discount of 4 1-2 per cent that I am offering upon cash November business is an investment that would turn away any bee out of its course if it understood it. And therein the bee would teach a lesson that a lot of bee-men need, though they may not realize it. I carry a full line of bee-supplies, including Root's goods at Root's prices, and the special November discount applies to almost the entire line. Send for catalog.

I pay the highest market price for beeswax. Send by freight or express according to the size of the shipment.

If you wish to purchase finest white-clover extracted honey in 5-gallon cans, write for my monthly quotations of Indianapolis honey market.

Bee-keepers, when in Indianapolis, are invited to call and inspect my fine stock of up-to-date supplies, honey, beeswax, and so forth. No trouble to show goods whether you wish to purchase or not. Location three blocks N. E. of postoffice, and a street-car or interurban car passes my door every forty seconds.

Walter S. Pouder.

513-515 Massachusetts Avenue, Indianapolis, Ind.

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Company, Medina, Ohio

E. R. Root, Editor A. L. Boyden, Advertising Mgr.
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STRAY STRAWS
— by Dr. C. C. MILLER

CAUCASIAN blood is recommended, p. 1310, to get queen-cells started. The only Cyprian colony I ever had would start perhaps three times as many cells as Italians. Are Caucasians better cell-starters than Cyprians? [No, Caucasians are not as good cell-builders as Cyprians; but they are much better than Italians.—ED.]

ABRAM TITOFF makes some good comments on the plural-queen system, p. 1328; but that it's against the laws of nature is hardly a valid objection. On the same ground we ought not to fill brood-frames with worker foundation to limit drone production. But the one point that makes the plan appeal to me he utterly ignores. *If* it will prevent swarming, I want two queens in every hive, nature or no nature.

THAT IDEAL bottom-rack, p. 1324, Fig. 2. I said I had not tried it, and I was a little afraid that a space of ¾ inch under bottom-bars was too much. I was also afraid that the bees might gnaw any thing so thin as separator stuff. I tried a few the past summer, and am happy to report they are a perfect success. Do you realize that it's quite an item to have an air-space two inches deep under bottom-bars all summer long, and yet no building down?

MR. EDITOR, I'm much obliged to you for being back at your work "with renewed vigor" (p. 1308), but please repress that vigor just a bit so as to last longer. I don't want you to go dead yet, just as prohibition all over the land seems to be coming in sight. [Ye editor is going slow, notwithstanding the doctors at the hospital said he made a "star recovery." He suffered no pain to speak of after the operation; the second day had a back rest, in a week was walking around, and on the tenth came home. Yes, we should like to live a little longer to witness the good times that are coming, not only in material progress but in morals.—ED.]

MY THANKS are hereby tendered to Allen Latham, and my apologies to G. M. Doolittle. At the same time I'm not sure but the said Doolittle owes me an apology for not giving the page in *American Bee Journal* where he found me saying that bees do not gather honey and pollen on the same trip (GLEANINGS, p. 1015), for I felt confident I could show that he had misread. Mr. Latham helps out by citing me to *American Bee Journal*, page 571. There it is in cold type, so plainly stated that I can not by any possibility explain it away, "yet the same bee never carries both on the same trip." *I believe they often gather both on the same trip.* I'm not a somnambulist, I don't drink whisky, wine, nor beer, and how I came to write what I did is something I can't explain.

E. B. KIBBE wants to know whether sheep in an apiary trouble the bees or the bees trouble the sheep. Both. If the hives are low down, the sheep rub against them and push them off their stands. This summer a sheep got into the small enclosure containing the Wilson apiary, and I found the sheep dead. But with a little watching, sheep, or a flock of sheep, might be turned in, and they do beautiful work trimming down the grass. [Dr. Miller is about right. In some cases sheep will do no harm, and in others there appears to be some danger both to the sheep as well as to the bees. If the hives are large, and solidly placed on their stands, there will not be much liability of the sheep bumping them off. Last summer we let a flock of sheep in among our baby nuclei. We found in some cases that they bumped the little boxes clear off their stands, and some of the sheep got pretty badly stung.—ED.]

I'M AFRAID you don't quite catch the idea of Rev. Mr. Luger, Mr. Editor, page 1308. Wintering and springing may be equally important with queen culture, and the right

pasturage may be more important than either; but it is not a matter of importance that is in question. We would hardly vote a man an expert in bee keeping just because he happened to be in a fine honey location. He probably means that it requires more skill to be an adept in queen culture than to succeed in wintering or springing. Whether he is right or not in his comparative judgment, it is probably quite certain that the average bee-keeper would greatly increase his income if he would give proper attention to queen culture. [If Rev. Mr. Luger meant that it required more skill to rear queens than to winter or spring successfully he is certainly right. The most difficult problem in all bee culture, in our judgment, is the rearing of high-class queens that will produce more honey than the average common run of stock.—Ed.]

It may be remembered that for several years I had been breeding from queens whose colonies gave largest crops, with least inclination to swarming, regardless of color, my bees being hybrids with Italian blood predominating, but with evil tempers, and that last year I got 10 Italian queens with the expectation on the part of a certain editor, as also a strong desire on my part, that the best of the 10 would turn out to be equal to the best of my hybrids. The past season was not one which allowed a big yield from any colony, white clover blooming freely but not yielding—at least till late in the season, and not much then—but later on I had a fair flow of white honey from other plants, allowing a fair chance for comparison. The Italians seemed in the lead at building up strong, and I think they held that lead throughout the season. But they didn't seem to take hold at storing with the same vim as the hybrids. No. 34 was the best of the Italians, and it produced 96 sections. The best of the hybrids was No. 211, which produced 168 sections, or 75 per cent more than the best Italian. I don't think that shows that Italians in their purity are poor, but that persistent selection for years in breeding from best honey-gatherers without regard to color has materially increased the yield of my hybrids. The question is whether I might not have done as well to have adhered rigidly to the pure bloods. At any rate, if I had it to do over again I think that's what I should do. Another question which immediately confronts me—and I'd give a good deal for the right answer—is this: Shall I give up the fruit of years of selection, and start in afresh with pure blood, or hold on to my big yields and live among hornets? [Better keep on breeding those "hornets." If there is a difference of 75 per cent between them and the gentler strains of Italians, you can well afford to wear a veil and wear bee-gloves, because the mere matter of stings can not compare with one of dollars; and, after all, one can put on enough armor so that he would suffer no great inconvenience, and on the other hand he has the comfortable assurance that no mischievous boys or petty thieves would meddle with the hives.

At one of our outyards, when we had been having some trouble from meddlers, we put a very cross colony at the front and entrance of the yard. We afterward learned that some boys concluded they would help themselves to some honey. They "tackled" this particular colony because it was right handy. An eye witness described the events that followed as something really funny. The boys ran only because they couldn't fly. Of course the one season should not be regarded as a final test between those hybrids and Italians. We hope, doctor, you can continue experimenting for several years at least. In the meantime we are of the opinion with yourself that, if you had devoted the same time and thought on a pure strain of Italians, you would have secured practically the same results so far as honey is concerned. Mr. Alexander belives that he has pure stock that will equal any hybrids, besides their being much more pleasant to handle.—Ed.]

One of the features of the German and Austro-Hungarian bee-keepers' meeting at Frankfort was an address or paper by a Mr. Fleischmann, of Sonderhausen, who gave out very interesting information with respect to the improvement in the color of dark Australian honey when subjected to the action of currents of electricity. More later. W. K. M.

The September number of *Le Progres Apicole* (Belgium) states that the country of Limbourg has just been invaded by millions of foreigners. This is due to the flowering of the heather at the moment in the district of Campine, inducing the bee-keepers of Holland and Germany to send thousands of hives of bees to participate in the great harvest of honey to be obtained. It is estimated that the bees numbered several hundred millions, allowing 50,000 to each hive This gives us a delightful glimpse of European bee-keeping. W. K. M.

Quite a number of our readers have lately sent us clippings from prominent daily papers giving an account of what is termed a most extraordinary discovery by a professor in Lausanne, Switzerland, whereby he creates honey from a mixture of crushed bees and the sweet sap of all sorts of plants.

This yarn is not less than forty years old. These intended aspersions on the honey industry will not do us any harm, now that the pure-food laws are actively enforced. It is, however, a matter of regret that newspapers catering to an intelligent class of read-

ers should see fit to print such nonsense when there is so much of real interest that is never published about the bee industry except what appears in the regular bee-journals.

W. K. M.

DR. CHARLES A. BROWNE, of the Bureau of Chemistry, United States Department of Agriculture, is engaged in the extended analysis of 100 specimens of American honey obtained by purchase at the St. Louis exposition. In addition, various other specimens of colonial and foreign honey will also be analyzed so that the Department will soon be in possession of a mass of accurate data on the subject of honey. Of course, the data are mainly required for the purpose of enforcing the provisions of the food and drugs act; but when published in pamphlet form it will be useful for other purposes besides that. W. K. M.

SOME HONEY MOVING.

WHILE the season has been a short one, some of the honey-men have apparently done a good business in buying and selling honey. We happen to know that Mr. C. H. W. Weber, of Cincinnati, has bought this year seven carloads of Colorado comb honey, two carloads of Wisconsin white-clover comb honey, also several carloads of California water-white sage. As Mr. Weber is one of those men who buy and pay cash he is doing a real service to the producers at large. If other dealers have done as well it is apparent that considerable honey has been moving quietly without the knowledge of the general public.

THE MAL DE MAI.

THE foreign bee-journals of late have been devoting considerable space to remarks on the disease known as "mal de mai," or May disease of bees. One authority states that certain flowers, when the bees are at work on them, seem to bring on or develop this trouble, and instance *Cannabis Indica*, the *Oxyacantha spinosa*, and the *Centaurea*, or blue cornflower. The mal de mai is a sort of frenzy; and, that being so, it is easy to see how *Cannabis Indica* can be a contributing cause, because the people of the East have long used the resin or extract of cannabis as a powerful stimulant, producing frenzy, and quite infrequently insanity, by habitual users of it. The East Indians, who use this largely, name this substance ganjah. Some good authorities now think it was this substance which caused the downfall of King Solomon. Hamet attributed this disease to the charlock, or wild mustard. W. K. M.

THE PLURAL-QUEEN SCHEME TESTED AT MEDINA.

THE boys have been conducting some experiments in introducing a plurality of queens in one colony. They succeeded in introducing the queens, and they stayed for a short time; but an examination to-day, just as they are about to be put in their winter quarters, showed that all the queens were missing but one. We should like to inquire of Mr. Alexander whether he is able to work with two or more queens in a hive without perforated zinc at this time of the year.

KEEPING COLONIES IN PAIRS FOR THE PURPOSE OF UNITING.

USUALLY it is not very satisfactory to unite several weak colonies located remote from each other in the same yard. To obviate the losses from returning bees, our Mr. Wardell has so planned as to have his weak colonies in pairs, but on separate hive-stands. When he got through with his queen-rearing operations he took away one of the hives, putting its brood and bees in the other, and then moving that hive and all to a spot midway between where the other two stood. The hive so placed will catch the flying bees, and, what is more, there will be no losses from returning bees.

While this is an old trick of the trade, well known to the veterans, it is one of the tricks that ought to be mentioned once in a while for the benefit of our new readers.

THE HONEY MARKET.

AN examination of the market reports for several issues back show a gradual and steady increase in prices on comb and extracted. Some of those who were offering so much lower than others found it necessary to make an advance to get consignments. Others, who were offering the high prices, reduced their figures slightly, so that the markets are obtaining more nearly a level on comb honey, the prices ranging from 17 to 19 and 20 cts., wholesale. While this advance has been due to shortage we believe it is also owing to the fact that we have advised producers to hold for better prices which we were sure were bound to come.

As we stated in our last issue, we would not advise producers to hold their crop of No. 1 and fancy any longer. There is some danger of a slight decline in prices at the holidays, although the general shortage will not allow much of a drop, if any. Honey for manufacturing purposes does not seem to fluctuate so much in price, because the bakers make a steady call for it.

A VISIT FROM AN EXTENSIVE PRODUCER; CALIFORNIA HONEY AND ITS EFFECT ON EASTERN PRICES.

WE have just been favored with a visit from Mr. and Mrs. L. E. Mercer, of Ventura, Cal. Mr. Mercer has long been an extensive producer of honey in his State. At present he operates 1800 colonies, running them for extracted honey. His bees are located in territory that will never be capable of growing farm crops. It has no use, and never will have, except to furnish pasturage for bees. The same may be said of some other fine bee-ranges in California. The mountain sides will grow nothing but sage, and in a

favorable year—only about one in five in California—a good crop of honey will be harvested.

We asked Mr. Mercer if it were true that California in a good year could export 500 carloads of honey.

"Oh, yes!" said he. "I remember one year when there were 600 carloads shipped out of the State."

This did not take into account the honey consumed locally. How much this might be, no one could tell.

We asked whether California had any sage honey left. Mr. Mercer replied that it was practically all gone. Not very much has been shipped out of that State this year, owing to the lightness of the crop, and the State is getting to be so largely a consumer of its own product that there is a possibility and even a probability that in a good year it will not ship much honey beyond its own borders. In years past, when there was a big crop of sage, the local consumption was so light that the bulk of it was dumped on the eastern markets, with the result that prices would take a slump. The indications now go to show that this will not occur again, or at least not to the same extent. If California ships beyond her own borders, the honey will be taken up before it gets to the Mississippi River. *Vice versa*, when she has a light year she has to buy from States on her borders.

THAT BEE PARADISE IN TEXAS.

CLOSELY following the departure of Mr. L. E. Mercer we had a call from Mr. W. F. Rice, of Uvalde, Texas. He is a young bee-keeper who has kept bees in that section of the State for six or seven years; but he has been sojourning in this part of the country, taking a course of treatment at the Battle Creek Sanitarium, and expects to return along about the holidays.

Our readers will remember that the territory in and about Uvalde we once called the "bee paradise" of America. When we stopped at the hotel at the place seven years ago we heard nothing but bee-talk; and when we went out into the streets one man would hail another, saying, "How are your bees coming on?" Every one, in fact, seemed to be keeping bees. While this was not literally true, the business was an important industry in the country.

It is still a wonderful bee country; but according to Mr. Rice it is considerably overstocked. The bee-keeping was so profitable that many began to engage in it, with the result that the territory now has more bees and bee keepers than it can stand profitably.

This is the region where the huajilla (or guajilla*), the catclaw, and the mesquite honey are produced. The first mentioned is practically as white and clear as a glass of spring water—the whitest honey in the world. The body and flavor of it are also of the very finest. The catclaw is another good table honey, and large quantities of it are produced.

Mr. Rice says that agriculture is being introduced to some extent, for at one time, or at least at the time of our visit, bee-keeping and cattle-raising were the two main if not the only pursuits. When we asked if agriculture was likely to crowd out bee-keeping our visitor replied in the negative. Most of the honey produced in that region is from trees and shrubs or plants; and he did not think agriculture would ever encroach on these sources of honey.

* Will some one who knows tell which is the right way to spell this?

BEE-STINGS FOR RHEUMATISM.

IN this issue, on page 1382, is a photograph of a bee demonstration showing the application of stings for the cure of rheumatism. This is by no means a new feat before a crowd. Prof. H. A. Surface, of Harrisburg, has given a number of demonstrations of this kind before his students and before the general public.

At the Jenkintown field-day exhibition it will be remembered that an old gentleman came forward and bared his arm when an attendant applied sting after sting to the affected part. The patient said he always felt relieved after the application of the poison, and that was not the first time he had received treatment. Mr. W. A. Selser, of Philadelphia, has applied the stings on numerous occasions.

For certain kinds of rheumatism it would seem that these hypodermic injections of poison do a great deal of good. Reports have been received and published in these columns to the effect that certain persons subject to rheumatism, after engaging in bee culture, and being stung, were greatly relieved. We have had other reports where the stings seemed to have no effect one way or the other.

The policy of GLEANINGS is neither to affirm nor deny the efficacy of the poison for rheumatism; but it is willing to receive reports both favorable and unfavorable in order that we may get at the truth of the matter.

THE PHRASING OF HONEY-LABELS, AGAIN; A SUGGESTION THAT THE NATIONAL BEE-KEEPERS' ASSOCIATION ARRANGE TO HAVE A FRIENDLY SUIT BY WHICH A DECISION CAN BE SECURED FROM THE COURTS.

THE following letter from M. D. Offutt raises some questions that, perhaps, have not been fully considered as yet, and we are glad to place them before our readers:

Mr. Editor:—I have seen your remarks, p. 1132, on the subject of honey-labels. It seems to me that when a producer buys honey to bottle and sell again he should be permitted to mix in his own honey, forming one blend of pure honey, and sell all under one label and guarantee, such as "put up by;" but when one claims to be the producer, the phrase "produced by" would have to be used: otherwise no claim as producer would be implied, although he may have produced part of the blend of pure honey.

Midway, Ky., Sept. 3. M. D. OFFUTT.

As we understand this whole honey-label proposition, one is not required to use the words "produced by" on his own production; but it is a contravention of the law to

use this wording on any honey bought of another, even though that purchased honey is mixed with one's own production. The words "put up by" have not thus far received the recognition or sanction of the government officials, although they offer no objection to the words "distributed by" or "bottled by." It is our opinion that, if a test case were to be made, the courts would allow the phrase "put up by" on any honey purchased or produced by the bottler. We do not see why the same phrase could not cover both. This question can not be definitely determined until it has been adjudicated by the courts.

As long as there is a state of uncertainty we would suggest that the General Manager of the National Bee-keepers' Association take the necessary steps to have a friendly suit taken so that the question may be definitely settled.

THE HONEY SEASON FOR GREAT BRITAIN AND FRANCE.

THE results of the honey season throughout the British islands have been rather disappointing this year, and from practically the same causes as operated in this country, to cause a short crop. In France, also, the honey yield has on the whole been poor, due to cold and rainy weather during the summer months. This is more particularly true in the north and west of France. There was plenty of sainfoin clover in bloom, but the bees either could not get out at all, or if they did venture abroad they were caught in heavy showers of rain, whereby many of them perished. Mr. Edward Bertrand, in Switzerland, reports honey was never better in quality but short in quantity. W. K. M.

GLUCOSE SYRUP VS. CORN SYRUP.

THERE has been evolved during recent years quite a considerable prejudice against glucose as a food, hence the Corn Products Co. asked for a hearing before the Board of Food and Drug Inspection that it might be allowed to label glucose as "corn syrup." The hearing was set for September 30, but we have not as yet been informed as to the result of the hearing.

We do not see how the Board can allow such a label to pass, as "corn syrup" is not always made from corn starch; on the contrary, large quantities are made in Europe from potato starch, and it could readily be made from cassava starch in the South, probably, at a lower cost than when it is made from corn starch. The word "glucose" is as accurate and truthful as it is possible to be, and we do not see why it should be canceled in favor of a word that, to say the least, is ambiguous and misleading. The time may come when we will produce real corn syrup in this country from the sap of the cornstalk; for when the corn-plant is prevented from forming ears it secretes quite a quantity of sweet juice. In fact, it has been suggested we might get our sugar in this way. Glucose has been used so extensively as an adulterant that bee-keepers will want to know just where this matter stands. If there is any product that wants to be clearly and accurately labeled it is glucose.

The extraordinary part of this controversy is that a perfectly truthful and accurate name should be objected to. W. K. M.

IS PARTHENOGENESIS A MYTH?

IN Germany some of the bee-journals are considerably exercised over the appearance of a new book by Professor Kuckuch, of the University of Moscow, entitled "There is no Parthenogenesis." The book is edited by Dickel, the celebrated German opponent of parthenogenesis, who supplies, of course, an introductory note in its favor.

In this connection we are in receipt of a very nice letter from Miss Adele M. Fielde, now traveling on the Pacific coast, who has supplied the scientific world with considerable additions to the accumulated knowledge of ants, in which she says that parthenogenesis has been proved in ants. Let me give her own words: "My ants were virgin workers, and all question of their virginity was settled by their segregation from all other ants, of any sex, from their own pupæ stage, and within their cocoons up to the time when their offspring were hatched and active. There was no opportunity for the fertilization of their eggs, which were always kept in segregated ants. The result of the experiments, which included three species, if I rightly remember, showed that unfertilized ant eggs produce male ants. An unfertilized queen's eggs produced 63 male ants and no females or workers."

The above strikingly confirms what we know about bees in the same connection, and it is a wonder our European friends are so easily drawn into the vortex of a profitless discussion. What we want is more observation. W. K. M.

THE DEALER AND NOT THE PRODUCER GETS THE BENEFIT OF THE HIGH PRICES.

OUT in the State of Washington the retail grocers in convention assembled have declared against the present oleomargarine law, saying it caused the price of butter to be raised at least 8 cents per pound. This looks to us as if the law were a good thing, because it is evident that oleo can be used to depress the price of butter considerably below its natural value. The present law demands a revenue tax of 10 cents per pound on colored oleo, and this the grocers want removed, evidently so they can sell for butter whenever the customer can be duped.

This leads us to inquire how far the low prices of honey are due to the desire of retailers to obtain a very high profit. Bee-keepers are inclined to blame the wholesalers and jobbers, but that is not where the shoe pinches. A little over a year ago, when comb honey of fair quality was selling in New York at 15 cents a pound wholesale, the retailers over in Brooklyn were selling *a section* for 30 cents. It was practically the same

with extracted honey, which was then quoted at 7 cts., unbottled, of course. When this was bottled, and a neat label put on it, the price took wings and went to 20 and 25 cents a pound. In any event, the retailer actually made a greater profit out of each pound of honey than the bee-keeper got all together for producing it. There seems to be an idea among the retailers that honey is one of those commodities like coffee and tea which are made to pay double profits.

Bee-keepers, if they are to reap the fruits of their labors which rightly belong to them, may have to take some kind of action calculated to compel the grocers to adopt a more reasonable course. W. K. M.

INVERT SUGAR AS A SUBSTITUTE FOR HONEY.

SOME of the journals, both in this and other countries, have devoted considerable space of late to the favorable consideration of an address made at Breslau, Silesia (Prussia), by Dr. A. Herzfeld, a prominent authority on the beet-sugar industry, wherein he claims great things for invert sugar as an absolute substitute for honey. Evidently the newspapers think this is something new, and that a great discovery has been made. Let us see.

Invert sugar is not very new, for it has been manufactured for a quarter of a century, perhaps longer. Some of the German bee-journals admit advertisements of invert sugar as a bee-food, and have done so for years. The sugar is "inverted" by means of hydrochloric acid and water. This sugar (we have some of it here, and have had for some time) solidifies after a rest, just as honey does. It, therefore, acts in some respects just like honey. To say that it is a substitute for honey is to shoot very wide of the mark, for it lacks the very ingredient which gives honey its intrinsic value; namely, "flavor." We know that fine flavor in any food is worth money, and physiologists are now all agreed that flavor has much to do with the real value of any food to the human system. Fine flavors induce the digestive system to work in its best manner, and therefore the exquisite flavor of honey has a real value as a promoter of health.

At first it was thought that invert sugar would pass a chemical test for honey; but this is not the case, however, and a method of detecting this form of substitution was soon discovered. The sense of taste is a pretty good test, because it has no flavor of flowers to recommend it to the palate. Only a few weeks ago the German Austro-Hungarian bee-keepers condemned its use as a feed for bees while they were storing honey; and Professor Von Raumer, of the University of Erlangen, who is an authority on pure food, second to none, said at the same time that honey so produced was, in the eyes of the law, a clear case of adulteration, and should be so dealt with. Dr. Herzfeld seems to have gone further, and recommended the addition of invert sugar to strongly flavored honey, claiming this would be a benefit to both the bee-keeping and the sugar-making industries. He claimed that honeys from chestnut, rye, asparagus, wild mustard, and onion flowers have a disagreeable flavor, and that the addition of invert sugar improved them. This looks like the temptation of the serpent in the garden of Eden. Luckily for us in this country the pure-food laws are too stringent to permit this, and the offender is liable to severe penalties. It is very likely, however, some one will try this ere long, no doubt thinking "there are millions in it."

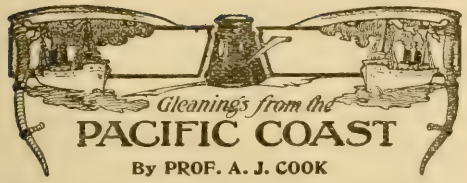
W. K. M.

SWEET CLOVER IN AUSTRALIA.

THE Australian journals are having a good deal to say at present anent the subject of yellow sweet clover. This is due to the remarkable success attained by its use on King Island, which lies a little to the south of Australia, and which forms a part of Tasmania. A Mr. W. C. Macdougall, of Sydney, has succeeded in interesting the agricultural department with a view to the more extended trial of the sweet clover. He says in the *Journal of Agriculture* for West Australia that the seed was sown in raw white sand, and in five or six years this was changed to an almost dark rich loam capable of maintaining one steer to the acre from September to January—5 months. He further says the growth is similar to alfalfa, and that, when cut while it is in flower, it yields nearly two tons of excellent hay, which horses, cattle, and sheep are very fond of. The ensilage made from it is also excellent, and yields from 5 to 7 tons per acre of green material. For fattening and dairying purposes he says it is excellent, and that 75 per cent of the fodder on the island is from this source, and that both the beef and butter command the highest market prices. Fed exclusively, it taints the butter slightly, but not enough to injure the sale in any way. Instead of cutting it close with a mower, as is done in Kansas and Colorado, the King Islanders *burn* it off their pastures every year, and they think this has something to do with the rapid improvement of the land.

In this way weeds are kept down, and a fresh start made each year. They harrow first and sow after, the rain and the wind being sufficient to cover the seed. Ten to twenty pounds of seeds are allowed to the acre. He says the animals acquire a taste for it, and, after being used to it, like it very much. It is claimed that millions of acres of similar land on the continent of Australia can be reclaimed in the same manner by the yellow sweet clover. What is peculiarly interesting about all this is that both the soil and climate of King Island correspond almost exactly to Florida, and, furthermore, that cattle-raising is the prominent industry as it is also in Florida.

If the experience of the Australians can be duplicated in Florida we may yet live to see the "Land of Flowers" become the leading bee State of the Union. One thing in favor of this view is that yellow sweet clover grows admirably in Bermuda—a milder climate than that of Florida. W. K. M.



RUSTS AND SMUTS.

As bee-keepers we are all very much interested in these fungi. They furnish proteid food for our bees which answers as well as pollen, and they are of great economic importance to the world, as they are terrible parasites, and sweep off the higher plants with the very besom of destruction. In their polymorphic stages they are full of interest.

WHEAT RUST.

The wheat rust, *Puccinia graminis*, is one of the best known, and well illustrates the character of the group. As stated, these rusts are fatal parasites to higher plants as wheat and asparagus. They work their harm by sending microscopic threads of growth, called "mycelia," through the tissues of the host, and these in their growth absorb the substance of the victimized plant, and kill it.

Who has not seen the red color on leaf and stalk of the wheat in the summer? This red powder, which used to color the shirtsleeves of the binders with red, is simply spores which develop at the ends of the mycelial threads which push to the surface. This was first thought to be a separate plant, and was called a name which now gives name to these spores. They are called uredo spores, or summer spores, and this stage the uredo or summer stage. These spores are light, and are borne by the wind or other means to other older wheat-stalks, and these send mycelial threads down into the dead stem and come to the surface as before, and produce black spores, which have thicker walls, and can endure the winter's cold. For the same reason as before, these are called teleuto spores, or autumn spores, and this stage takes the same name. It is likely that the kind of spore is determined by the condition of the stalk. An old dead stalk produces a black thick-walled spore, and this carries the plant over the winter, which no other spores can do.

These black spores are double-celled, and in the spring each cell sends out a stem which has several cells, and each cell sends out a second stem which bears spores at the end. These are small and light, and are easily carried by the wind great distances. These may be too early for the wheat; but if they fall on the wheat I think they produce the summer or uredo stage. They usually or often fall on the barberry, and produce mycelia as before. So the barberry falls before this same rust. On the surface of the under side of the barberry leaves little cups appear, and these are known as cluster-cups.

In these, chains of spores are produced, which for the same reason as before are known as accidio spores. These blow on to the wheat, as it is now summer, and the wheat-plants, even of spring-sown grain, are well advanced. These produce the uredo stage and the round of life is complete.

BEES USE THE SPORES.

The bees use all of these spores in lieu of pollen. Thus we may see the red or black or greenish colored bunches on their legs as they come to the hives. We have noticed above that all stages are parasites, except the growths in the early spring from the black teleuto spores. The light spores from these are easily carried by the wind as well as by the bees.

ASPARAGUS RUST.

This rust is a native of Europe, and was first noticed in our country in 1896. It passes through all the stages that we have studied in the wheat rust, so is polymorphic, but works on only the one plant so far as we know. From its host, which it quickly victimizes, it is called *Puccinia asparagi*. In the summer the asparagus is red, later black, and in the spring the cluster-cups are seen, and the chain of spores. Thus our bees may get proteid food from the asparagus in four or five forms: Real pollen, or the different-colored spores of this asparagus rust, each of which probably serves its needs equally well.

This asparagus rust spreads with amazing rapidity. As just stated, it appeared in the East in 1896, and was extremely fatal to the asparagus-plants, especially on light land, where the plants were generally grown. It reached California in 1900, and now vexes the asparagus-growers all through the rich asparagus regions of the State. It is interesting to study the way of its transit. It came to California via Texas and Arizona, and so landed in Southern California. From here it went north, and in a year was at the great island region of the San Joaquin and Sacramento, where there are thousands of acres of this excellent succulent.

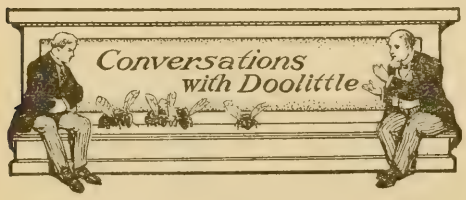
It only remains to be said that there are three ways that are found successful to battle with this foe. It is found that dew is absolutely necessary to germinate the spores. Under trees, then, there will be found no rust. In the spring the plants are kept cut, and so germination of the early cluster-cup stage is impossible, so that, if all volunteer plants and strays are kept down, then there will be entire exemption from attack. Sulphur dusted on the plants will kill all the spores, and there will be no germination. This is thrown on when the dew is on the plants. In very dry regions, like the Coachella and Imperial Valleys, of California, where there are no dews, there can be no rust. Thus in these regions we may expect great groves of this very profitable plant (asparagus), which, with the alfalfa, will make it a great bee-region.

THE WEST COAST FOR BEES.

I am getting such frequent inquiries from all over the United States regarding the Pacific Coast region, and its rank as a bee

country, and also what part is best, that I am sure a word on this subject will be appreciated by the readers of GLEANINGS.

Bees can do well only where there are many and vigorous honey-plants. Plants thrive at their best only where there is generous heat and abundant sunshine. California challenges the world to show more genial warmth and more delightful sunshiny days than does she. This is the reason that she pushes the white plague to the wall, and is also the reason that she stands unparalleled in all our country in the beauty, vigor, and perfection of her vegetable growth. Given water, and there is scarcely any limit to the luxuriant vegetation which is one of the glories of this great State. It goes without saying, then, that California is a (if not *the*) banner bee State. Were there not two unfortunate drawbacks, the honey-production here would be enormous. We sometimes have too scant rainfall, and rarely it is too damp and cold in the late spring and early summer for the bees to do well. We can in a measure overcome the former; the latter is too rare to awaken serious alarm. The best regions are Southern California, and such great valleys as the San Joaquin and Coachella and Imperial, where the irrigation and great fields of alfalfa make abundant forage almost certain. Here, too, the cold and damp are not much in evidence. These regions, like Nevada, Arizona, and Colorado, are ever to be famous for their honey-product. Northern California and further north have the rains, but not the genial warmth and sunshine in such marked abundance



GREAT VARIATION IN YIELD OF HONEY.

"Say, Doolittle, I am in a quandary."

"What perplexes you now, Mr. Smith?"

"What do you guess my average yield of honey was this year from each old colony in the spring?"

"Possibly 50 pounds of section honey."

"More than that. It was 81."

"Whew! That was better than I did, and a very great yield, considering the poorness of the season. You ought not to be in a quandary over such a yield as that. My average yield was about 72 pounds."

"It was not the aggregate amount which perplexes me, but the great variation in the yields the different colonies gave me. I kept a record of each colony. Some colonies gave me as much as 150 pounds, while others gave a yield of only 25, 27, and 30 pounds each. This is where the quandary part comes in, and I came over to see if you could not tell me how, in some way, I could bring all colonies up to those which gave me the highest yields."

"Did you allow the bees to care for themselves?"

"No. I tried to equalize them to a certain extent, even changing some hives, setting the weaker colonies in place of strong ones when the young bees were out for a playspell about two o'clock in the afternoon, but it seemed to do very little good."

"Where did you get the idea of equalizing in that way?"

"An old bee-keeper told me that was the best way. Don't you use that plan?"

"I tried it some years ago, but it did not work to my satisfaction any more than it seems to have worked with you."

"I tried another way, which I thought did a little better; but even that did not bring the colonies on which I tried it up to what the average for the whole apiary was."

"What was this other way?"

"I tried giving brood from the strongest to the weakest."

"At what time of the year did you do this?"

"About the middle of May."

"Did the weak colonies care for all of the brood, or did some of it fail to emerge from the cells?"

"That which I gave first developed perfectly, for we had a few hot days just after it was given; but with some I gave a little later on, much of it was lost; for it became cold the day after I gave it, and the little colonies could not cover it all; and what they could not cover perished for want of heat and care. Did you ever lose any in that way?"

"Yes, till I learned better than to give a very weak colony a lot of brood from a strong colony."

"How would you do it?"

"I am not saying that this is the best way to treat colonies; but where brood is given for the purpose of equalization it should be taken from the stronger and given to those of *medium* strength."

"But that would not help the very weak ones at all."

"Not at this time, but it has a bearing later on. Suppose we have only three colonies, one of them having brood in two combs, one having brood in five combs, and the other with brood in eight combs, all the colonies being in ten-frame Langstroth hives, and that the time of year is May 15th. The first would be called a very weak colony; the second a medium colony, and the third a very strong colony. Now, if we give brood from the strong to the very weak thus early in the season there are so few bees in the weak colony, and the average weather so cool, that, in all probability, much of the brood would be lost; but if we take two frames of brood from the strong colony and give it to the medium colony, taking only such frames as we see many young bees emerging from, we shall have benefited both

by keeping the strong one back a little, and booming the medium.

"Now, by giving this medium colony brood from the stronger, no brood is lost, as this medium colony can stretch out enough to hold this brood, no matter how cold the weather may turn; and in the mean time the little colony is gaining somewhat, and, what is still more to our use, with each day the prospect of warmer weather is becoming more assured. When the first of June has arrived we have two colonies with hives well filled with bees and brood, while our weak colony has brood in three or four combs, probably to the amount of two full combs. At this time, a little earlier or later, in accord with the season or the section of country we are in, we take two frames of emerging brood from each of the now strong colonies and take them to the weak colony, where they are put in place of the brood the weak colony had, the larger part of which is brood in a very young state. Of course, the bees and queen are all brushed off their own brood and allowed to go back into their own hive on the brood from the strong colonies which we have just given them, and the frames from the weak colony put in the strong colonies in place of those taken from them. In a few days this weak colony will have become a medium colony, when four, five, or six more frames of brood can be taken from the two stronger colonies and given to the now medium colony, and the combs from this colony placed in the two strong colonies. In this way all three colonies are brought up to full strength at just the time when the extracted clover harvest arrives, without the loss of a single cell of brood, and, what is of much importance, all are on equal footing, and, barring accidents, each will give very nearly the same results in section honey."

"Well, now, you have done it, sure. I could not see how it was to be brought about when you started out. But you said something to the effect that this might not be the best way to treat colonies. Have you something better?"

"Years ago I used to have the same trouble you told of when you came. Some of my colonies would give only small yields, and others 100, 200, and 300 pounds, and I went to work to find out the reason why this was so. I soon found that much depended on the queen, which we have not taken into account at all so far."

"That is true. We simply supposed the queens were equal."

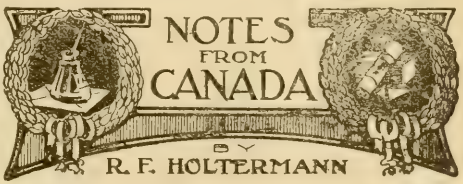
"I know we did; but we are to *know* that they are equal, and know this at least eight weeks before the harvest opens."

"Why that length?"

"Because it takes about that time to have our colonies become entirely ready for the harvest. If the weather could be perfect for six weeks before the harvest, this amount of time would do; but as we have much bad weather mixed in, the eight weeks is about right. Just use *farm* sense when working with the bees. It has been a rare thing with me during the past twenty years to have one colony give 25 pounds more than another colony. I used to ask over and over again, 'Why does one colony give me a yield of 150 pounds while another will not give over 10?' But I have no cause for such asking now. Make all colonies alike as to queens, etc., eight weeks before the harvest begins, and you will find yourself wondering why you ever allowed any other mode of procedure to exist in your manipulation of the apiary."

"Yes; but you hinted you had a better way."

"That better way has been published in GLEANINGS as a serial, which you can read at your leisure. But it is soon to appear in book form, together with some additions I have seen fit to make."



I never found it more difficult to keep up with my correspondence. Many who have written to me upon various subjects will have to exercise a little patience until bees are in winter quarters.

So the *Canadian Bee Journal* has changed hands for the second time this year. The Hurley Printing Co., Brantford, Ont., has purchased the *Journal*. Mr. Hurley is a successful printer, and has engaged in bee-keeping as a hobby for a number of years. His first stock of bees was purchased from the writer. May the new venture prove a success.

R. A. Burnett & Co. state in GLEANINGS, "if bee-keepers will let their honey ripen before taking it off the hives it will do more than any law passed in furthering its consumption." This is a much-needed shot. Paste this in your honey extractor, on your smoker, or the cover of each hive; and if you can not act on it, then work it out on a design of comb-building in each frame.

ONTARIO BEE-KEEPERS' CONVENTION.

The Ontario Convention will be held in Toronto at the York County council chambers, 57 Adelaide St., East. The convention begins at 1 P.M., Nov. 13, and closes at noon Nov. 15. An excellent program has been prepared. The Palmer House, King St., West, is the only hotel which so far has reduced its rates to convention members. It is a $2.00 to $2.50 house, and will make its rates to bee-keepers during the convention $1.50. Come and help us.

PURE FOOD.

In our country it appears to be legal to label goods "Pure maple-syrup compound," also "Pure strawberry jam" mixture. The law should not allow this. Again, hotels should not be allowed to place on their bill of fare adulterated syrups, etc., without putting upon the same, "adulterated." Beekeepers and every honest person can lose nothing by helping on the crusade against adulterated foods. Adulteration has been far less prevalent in Canada than the United States. Let us not be content now until Canada has as stringent pure-food laws as the United States.

REQUEENING.

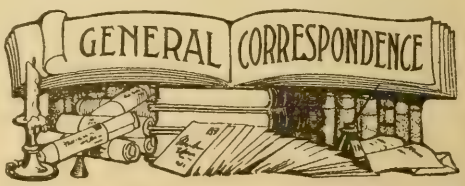
I agree in practice, at least to a very great extent, with a recent article in the *Review* by R. L. Taylor in which he opposes "artificial supersedure or requeening." He says, in brief, that to treat an apiary so is a very great expense, which, in the majority of cases, gives as many poor queens after the operation as there were before. Let us try to have the best strain of bees to begin with, then let us watch for failing queens, changing them, and leaving the rest to nature. That is my practice to a very great extent, and yet I have often thought I might do better. I should like to feel sure that the best method is practiced by me. Having a fall flow, I believe, tends to the superseding of many failing queens. Such a flow is, I believe, an advantage, and helps to work out the method I practice but do not altogether feel like preaching.

MR. AND MRS. J. W. SPARLING.

The judge in honey at the National Exposition, Toronto, Canada, was Mr. J. W. Sparling, Bowmanville, Ontario, whose picture, with that of his wife, appears on the next page. Mr. Sparling, with the assistance of Mrs. S., has exhibited quite frequently at Toronto. Their exhibit has, in my humble estimation, displayed as much or more artistic taste than any put up at Toronto, and the writer has not been backward in taking lessons from them in this line of work. This is particularly true in the blending of colors. How many honey exhibits we see in which the beauty is marred by the improper blend in colors! It has been my pleasure to visit Mr. and Mrs. Sparling at their home, where the same taste is displayed. Mr. Sparling has been president of the Ontario Bee-keepers' Association; and while, no doubt, liable to err, as we all are, he has shown himself fearless in carrying out what he has thought to be right, regardless of friend or foe; and in his official capacity he has helped to lay the foundation to the progressive spirit with which the O. B. K. A. is embued. Scripture asks, "What shall it profit a man if he gain the whole world and lose his own soul?" Mr. and Mrs. Sparling and many of us know it shall profit nothing, and their trust is in Christ their Redeemer.

THE NATIONAL.

Arthur C. Miller and W. Z. Hutchinson are having a heart-to-heart talk about the National, in the September *Review*. I believe Mr. Miller is largely unjust in his criticism; but let us be open to suggestions. I am inclined to think that the majority of bee-keepers do not look for help from the National to buy or sell honey and bees, and yet there may be those who like such help. Mr. France always sends such information out with crop reports and the like, so that the added cost is, after all, not so great. Is it not as well, after all, for those who believe that the National can do better work to stay with it and help in its councils and guidance? I find such a policy far more effectual, where conscience is not affected, than to step out. Stay by it; look upon every defeat as only a temporary reverse, and go on cheerfully until victory crowns the effort. Such are the men dreaded by the opposition, and such are the men who accomplish reforms. It has been well said that there are but few men who do not tire of battle if victory is not soon attained; and the opponents of reform and government action (or, rather, inaction) often build upon this trait in human nature.



BROOD-REARING IN THE SPRING.

How to Build up the Colonies Rapidly; Extracting Sealed Honey in May from the Brood-nest to Make Room for Brood-rearing; Brood-combs of Honey not Desirable for Spring Feeding.

BY E. W. ALEXANDER.

[The following article by our correspondent will, we feel sure, be read with unusual interest. Mr. Alexander is sometimes startling in his suggestions, and especially so in this case. When he advocates extracting all the honey in the spring, and then feeding it back, he departs from the generally accepted practice. Mr. Doolittle and others have argued that a lot of combs of stores in reserve to give to the bees in the spring to stimulate brood-rearing make the best kind of spring capital. While Mr. Alexander does not deny that such combs may be used to advantage, he goes a good deal further and advocates taking away the honey and then feeding such honey back in a diluted form; or if sugar syrup be cheaper, give that instead, thus saving the margin of profit between the cost of the two. He gives some good arguments in favor of this procedure, and we feel sure that all the veterans as well as beginners will be glad to read it carefully. In the mean time, if there are others who have practiced the same plan, and made a success or failure, we should be glad to hear from them.—ED.]

According to our experience along this line I very decidedly differ with some honey-producers, and say, "Yes, it is not only advisable, but it is of as much importance as any other one thing connected with late

spring management." In preparing our bees for the summer harvest there are two things which should never be overlooked:

1. Every hive should contain a sufficient amount of good worker comb for a large well-shaped brood-nest; 2. A good prolific queen.

We think it pays us to kill many queens during the summer, without any regard to their age, simply if they are not as prolific as they should be, or if their bees are not as good honey-gatherers as they might be, or if they are inclined to be cross and vicious when working among them. It is not advisable to keep bees that have any serious faults.

Let us consider the brood-nest as one of the principal things connected with securing a good surplus. Until the last few years we took the advice of some writers on this subject, and saved a large number of heavy combs to give our bees during the spring, to increase early breeding; but with very few exceptions these heavy combs inserted near the brood about May 1 did far more harm than good. If we uncapped them it was sure to start a bad case of robbing; if they were left capped, then they simply formed a division-board which prevented the queen from spreading her brood across the hive, and, consequently, we had a small brood-nest which gave us a small colony during the entire summer.

MR. AND MRS. J. W. SPARLING.

Mr. Sparling was the judge of honey at the National Exposition in Toronto, Canada, and, with the assistance of Mrs. Sparling, has put up many very artistic exhibits. See Notes from Canada.

After realizing the folly of this erroneous method of spring feeding we commenced to extract all capped honey from the brood-nest about May 1, and in its place, when necessary, we fed a little warm thin honey or sugar syrup daily for about a month. This soon gave us strong full colonies; and the best of it was, we soon had our hives packed with brood from side to side, and top to bottom. In this way of preparing our bees for summer we can secure three or four thousand pounds of old honey before fruit-bloom, and leave our colonies in 100 per cent better condition than they would have been had this old honey been left in their combs.

When Dr. Lyon was here a year ago he was so surprised at the strength of the colonies that he took the photo of hives seen on the next page to show their working force. This was taken about 9 A.M. on a cool cloudy morning before the bees had commenced to work in the fields; and while he was taking this photo I counted 237 colonies in the apiary that had the fronts of their hives completely covered with bees that had been on the outside of their hives night and day for many days, except when the flowers were secreting nectar; then it sometimes seemed as if twenty or more swarms were in air over the apiary all day.

Some may say that we should have put two or more hives of extracting-combs on each strong colony in order to have secured more honey. To those I wish to say that I never saw a colony so strong that it was necessary to have more than one set of extracting-combs on at a time. I have been all over this ground for 30 years; and in order to secure the best results, all things considered, I don't care to have more than one set of extracting-combs on a hive at any one time during the season. Now, do you think for a moment that such strong colonies as shown in the photo, and hundreds of others equally strong in the same apiary, could ever be obtained from hives that had their brood-nest partly filled with old capped honey, especially when there had been heavy combs inserted near the center of the hive, such combs forming a complete division-board through the brood-nest or a little to one side? When we visit our friends' apiaries and find only an occasional colony working in their supers, if we should take a smoker and open these hives that are doing little or nothing, nine times out of ten we should find that their brood-nest was so surrounded with capped honey that the queen could hardly find room enough to rear the necessary brood for a good-sized nucleus.

About the first of August a bee-keeping acquaintance called to see me in regard to his not securing any surplus this summer. He was a man of considerable experience with bees, and had fairly good Italians. He was using 10-frame Langstroth hives, and had in the spring about 100 colonies that had wintered well, and was heavy in honey when taken from the cellar. After I questioned

SOME OF ALEXANDER'S STRONG COLONIES.

At the time this picture was taken, even in May, there were 237 colonies in the apiary, so strong that not all the bees could get into the hives at one time, even at night.

him some he told me that he had about 150 heavy combs that he had saved from last season to give to his bees in the spring to stimulate early breeding as some recommended. These he distributed among his hives, so as he thought he would surely have strong colonies ready for the first flow of nectar. But here he was disappointed. His bees would not work in the supers, neither for comb nor extracted honey. He went so far as to unite several colonies, putting the bees of from two to five colonies all in one hive in order to get up a working force. I asked if those hives were not crowded with honey which caused them to be weak in worker bees. He said he had not thought of that, but they certainly were very heavy. I asked him about how much brood they had. "Oh! not much," he said. Some had five and six combs partly filled, and some had only four combs containing any; but every thing was full of honey, and he could not understand why the bees did not uncap that honey and carry it above.

Now, my friends, is it any wonder that he did not secure a good surplus, and that he thought it the poorest season he had ever known? I can not understand why a man of experience should have allowed his bees to get in such a condition. If, about the first of May, he had extracted those heavy combs he foolishly put into his hives, and also extracted the capped honey that was already in the hives, he would have had much honey to his credit, and his hives full of maturing brood which would have given him a fine surplus of early honey. I honestly think a moderate use of the extractor through the latter part of May and fore part of June, especially when running an apiary for comb honey, would be the means of many bee-keepers securing twice as much surplus as they usually do Here at the North May is the month of all the year when our bees require the closest attention. It is then that we should care for them so that every inch of comb in the hive is utilized for brood rearing that can possibly be used for that purpose. Bring your extractor into use, cleaning your hives of nearly all capped honey, and see to it that every queen in the apiary is doing her very best to crowd the combs with brood; then you will soon have those strong colonies that will give you a fine surplus, and at the end of the season you will hardly believe it when told that the summer has been a poor one for the production of honey. Spring feeding has never received the attention that such an important subject should. We have been taught that honey is the proper food for winter use, and that, if a colony were short of it in the spring, just give them a heavy comb, and that was all that was necessary to do through the whole spring season. But experience has taught many of us that honey is not the best winter food, and that to give our bees heavy combs of old capped honey in the spring is one of

the poorest ways imaginable to stimulate early breeding.

In conclusion I repeat that a moderate use of the honey-extractor during early summer is very beneficial in preparing bees for the summer harvest.

EXHIBITING AT FAIRS.

Honey and Bee Display at the New Castle Co. Grange Fair, in Wilmington, Del., Sept. 2—6.

BY REV. JOEL S. GILFILLAN, D. D.

The bee-exhibit created a great deal of interest at the fair, and was said to be by many the most interesting of all the departments. Every thing in the department came from my own apiary.

The honey display occupied a frontage of 20 feet. The middle pyramid was comb honey, and the side pyramid extracted honey.

The bee-display consisted of a series of five glass hives showing different conditions of the colony at different times. Upon each hive was displayed a card stating what that hive represented. These are shown by the various engravings herewith presented.

Besides the five glass hives, the writer had a full colony of bees in a hive in a wire cage six feet square, just outside the tent where daily demonstrations were given in handling bees. Here every operation of the apiary was shown, and the observers were invited to ask for any manipulation that they desired to see, and it would be shown to them. This was a practical demonstration of the ordinary work in an apiary. He also gave several illustrations of the application of bee-stings for the cure of rheumatism.

Newark, Del.

[As we have said heretofore we say again, the giving of a bee-demonstration and the making of a honey-exhibit at county fairs is a splendid way to advertise the honey business. It takes only a few days of time and preparation, and the results are well worth the time. Besides the amount of honey actually sold at the fair, it will mean a large sale of honey for the future, and at good prices, without paying freight, cartage, drayage, commission, and sometimes the actual loss of a whole shipment through the rascality of the consignee miles away.

REV. JOEL S. GILFILLAN, NEWARK, DEL.

There is no question but that the local consumption of honey can be increased enormously, thus enabling a bee-keeper to double on his money; for if he is a good demonstrator, a good talker at fairs, and square in his deal, he can sell a large part of his crop right at the yard. This is no theory, for many a producer is doing that very thing. Of course, it will be understood that one who owns from 300 to 500 colonies could not dispose of the entire product locally; but even he

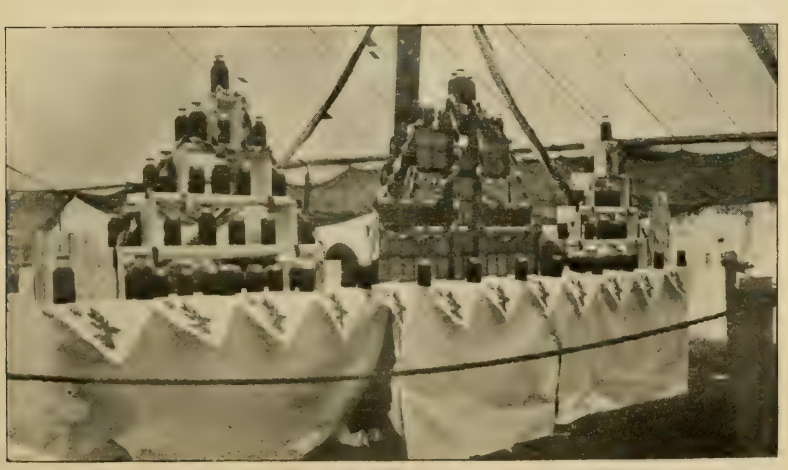


FIG. 1.—HONEY DISPLAY AT THE NEW CASTLE COUNTY FAIR, WILMINGTON, DEL.

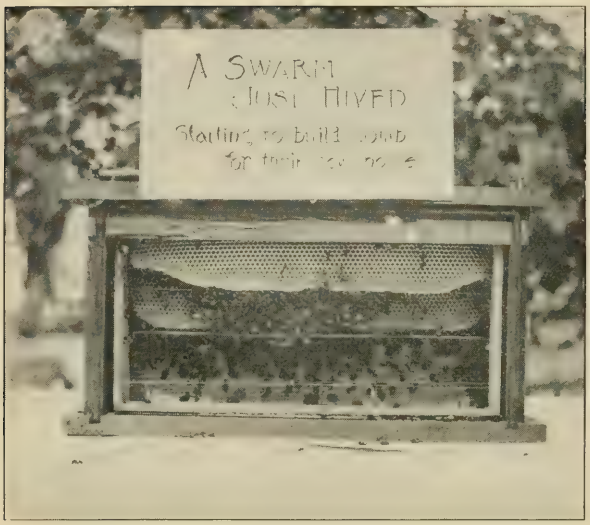


FIG. 2.

can make demonstrations at every county fair within fifteen or twenty miles, or, we will say, within a radius of a day's drive, and thus dispose of all his crop off the wagon.

It is one of the anomalies, and all wrong from an economic point of view, that many a producer will ship his honey to the city, leaving the local retailers to send to that *same* city for honey. The bee-keeper has to pay the commission man, freight, drayage, leakage, and commission, and the local dealer probably pays an additional profit. Why in the name of common sense should not the home producer save all this salvage?—ED.]

SHALLOW EXTRACTING-SUPERS.

Bees from Even Weak Colonies Enter them Readily; What may be Done with them.

BY H. A. SMITH.

While the different advocates of hives of various depths are airing their opinions I should like to say something about the shallow extracting-super. Generally this super has been recommended to use as a "coaxer" for bees to enter sections. It is certainly an excellent thing to use for this purpose; but I do not produce much comb honey, and I use the shallow extracting-super in producing nearly my whole crop of extracted honey.

When I first thought of using the shallow super I balked at the idea of having two sizes of frames in my apiary, and my desire to have hives and supers interchangeable was also an argument against their use. I made a few, however, and placed them with starters upon some of my weakest colonies. That was a poor season, but I tell you it was a surprise to me when I examined those supers in a few days. The frames were solid full of honey, and capped in a way that would compete closely with fancy sections. I remember one of those weak colonies with shallow supers gave me nearly as much honey that season as the best colony I had which was supplied with deep combs. That and later experience have converted me to the use of the shallow super.

It is a fact that a comparatively weak colony will enter a shallow super as quickly, and often more so, than a strong colony will enter a deep super, and will often come out with an equal amount of surplus. If a deep super be given such a weak colony they will very often refuse to occupy it at all. Very often when they do occupy them it will be upon a few combs on one side of the super, which will be badly bulged and almost never fully capped. As I said above, such colonies invariably give excellent results in shallow supers.

The addition of a shallow super is a gradual enlargement, and does not materially affect the heat of the colony. It is, therefore, occupied much more quickly, and much valuable time is saved over giving the colony a deep super.

If a colony is very strong at fruit-bloom I add a shallow super of combs or foundation, allowing the queen access to it This often catches a surplus of fruit-bloom honey, and the additional brood room helps to check swarming. When the main flow is at hand three different things may be done with this super:

1. It may remain where it is, and another super placed over it with an excluder between.

2. The queen may be put below, and a super of combs or foundation put between this

FIG. 3.

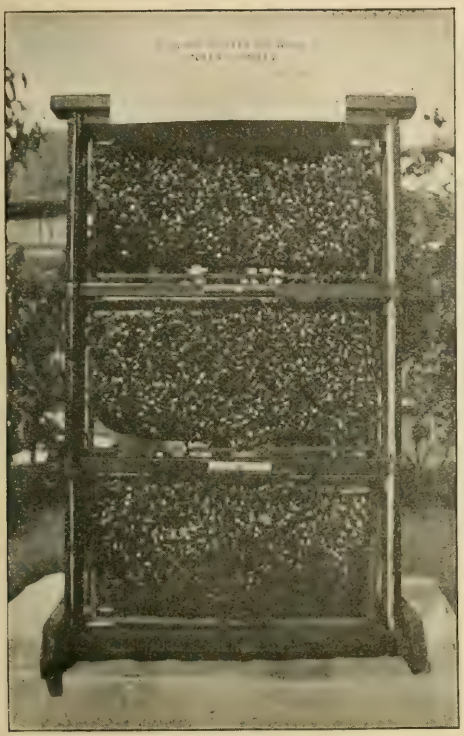


FIG. 4.

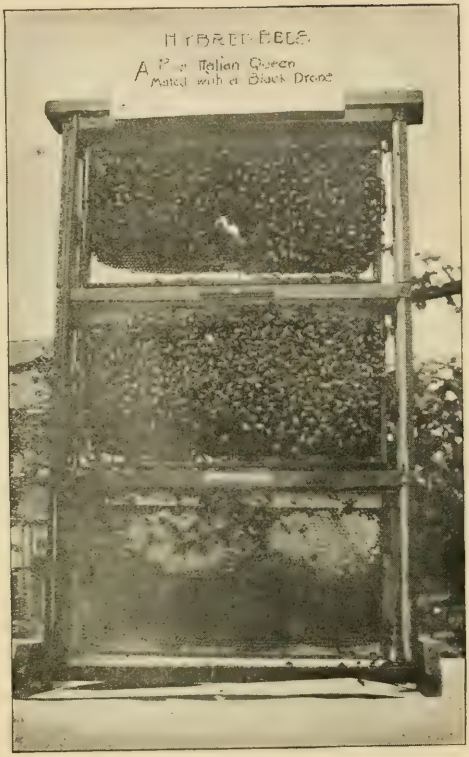


FIG. 5.

Fig. 4 shows a colony of bees at work. The queen was removed, and the process of rearing a new queen displayed. Queen-cells were visible.

super and the hive. An excluder is placed between the two supers and the hive.

3. Two supers containing some brood may be taken from two hives and put together on a new stand, a queen-cell or laying queen be given, and in a short time this will be a strong colony.

If such a colony in two supers is wintered, and it is desirable to get the colony into a regular hive in the spring, I proceed as follows: At the opening of the flow the colony is set to one side, and a deep hive containing one frame of brood, and the remainder of foundation, put in its place. The bees and queen are brushed into the deep hive, an excluder put on, and the two shallow supers (old brood-nest) put on top. This usually prevents swarming.

In the above I have tried to point out some of the advantages in using shallow supers over weak colonies. I also find I can secure more honey from *strong* colonies by their use. In using them over weak colonies, the addition is not great enough to lower the temperature of the brood-nest appreciably, and so the super is soon warm enough to work in. The addition of a deep super is not only too great to warm quickly, but it lowers the temperature of the brood-nest; therefore valuable time is lost warming the hive and super. Now, this condition also exists when a deep super is given a *strong* colony; and, although in a much smaller degree, the time taken in bringing the temperature to workable height would otherwise have been spent in drawing out foundation in a shallow super. By adding one shallow super at a time I very often have colonies working in three supers

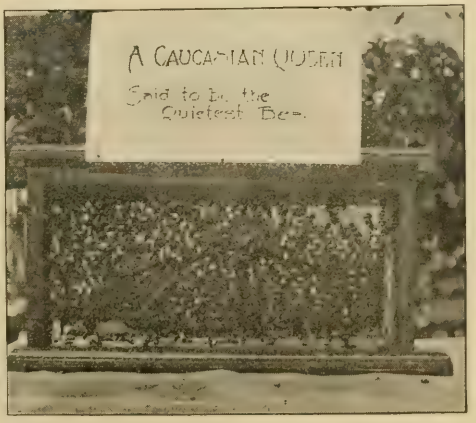


FIG. 6.

FIG. 7.—THE DEMONSTRATING-CAGE WHERE MANY OF THE ACTUAL METHODS WERE ILLUSTRATED.

while other colonies seem to be doing their best in one deep super. My shallow supers are just half the depth of my deep ones. I will admit there are twice as many frames to handle, but I can uncap two shallow combs as quickly as one deep one. One sweep of the knife on each side does the work.

There is another argument in favor of this super which will grow stronger each year. Narrow lumber is much cheaper and more plentiful than wide lumber.

Palermo, Ont., Can.

[Much that is here given harmonizes very nicely with the teachings of Mr. J. E. Hand as recently given in these columns. The only wonder is that our correspondent does not adopt the shallow extracting-super for a brood-chamber also. This will simplify his

FIG. 8.—MR. GILFILLAN TREATING MR. ROBINSON, OF WILMINGTON, FOR RHEUMATISM; PLACING THE BEES ON HIS KNEE.

hives and yet make them capable of a greater degree of gradual expansion and contraction. Very possibly Mr. Smith is working toward that end. In any event we shall be glad to hear from him further. If the general adoption of shallow brood-chambers or extracting supers, and the elimination of full-depth brood-chambers, is not practicable we shall be glad to have him give us his reasons therefor. If, on the other hand, he is working toward the divisible-brood-chamber scheme, will he kindly give us his reasons for so doing?

In this connection it may be interesting to note that the late Dr. A. B. Mason, both secretary and president of the National Bee-keepers' Association for several terms, was an advocate and user of shallow extracting-supers, for he was a producer of extracted honey. When asked why he did not use the full-depth chamber he advanced one of the very reasons given by our correspondent; namely, that the giving of full-depth supers made too great an expansion of the hive capacity, giving the bees more room than they could occupy and warm up to advantage. He told the writer that, in poor seasons, he would get extracted honey with these shallow supers of half depth when his neighbors with a full depth would secure no honey; moreover, that he could uncap these shallow combs so easily and quickly that there was very little loss of time over the method of handling and uncapping a full-depth comb. While Dr. Mason was never an extensive bee-keeper, yet he was a close observer, and ever on the alert for short cuts.

This is a very interesting and profitable subject for discussion, and we shall be glad to hear from others of our subscribers who have made comparative tests between the shallow and full-depth supers. In the mean time we should not forget to mention that the Dadants, while users of the Quinby frames for the brood-nest, have for years been leaders in the advocacy of shallow extracting-frames.—Ed.]

FALL HONEY-FLOWS.

600 Acres of Cucumbers Near Marengo.

BY DR. C. C. MILLER.

Years ago I made no count on a fall flow. When white clover failed in any year, that was the end of it, and I could count on feeding sugar to fill up the hives for winter. Gradually there has been a change, and for some years the bees have been able to gather enough from the fall flow to fill up for winter, and perhaps a little more. The year 1906 was one of those years when white clover took it into its head it wouldn't furnish a supply of nectar for the bees, but the fall flow filled the brood-chambers and provided a nice lot of sealed combs for spring use.

I don't know what has made the difference—at least I can't be sure about it; but I know of two honey-yielders that have been increasing in acreage. One is sweet clover—possibly you may remember that I have occasionally spoken of sweet clover—and the other is the cucumber. The relentless war against sweet clover has kept it down pretty well on the roadside, and as yet farmers do not generally encourage it in the fields; but the presence of the cucumber has been counted. For several years I have been in the habit of making people open their eyes by saying that 200 acres of land about Marengo were annually occupied by cucumbers. This morning I thought I would get some accurate data before writing this article, so I called up on the telephone Mr. W. C. Woodard, the head of the larger of the two pickle-factories located at Marengo, which was established 28 years ago, and I'll repeat what he told me.

PICKING CUCUMBER "PICKLES" NEAR MARENGO, ILL.

The acreage occupied with cucumbers reaches 600 acres in some years, falling a little below in others. The pickle-patches, as they are called, vary in size from half an acre to three or four acres, some of them being as far as six miles away, and they furnish to the factories in the best years about 100,000 bushels of cucumbers, the annual average

yield being about 75,000 bushels. These large figures seem almost incredible; but Mr. Woodard is a Christian gentleman whom I have known from a little boy and I have confidence in his word. Think of the amount of sourness Marengo furnishes to the country, some of it going across the ocean. What interests me more is the amount of sweetness furnished for the bees. Of course, my bees don't go in all directions six miles, but they cover quite a bit of it. It is well known that there are two kinds of blossoms on cucumber-vines at some distance apart, and without the bees to carry the pollen from the "false" to the "true" blossoms there would be little growth of fruit. So I might make out a bill against the factories for furnishing the hands to fertilize the flowers. But they might charge me for nectar furnished, so we'll call it a stand-off.

When it comes time to pick the pickles — the word "cucumber" is hardly ever used here; there are fields of "pickles," not "cucumbers" —it means a busy time of back-breaking work, and it is the common thing to see the whole family in the patch. The illustration shows one of the smaller patches, with a correspondingly smaller force of pickers. Mr. Freebrandt and his wife are at work, with a young woman helper. The baby is in the baby-carriage; the little girl stands by the improvised tent, while her younger brother, whom I had coaxed out from under cover, shyly dodged back as I snapped the kodak. Very likely the little girl is in charge of the two younger, else she might be at work too. At any rate, I've seen as young children picking. Ten or more pickers are often seen at work, and at forty or fifty cents a bushel for pickles below a certain size, and 20 cents for the larger ones, the crop would not be as paying as it is if the whole family, children and all, could not take part in it. Yet even adults can make wages at it.

Now I suppose you will expect me to tell you just what cucumber honey is like. I don't know. The honey we get in the fall varies in color, density, and flavor. Some of it has amber color and a rank fall taste that I dislike, although others like it. Some of it is light, almost, as clover, with just enough of the fall taste to be rather pleasant. But I don't know what part of all this is to be attributed to the pickles. I wish I did. During pickle season the cappings are likely to be yellowish and a bit varnishy-looking. I've been in the habit of laying this to the pickles. Perhaps I accuse them wrongfully.

Marengo, Ill.

THE NEW WHITE ITALIAN CLOVER.—SEE NEXT PAGE.

[The writer remembers that there was a large amount of sweet clover in the vicinity of Marengo. Indeed, the doctor had taken pains to cultivate its acquaintance on his farm, allowing it to grow *ad libitum*. But for all this we are inclined to believe the bulk of his fall honey comes from cucumber. We should like to inquire if there is not a time when the sweet clover is practically out of bloom, and the cucumber blossoms in the height of their nectar secretion. By taking

away all the honey from a strong colony, and putting it practically on the starvation basis, the doctor might be able to get enough of cucumber honey to determine its quality. We hope he will experiment another year.—ED.]

THE NEW WHITE ITALIAN CLOVER.

BY W. K. MORRISON.

The well-known and reliable seed firm of T. W. Woods & Sons, of Richmond, Va., has recently put on the American market a new kind of clover which may have an important bearing on the bee business in some sections of this country. It is a white-flowered variety of the well-known crimson clover.

The new clover, they claim, is a considerable improvement on the crimson by reason of its larger growth and later season. It is so much later that it can be planted with winter oats, and the two mature together. This, of course, yields a heavy crop of valuable hay early in the year. They say it is even better than the crimson for early grazing, as it is naturally heavier and denser in growth.

If these claims can be substantiated it is evident that bee-keepers will have a new source from which to get a honey crop. We have come to the conclusion of late that it pays either to give away alsike seed or sell it at a low price. It is just possible that the white Italian clover is equally good. We do not know but it is worthy of a fair trial. We shall be glad to get reports.

THE PLURAL-QUEEN SYSTEM.

No Trouble to Introduce a Number of Queens to Bees, but Difficult to Introduce them to Each Other.

BY J. E. HAND.

I have read with a great deal of interest Mr. Alexander's article on page 1136, in which he tells how he is able to introduce successfully several queens to a colony of bees. This is a matter over which I have spent no little time and thought, since I have for several years practiced the two-queen system of building up colonies for the early honey-flow; however, such queens are always separated by queen-excluding metal, the bees having access to both queens through the zinc honey-board which separates the two shallow brood-sections. It is a fact well known that bees will accept almost any number of queens or queen-cells; and, while I have experienced no difficulty in introducing a plurality of queens to a colony of bees, so far as the bees are concerned, I have as yet not been able to introduce successfully the queens to each other, and invariably one would come up missing in a short time.

Several years ago I became quite enthusiastic over this matter of a plurality of queens all loose in the hive together. However, I have not been able to make a success of it. I am led to conclude that scent or odor of bees or queens cuts no figure whatever in the introduction of the same. I have had two queens in two sections of my shallow hive, separated by perforated zinc, for six weeks, when, upon removing the zinc honey-board, one of them very soon "came up missing." I recently put two queens in a cage without any bees, and in about one minute one was dead. My queens will fight to a finish. Whether this is due to the strain of bees or to some other cause I am unable to say.

Will Mr. Alexander please tell us how long he is able to keep two or more queens in one colony unseparated? To my mind the only safe way to use a plurality of queens in a colony is by means of shallow brood-sections separated by queen-excluding zinc, thus giving the bees free access to all the queens in the hive. Since two queens will lay eggs as fast as one colony of bees can care for the brood I can not see that any thing is gained by having more queens; however, you can tier up these shallow brood-sections as high as you please and have a queen in each, and there will be bees enough to care for all the brood, and no danger of the queens killing each other.

Birmingham, O.

[The evidence seems to be accumulating, to the effect that it is possible to work the plural-queen system under some conditions at least. A large number have thus far reported on the feasibility of having two mothers in a hive, but separated from each other by a perforated zinc. While there are conditions under which the two may be allowed to come in contact without being separated by the zinc, in the generality of cases it seems to be advisable to use the perforated metal.

As Mr. Hand well says, there is no great difficulty in having a plurality of queens in a colony so far as "the *bees are concerned*" (italics ours); but it is not thus easy "to introduce the queens to each other." But our correspondent further adds that he has been led to "conclude that scent or odor of bees or queens cuts no figure whatever in the introduction of the same." This does not seem to us reasonable. If the scent factor has no part in the matter, then we are at a loss to conclude how the bees under some conditions recognize and attack a strange queen that does not belong in the hive. The sense of smell in the bee is very highly developed; then why should it not be the means by which bees know their own? It is easy to see that the question of odor has little or no bearing on the relation of *one queen to another.* In this case it is not a question of scent, but a jealous rivalry as to which shall enjoy the sole and undivided respect of her subjects.

We feel firmly convinced that the two-queen scheme of getting a large amount of brood, and hence a stronger colony, is bound to come to the front. If it is desirable to have a queen extra prolific (and there is no ques-

tion on that score), then why should it not be equally desirable to have two medium queens that will give as much or more brood? Or let us put the problem another way. It is easier to rear two medium queens to do a piece of work than one extra fine one to do the same work.

Again, if two queens can be made to do service in a hive if one dies the colony is not left in that hopeless or discouraged condition of the one where there has originally been only one queen.

Mr. E. W. Alexander has been working the two-queen system for years with the greatest of success. His powerful colonies, as seen in the photo elsewhere, show that the two-queen method is one of the factors contributing to such strength. But here is something more on the subject.—ED.]

THE ALEXANDER PLAN OF BUILDING UP WEAK COLONIES, AND A MODIFICATION OF IT.

Two Queens in a Hive as a Means of Preventing Swarming.

BY A. J. WRIGHT.

I have used the Alexander plan of building up weak colonies in the spring for years, with this modification: Instead of perforated zinc I have used wire cloth as follows: Tack the wire cloth on to a rim about two inches deep and the size of the hive. Remove the cover from a strong colony, and on top of the hive place the rim, cloth side down. This rim should have a § hole bored on the side opposite the entrance of the lower hive, and about three inches either way from the side of the upper hive. On top of this rim place the weak colony. This should first be examined to make sure that it has a queen, and also to remove dead bees; and be sure there are no broken or leaky combs. Then put on the cover, and close, with a plug or slide, the § hole. In 48 hours a frame of bees—no queen—may be taken from the lower hive and placed above, next to the bees, separated by only a card of honey. Close down to two, three, or four frames, depending on the number of bees, and fill the space with dummies. In about a week remove the plug or slide, and no further care is necessary except to supply room for brood expansion to the upper colony; but if a colony is very weak it doesn't pay to fuss with it except in case of a valuable queen.

The above plan succeeds where any thing can, and is not subject to the uncertainty of perforated zinc.

PLURALITY OF QUEENS IN ONE HIVE.

The subject of two or more laying queens in one hive receives attention on page 473. This much I have noticed, that at least two laying queens of pure Italian blood will get on peaceably together in the same hive, throughout an entire season, and in this condition no swarming will result. To what extent this might be carried I am unable to say.

MATING QUEENS CONFINED WITH A THREAD.

The experiment on page 470, with a virgin queen attached to a thread, I tried about seven years ago, but differing in this: I found even a silk thread too heavy, and so used a thread of spider silk obtained from a large chocolate-colored spider, spotted and striped with yellow, which frequents pasture fields in autumn, and spins a strong web for the capture of grasshoppers, large moths, and the like. Several yards of strong silk may be reeled from this spider direct with a wire-reel. About six feet of this thread may then be attached to a virgin queen of any race (not easily frightened), and the queen given a chance to fly. The thread being very light, the queen will easily fly and remain a considerable time in the air. I thought I had made a great discovery when I succeeded in getting a queen mated by this plan; but this is one of the things I laid on the shelf as being of no practical value, as mating can be accomplished only at a time when the queen would make her flight naturally; then, too, queens do not go far afield for mating purposes; and if the apiary is near other yards or the forests you may be quite sure that your yard will have a pretty good sprinkling of drones from these sources. This experiment of fishing for drones with a queen for bait is, however, quite interesting.

Bradford, N. Y.

[We wish our correspondent would tell us more about his two-queens-in-a-hive experiment. Under what conditions did he succeed in doing this? Did he use perforated zinc? What was the relative age of the queens? How many colonies did he try?

The method of building up weak colonies would be reliable in that there would be no likelihood of either queen being destroyed, and to that extent it may be better than the Alexander plan. The captive-queen experiment is also interesting. Yes, we should be glad to hear from Mr. Wright further, for he is an old experienced bee-keeper.—ED.]

FOUL BROOD.

The Necessity of Disinfecting the Hives; Crushed Newspapers for Packing Material; Fastening Foundation.

BY G. W. MARTIN.

In the 1905 edition of the A B C of Bee Culture I do not think you give Mr. McEvoy a fair interpretation of his treatment of foul brood. I have kept bees for over 30 years in a small way, and have been annoyed by foul brood often. It is a common visitor here, as there are many old box hives here, and their owners are not bee-men. When one stand dies they just let it stay, and thus spread the disease. (Some people claim that that is what cleaned the bumble-bees out of this country.)

The starvation plan is all right, and so is

the McEvoy. I do not think Mr. McEvoy would say it is not necessary to disinfect hives, for he does disinfect his. In the starvation plan disinfection is accomplished by keeping the bees in prison, and they clean up the hive the same as they do the contents of the honey-sac, which Mr. McEvoy has them clean up and put in the frames of foundation that are afterward melted up. If any one thinks it is not necessary to disinfect hives, just let him take two diseased colonies, use McEvoy's plan, but unite the two. That will leave you an empty hive. Just keep it. Do not disinfect. Put in a swarm, and see if foul brood does not develop on schedule time.

I disinfect old hives in this way: I close the entrance with wire cloth, throw grass or hay over it to shut out light, and put in a cup of bees (cruel), and let them remain until they starve. I never had a return of the disease.

I have a colony of Caucasians, and do not like them. I would as soon hunt laying workers as to hunt their queen; and, besides, they raise too large families for the amount of work they do.

I use crushed newspaper to pack double-walled hives. I push it down with a square or any thing handy. I have never had one loss by freezing; and in winter, outdoors, I have seen it 31° below zero here.

Why doesn't some one make extra thin surplus with ⅛-inch edge of sheet heavy to fasten by?

Saltsburg, Pa., Feb. 18.

[It would be difficult to make foundation with a thick edge, and the expense would probably be prohibitive. One edge might be folded over afterward, perhaps, to give a greater amount of wax; but when foundation fastened with the ordinary hot-plate machine is not rigid enough it had better be secured by melted wax applied to the edge with a spoon or tube. This can be done rapidly and well, and the expense is slight. We have seen no statement from Mr. McEvoy that starving bees will disinfect a hive. We are inclined to think you are mistaken.—ED.]

BEE-CELLARS.

The Matter of Ventilation Depends upon the Temperature.

BY J. G. BAUMGAERTNER.

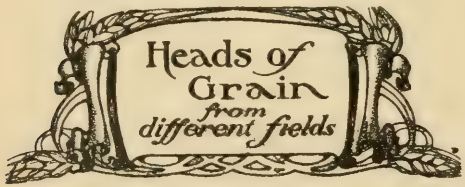
Reading Mr. Bingham's article, page 335, of the March 1st issue, on wintering bees in the cellar with entrances closed down to ¼ inch, I said to myself, "Just the thing for a beginner to try who never cellared bees before!" Give him my cellar, where the temperature was up to 50 degrees and more most of the time the past winter, and you will see a man, rather long-faced, *scoop* up bees from the cellar floor, sighing heavily, the next spring. In my cellar, with such a high temperature bees will be as quiet as death, with cover and bottom removed—nothing but a thin carpet over the top, and will spread out over the combs fairly well. By contracting or expanding the cluster they regulate the temperature about them to suit themselves, and are contented. But when they are put in with sealed covers and bottom-boards, even if the entrance is ⅞ by the width of the hive, they are restless, and fly out to die on the floor in large numbers.

However, as you suggested in the footnote, in a cellar with a low temperature Mr. Bingham's plan may give splendid results; and I have no doubt it would have been just the prescription to spare a certain beginner in Clayton Co., Iowa, an awful disappointment. It was 12 years ago. A certain young man working for a bee-keeper had obtained three colonies of bees, and offered them to me (then a boy of 16) for $7.00 in the fall I had long been wishing to own some bees, and had saved up just about enough of my "spending money" to purchase those bees after my father's permission had been secured to do so. I was assured by the bee-keeper where this young man had his bees that they had honey enough to winter, and I think they did have. So, one evening in October I drove home with those three hives, "my property," in the spring wagon, and an attack of genuine bee-fever in my bones. I was going to do great things with those bees. Well do I remember what air castles I built. But nothing could be done with them before the next spring, except to put them into winter quarters soon. The bee-keeper told me to put them into the cellar the way they were, and take off only the cover, leaving only a thin quilt over the frames. But as my father, being a farmer, wintered several hundred bushels of potatoes, besides many other things, in our cellar, I could find no room there for my bees. So I resorted to a small stone building, used as a milk-house in summer, as the next best place. This building had a 22-inch stone wall, plastered on the inside, also overhead, and whitewashed; wood floor, double window and double doors, and it was quite dry.

The south end and east side were partly in the ground. I concluded that this was a fine place for my bees. So I set them in there as directed, without the covers, and the entrance wide open. The quilt was the only cover. From time to time I would tiptoe in to listen to their roaring. One time in January or February I heard no roaring noise when I listened again. On lifting up the quilts and peeping in I found, to my consternation, that all my bees were—*dead!* What a fall from the dazzling heights of my imagined success! And how could they die with plenty of honey in their hives? It's all plain to me now. The extreme cold of January penetrated those walls until it was below the freezing-point inside, and the temperature in the hives sank so low that the bees could not break the cluster sufficiently to move to new stores; so when all the honey inside the cluster was consumed they starved. Had the covers been on those hives, and possibly the

entrance contracted *a la* Bingham things *might* have turned out favorably. A good thing in *one* place is not a good thing in *every* place; and even if the two places are no further apart than were that cellar and that deplored milk-house, it was a matter of "locality," after all.

New Memphis, Ill.



ENTRANCES TO HIVES IN A CELLAR; HOW TO CURE ROBBING; THE CARE OF BEES IN THE SPRING.

I have been reading about your experiments with ventilated bottom-boards in the April 15th issue, p 557. I think hives need bottom-boards with merely a ⅝ entrance the width of the hive. I put 55 colonies in my bee-cellar about Nov. 20. On a part of them I left the bottom-boards, and you would be surprised to see how much better they wintered. I always left them off every winter before, because almost every one else did.

Another thing about wintering that I have found helps out a great deal when the bees are through flying in the fall is to go to the hives and take out the lightest comb that contains no brood, and put a frame of nice clover honey in the center of the brood-nest. The bees will move a lot of that honey, and that will stimulate brood-rearing. What they move will be put close to the cluster to eat in winter.

Another thing I never saw in print. If your bees get to robbing, and they get whipped out, put them back down cellar, robbers and all; then when things get quiet, carry them out again.

If a man wants to make good wages in his apiary in the spring, take a dish of paste and a lot of strips of paper about two inches wide, and paste them around the cover, and wherever there is any chance for heat to escape or cold come in. R. T. Carey.

Spencerport, N. Y.

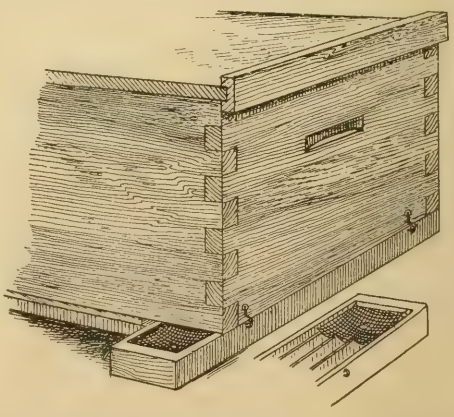
A BEE-CELLAR WHERE THE TEMPERATURE VARIES BUT THREE DEGREES ALL WINTER

I have 178 colonies of bees in my bee-house cellar, wintering finely. The bees are quiet, for the temperature is only one degree colder at the bottom than at the top, 8 feet deep. It changes only three degrees, whether at zero or 50 above; stands at 44. The heat of the bees keeps it dry and warm. They need only 30 square inches for ventilation. I have four chimneys, one on each of the four corners, 12 × 22 in., open ¼ × 22 inches. I have one more in the center, two feet higher, open ¼×22 inches. The corner ones are 13 feet high, resting on top of the floor. The one in the center is 8 feet above the floor; the floor is 5 in. thick, 2 of boards; paper and planer-shavings, 3¼. It was an easy task to put them in, taking two men and two wheelbarrows to carry them in, putting 3 skids on the platform, letting them down with tackles. Then go down, pile them up five high, row 8 ft. high, 18 ft. square. I have a room over the cellar, of six-inch plowed and grooved siding, lined with paper; double doors 8 feet high, 4 windows, one on each of the four sides. It is a nice building, painted red with blue on each side; roof is of paroid paper; cellar walls are 12 inches thick, cement work, concrete cement bottom, using 6500 lbs. of best Portland cement.

Amity, N. Y., Jan. 25. J. W. Utter.

WIRE CLOTH OVER THE OPENING TO THE ALEXANDER FEEDER.

This is my second season in the use of the Alexander feeder. I have just added a device to it that pleases me greatly. It is simply a wire-cloth cover over the outer end of the feeder, depressed into a saucer-shaped receptacle to receive the feed. To fix the feeder, cut away the bars with a chisel so the center of the depression will be ⅝ inch in depth. The wire cloth is held in place by two small tacks driven through it into the



end corners of the trough, and one tack driven down into the center of the depression. For handling the feed I use a two-gallon sprinkler with the rose removed.

Farina, Ill. T. P. Andrews.

[But this wire cloth ought to be covered with a block to keep chilling air currents going up into the hive and to prevent drawing robbers.—Ed.]

CANDIED HONEY KILLS COLONIES IN THE CELLAR.

When our bees were taken out of the cellar the honey in all the hives was granulated. There was no moisture in it—just the dry sugar part. The combs of the hives in which the bees had died were gnawed by them in their effort to get the honey. This

was a mixture of honey from the earliest flows, probably mostly clover. It seems that this granulated honey caused the loss of these colonies. What caused the honey to granulate? CHARLES M. HARRIS.

Jefferson, N. Y.

[We can not tell what caused the honey to granulate unless it was not properly ripened in the first place. No, some candied honey, at least that which has granulated solid and dry, is not a good winter food. But a soft moist granulated is not bad.—ED.]

WEAK COLONIES WINTERED SUCCESSFULLY IN A DAMP CAVE.

Last summer was the worst season I ever witnessed for bees. The wet weather set in the last week in June, and was nothing but wet all summer and fall. There was no time during the summer and fall when bees could work more than two days out of each week, therefore every bit of honey was washed away so that the bees made no stores to live on.

I began feeding eight colonies in October; but I was a little careless and did not feed fast enough, so the bees ate the feed about as fast as I fed them; therefore, by the time cold weather set in I found that my young colonies had very light stores to winter on, so I had a small cellar (or, rather, a cave) in which I kept my winter vegetables, which was sufficient to keep vegetables from freezing. I thought I would risk putting my bees in, although it was very damp. I was afraid they would mold; but I put the bees in about Nov. 20.

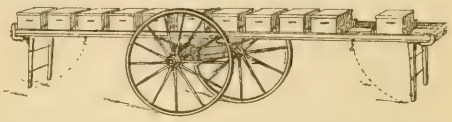
I put wire screen over the entrance, and spread an oil-cloth cover over the top, and then put the super on. I cut a hole in the oil-cloth cover about one by two inches, right in the center, over the cluster, in order to feed if I found it necessary. The front entrance is ¾ inch by 12, so I left them there until March 20, when the weather got so warm that I noticed the comb was getting moldy, and even the outside of the hive was molding. Then I placed them on the summer stand, and, to my surprise, they are all living and doing finely; and when I put them out they had scarcely any dead bees in the hives; and some of the strong colonies that I left out came near dying. I am now feeding the weakest ones a little, and all are doing well. R. A. GRUN.

Scherr, W. Va., March 30.

CARRYING HIVES ON A TWO-WHEELED CART; TAKING OFF SUPERS DURING A HONEY-FLOW.

I think I have a better way to carry my hives out of and to the cellar (also to carry full supers to the house) than yours shown on p. 557, April 15. I have a two-wheeled hand-cart and a ten-foot ladder. I lash the ladder on the cart, set about ten hives on the ladder, and wheel it out or in alone; but, of course, I can't go up or down the stairs with it. I have wheeled eleven supers, well filled with section honey, at a load.

An improvement on the ladder would be to have a rack made as wide as the hive-bottom is long, and with a projection raised above the ends of the bottom-boards on each



side to keep hives from slipping endwise, and cross-cleats in the place of the rungs to hold them from slipping the other way.

Lamoille, Ill. A. D. HOPPS.

SWARM FLIES TWELVE MILES.

The distance to which a swarm may sustain its flight is at least twelve miles, Aug. 15, p. 1070. Berlepsch followed a swarm that distance to a hollow pear-tree. See account in first or second volume of the *American Bee Journal*. E. W. DIEFENDORF.

Otterville, Mo.

DO BEES SUPERSEDE QUEENS IN WINTER?

Will the bees supersede a queen during the winter, and thereby not secure brood until the virgin has mated? I found a very small queen in my neighbor's colony on the 18th of May, with very little brood, none capped; she, however, had just begun laying, and it occurred to me that such was the case. There were few bees—only enough to cover one Hoffman frame. F. L. PARKE.

Paullina, Ia.

[The case here given does not show there was any supersedure. The small queen you saw was probably the old one. She may have stopped laying for the time on account of cold, and then begun laying again.

To answer your question, bees do not supersede their queens during winter.—ED.]

WHAT DETERMINES THE SEX OF EGGS?

I have read the various arguments in GLEANINGS for a queen laying drone eggs, etc. I have had a little experience here that will probably throw some light upon the question.

In July of this year I had a mismated (or else a virgin) queen that refused to be fertilized. She began laying eggs steadily in worker-cells. Of course, these produced nothing but drones. I did not discover this until about the first of August, when I killed her and introduced an old queen that I knew was all right. These worker-cells had been lengthened and expanded at the top for the developing drones, and so were not regular in size and shape when the drones left them. Now the old queen goes to laying in these cells, with the result that a fair-sized percentage of these eggs produced drones. We must remember that the swarming season and the honey season were past at this time of year here—namely, August, and the old queen certainly had no intention of laying drone eggs at this time of year; yet for some

reason drones were produced—seemingly an argument in favor of the position of the queen in depositing the egg in a wide-mouthed cell. The previous queen deposited drone eggs in worker-cells; but position could cut no figure with a virgin queen, for she could not lay a worker egg. I am not trying to solve this question, but think these facts may help some one else to solve the problem.

Portland, Ore. P. J. GREEN.

This may give a little aid and comfort to Dr. C. C. Miller. Has any one else observed the same phenomenon? If so, we shall be glad to have him report.—ED.]

COMBS CONTAINING CHILLED BROOD; WHAT TO DO WITH THEM; EUCALYPTUS HONEY VERY RANK IN FLAVOR.

We had some brood that did not hatch on account of the cold. The combs are black, and in Langstroth frames. Would it be right to give the combs to another colony as they are, and trust that they will be cleaned up, or is it best to cut them out?

I have read the article on eucalyptus, by Mr. Morrison, in the March 1st issue of GLEANINGS, p. 327. Most of the article is right, but I think it might be better to find out more about those trees before extensively planting where honey-industry exists. They give a most disgustingly rank flavor to honey, which, if sold at all, realizes only about 1½ pence per lb. in N. S. W. It is recommended for people with chest troubles. I got some in Sydney some years ago, but we could not eat it. Probably that is why it is not looked upon favorably in England. Of course I do not say that all N. S. W. honey is bad, for that would be altogether wrong. I had some very good honey there.

STEPHEN ANTHONY.

Waitete, Auckland, New Zealand.

[It would do no harm to give the combs of dead brood to another colony if you are sure that chilling was the only cause of the death of the brood. The bees would clean out the cells. But if the combs were old and black it might be safer to render them up for wax, and substitute frames of foundation.—ED.]

HOW FAR AND HOW FAST DO SWARMS TRAVEL?

As to how far swarms may fly, page 1070, Aug. 15, I will say that in my 25 years' experience I never saw swarming bees as heavily loaded with honey as those working in the field, especially those working on basswood or clover, though quite a goodly number of returning field-bees join in the make-up of the new swarm, and many of them with pollen-baskets well filled, and possibly honey-sacs too. You would not think it would require three or four hours for a colony of bees to make a flight of ten miles, would you? In my opinion they would make at least ten miles per hour, and in some instances fifteen miles or even more, for I have seen them going fast enough to keep a smart horse going some. I have driven forty miles in five hours, and I know an absconding swarm of bees will double this speed and more; but as to just how far they will fly depends upon circumstances.

Several years ago, before the advent of the Italian bee in this part of the country, my brothers found a swarm of pure Italians in a tree, and at that time there were no Italians known nearer than 25 miles in a straight line, though of course it might have been possible for them to have come from another tree between the two points, though I know they often cluster and rest for hours, or even half a day, while the scouts are searching for a hollow tree, and many times even stay over night, and if the scouts are unsuccessful they start out again and thus continue until they are successful.

Granted that they are loaded with honey when they start out, they must consume some of it on the way; consequently the further they fly the less burdened they are, which must fit them for a more prolonged flight.

Hillsboro, Wis. ELIAS FOX.

QUEENS FIGHT UNDER A TUMBLER.

Replying to Dr. Miller's Straw, page 1187, Sept. 15, I rise to say that the queens were not put together on the ground, but under a tumbler, on a board or table. The experiment was usually tried during the month of August, because that is when I do most of my superseding, and the queens were invariably blacks or hybrids. I tried it about a dozen times in all, and the fight always began as soon as they touched each other. The doctor's case of three queens in one hive is certainly interesting; and if I had some spare queens I would try the same experiment; but I have none to spare at present.

Newman, Ill. C. F. BENDER.

[We have had other reports since the item of Dr. Miller's, showing that two queens, when put together, will fight to a finish, so that we shall have to conclude that, under some conditions at least, queens when so placed will enter into a combat.—ED.]

HAY ON THE CELLAR FLOOR.

I made a trip to E. W. Alexander's last fall, with the result that, when I returned, I put 12 inches of swale hay over my cellar bottom before the bees were put in. I never had the colonies so quiet all winter, and they never came through in better shape. The temperature was more uniform all winter.

Mayfield, N. Y. G. W. HAINES.

THE CASTOR BEAN AS A HONEY-PLANT; INFORMATION WANTED.

I have a great desire to plant the castor bean in my field this year, as it is an excellent honey-producer; but I do not know of any company of crushers (who crush out the oil), and I should like to see if, through your paper, I could find one. I have inquired at several places, and of castor-oil companies, but have failed to get the desired information. I. A. PRUITT.

Vigo, Texas.

OUR HOMES

by A. I. ROOT

Whosoever will be great among you, let him be your minister; and whosoever will be chief among you, let him be your servant.—MATT. 20:26, 27.

On page 1098, Aug. 15, I said that, when the whole wide world would "repent and be converted," it would not only solve our labor problem but all other problems, etc. A good friend takes some exceptions to the statement, and writes the following:

"THE ONLY SOLUTION."

Mr Root:—I notice with pleasure that the labor question is one of the many things you are interested in (page 1098), but have doubts as to the conversion of the world being the only solution of troubles in the industrial field. There is a large and rapidly increasing number of people who believe that labor troubles and a good many other troubles would or could be settled by the collective ownership of all the means of life—tools of production and machinery of distribution by the actual users thereof instead of by a class who act merely as owners, performing no useful service. This system of conducting industry could be inaugurated whenever a majority—not *all*—voted for it, and it is not quite clear that such majority must necessarily be made up of Christians or converted persons. Those who claim, therefore, that the conversion of all wage-earners and employers is the only solution should be able to show that the system suggested would not work, and also be able to give at least an outline of the probable procedure in settling labor troubles in the event of the conversion of the world.

An item in your Special Notices (p. 1168), entitled "Doing More than you are Paid to Do," appears to have some bearing on the subject, because labor troubles are usually the result of employees not receiving as much pay as they think they deserve. If workmen generally would make it a point to do more than they are paid to do, labor troubles would be settled to the complete satisfaction of employers at any rate. But if all or the majority of workmen acted on this advice, who would "get to the top"? And would doing more than they are paid to do be any evidence of their conversion? Employees as a class will never see any greater reason for their doing more than they are paid to do than they will for employers paying more than the wages agreed upon. J. R. HAND.

Richards' Landing, Ont., Aug. 20.

Friend H., I have been watching and reading more or less for years what is being said and done in solving the labor problem; but the results of my observations have been continually that nothing could help matters very much until all mankind learn to love their neighbor as themselves. When this is done our troubles will be ended. We have illustrations of it every little while. Let me remind you of one that I have brought up several times.

A wealthy man moved into a neighborhood where one of our bee-keepers had a large number of colonies of bees. In a little while the new comer declared that no man had any right to keep bees or any thing else, especially such a large number of bees, as to annoy and injure his neighbors. A lawsuit followed; but just while both parties were in the hottest of the fight the bee-keeper's son and the rich man's daughter became acquainted, and finally the two children got between the two hostile parties. Now, these men, even if they were bitter enemies, had good sense enough and courtesy enough to stand out of the way of the young people and to shake hands and become friends. When they got to looking at it from another standpoint the matter of the bees (even though our friend *had* a big "bee-yard") was considered a trifling matter, and it was so easily adjusted they were both ashamed of themselves when they came to look at it in a common-sense way. Now, I did not learn that those two fathers were *converted* men; but this thing that came about had the effect of turning both of them in a sudden and unexpected way from their evil thoughts and feelings. Instead of being strangers and enemies, all at once they became brothers, members of the same family, and were put on their good behavior. Now, of course our boys and girls can not *always* come between us and settle things right and left in that way; but a kindly and loving spirit toward all humanity, planted in the human heart, will solve all troubles.

The great difficulty between capital and labor, so far as I can see, is that both parties, to use a slang expression, "want the whole earth." Of course, both sides are not always equally guilty. We have many illustrations of faithful, honest employees who are never appreciated by their rich and overbearing employers; and our unions are to a great extent bringing these greedy and tyrannical employers to their senses. On the other hand, we have overbearing and impudent workmen (and *workwomen*, too, for that matter) who do not appreciate or realize how kind and indulgent employers are who do every thing in their power to make them pleasant and good-natured, and yet without avail; yet these very persons are frequently exceedingly anxious to get back to their old employer when they have tried working for some one else. I shall have to confess that I have not time nor the ability to go into this matter of public ownership. I am ready, however, to say that it seems to me the government will in time be able to manage much of our public business (say our telegraphs and railroads, for instance), just as it now handles and manages the mails. If we were sure of being able to find good men, with enough Christianity, or, if you choose, the love of God in their hearts, to be above graft and bribery, and every thing of that sort, we might go ahead without fear. But, dear friends, just consider how the public money has been wasted right and left all over our land whenever there has been a chance to steal where nobody was appointed to watch or happened to be watching. Prison walls and high fences, even with a barbed wire on top, are of little avail unless men will "repent and be converted," and have a disposition *of their own* to be honest and do right.

In your closing sentence you seem to question somewhat whether Christian employers would pay better wages than they agree to pay. Of course, that clipping from the *Sunday School Times*, that so strongly enjoins doing a little *more* than you are paid to do,

must not be two-sided; and if you come to look into it I think you will admit that employers are *continually* paying more than they *agree* to pay. As soon as a man is discovered who is persistently and steadily doing *more* than he agrees to, his pay is usually raised; and not only that, I know of many employers who, when a man has done an extra day's work, recognize it by giving him extra pay. Just a few days ago we wanted our reservoir cleaned out; and on account of the muddy water it needed to be done when the machinery was not running. Two men volunteered to stay at home during "fair time" (when all the machinery was shut down) and do the work. I was along with them a great part of the time, and they got covered with mud from head to foot. There was nothing said about extra pay when they agreed to do the extra work, and I am sure that they did not expect it; but I told the clerk to give them a dollar apiece in addition to their wages.

During a dry time a Florida bee-keeper came pretty near having his apiary burned up. By working, however, until they could hardly stand up from exhaustion they finally put out the fire and saved the apiary. If I am correct, it came pretty near being a close tussle with the devouring element the greater part of one afternoon. The boy who helped the owner subdue the flames, even at the risk of getting pretty well scorched, received five dollars for doing more than he was paid to do or had any reason to expect he would be called on to do or endure; and I do think, since you suggest it, friend H., that employers, both men and women, should be exceedingly careful to be on the watch to see when their helpers have done an extra day's work or taken unusual pains to look after their employer's interests and reward them accordingly. I know by repeated experience that it is not so much the money received as it is the reminder and evidence of personal interest in the affairs of the employer. The man who hires help and does not go near that help to give encouragement to see whether the work is done right or wrong, and know just how much is being done for the pay received, will usually have trouble, and he *ought* to have it. The reason why I used the expression, "the only remedy," is because I have not been able to find any thing in an experience of more than sixty years of business life that will induce humanity to love its fellow-men like the gospel of Jesus Christ and the teachings of the Bible. I wish you would all read the *chapter* from which I have taken my text. The mother of those two disciples wanted them to have the best places. She was an ambitious woman. She wanted them promoted above the other ten. No wonder the ten were moved with indignation. Then the dear Savior kindly talked to them. He said that among the gentiles, or heathen world, it is the fashion for princes to rule and exercise dominion; and those that are great, to use authority; but he says to the little band, "It shall not be so among you." Then follow the words of our text, "even as the Son of man came not to be ministered unto, but to minister." I rejoice not only in being called a servant but in feeling in my own heart that I *am* a servant—a servant of the Lord Jesus Christ; and, as a consequence, a servant under him to all humanity. My greatest happiness and enjoyment in this world is in helping somebody—especially some one who does not seem able to help himself, and do all in my power to give him help that perhaps nobody else would give. From my age and experience I frequently know how to do things in a way others have never heard of. When I first got up this morning Mrs. Root said she wanted to give the bedroom where we sleep a good "house-cleaning" before we take our trip to Florida. I urged her first to have a woman come over from the factory. But she has notions of her own; and when things are to be done she always has ways of her own; one of these ways of her own is of working until she gets tired, and then let every thing stop until she can lie down and rest. If she had a woman she would have to keep right by her to keep things going. Then I suggested that she get a *man;* but she said she did not want a man either, until she was ready to have the carpet whipped. I arranged my work so I could be around just about the time she got started. I helped her to get the heavy furniture out of the way, and pulled the tacks out of the carpet myself, and got it out on the line. We have only one carpet in the house that is tacked down. All the rest are rugs. I want to tell you I greatly enjoyed the work. I have worked for a good many people in my life, but I rather think I enjoy being a "servant" for *Mrs. Root* more than anybody else I know of in the whole wide world. I felt quite glad to think that I had helped to save *her* strength, and at the same time let her have the pleasure of enjoying in her own way the house-cleaning.

Now, it is certainly a good thing—yes, a *grand* thing—to help our wives; to put our own work aside and help them bear their burdens; but if we are followers of the Lord Jesus Christ it devolves upon us to love *all* mankind in the same way, or much the same way, that we love the members of our own family. More than that, the dear Savior has enjoined us to love even *our enemies*, and to do good to those that hate us and despitefully use us If we will try to do this how can there be any trouble?

Friend H., I heartily agree with you on some of the points you make. For instance, there was a statement in the papers a few days ago to the effect that *one person* in the United States held *two and a half million* acres of land. Now, I do not know exactly what is wrong or where the wrong is; but I feel sure that no man ever ought to have control of that amount of land. That is quite a contrast, is in not, to the chapter in our tomato-book in regard to supporting a family on a quarter of an acre. I saw another clipping to the effect that, at a recent convention of liquor-dealers in Harrisburg, Pa., a

speaker boasted that they had seven and a half millions of dollars to put up to fight local option in Pennsylvania.* Local option means letting the *people* decide whether they will have open saloons or not. The liquor people are going to spend $7,500,000 in order to defeat the people in their attempt to let the majority rule. When money, or, if you choose, *millions*, make our laws, instead of the votes of the people, what are we coming to? I said I felt sure something was wrong when it transpires that one man has the ownership of two and a half million acres of land; and I do not know but I shall have to decide there is something wrong where one person has control of two and a half million *dollars*, especially if he proposes to use it to pile up still more millions for himself or a selfish gang. I do not know where the solution is coming from for these troubles that loom up before us. But I do know that God will guide us if we will but put our trust in him and obey his commands

You say, "But if all or the majority of workmen acted on this advice, who would 'get to the top'?" Friend H., I think you misapprehend. If we all follow the Savior's teachings there would be no top nor bottom. Our inspiring motive should not be strife nor to get ahead of our fellows. When one does *more* than he is paid to do, his wages will be increased sooner or later, simply because his employer can *afford* to pay him more Farmers are saying all over our land that they would put in more crops and cultivate more land if they could find competent help. The prices they have to pay for service rendered leaves no margin for profit, and they are obliged to give it up. It is the same way with manufacturers. If they could get men who would put their whole souls into their work they could afford to pay such men liberally. And it is even still more so in our homes. Our good educated intelligent women say they would like to raise a family of children if they could get somebody to help in the household—one who loves children, and who would work for wages that they can afford to pay. And so you see the high price of help (and *incompetent* help at that) is tending to "race suicide" as our good President has put it. The sixth chapter of Luke contains some wonderful precepts in regard to this same matter. Let me quote one:

Give, and it shall be given unto you; good measure, pressed down, and shaken together, and running over, shall men give into your bosom. For with the same measure that ye mete withal it shall be measured to you again.

If we give good measure to our employers, or do a little *more* than we are paid for doing, we shall get it back again, and this has proven true the world over. We shall not only get it all back, but good measure, pressed down, shaken together, and *running over*. In other words, we shall receive from our fellow-men the same kind of service that we give them. If we scrimp in our measure it is not only human nature, but it is the way of the world, to give us scrimped measure in return. A good many times we get discouraged in thinking the measure that we have been giving has not been appreciated. Young people *especially* get impatient after they have worked extra hard to win approval, and then do not get it right away.

But another beautiful Bible text should come in here and make us patient. It is this:

Let us not be weary in well doing; for in due season we shall reap if we faint not.

If we hold right on to these two quotations I have made—Luke 6:38, and the one above, Galatians 6:9, we shall make progress, and get ahead in *any* community or *anywhere* on the face of the whole earth.

*Here is the clipping referred to:

OHIO ELECTIONS ALARM KEYSTONE LIQUOR MEN.

DEALERS WILL MEET THURSDAY TO RAISE FUND OF $7,500,000 TO FIGHT LOCAL OPTION IN PENNSYLVANIA.

The Pennsylvania State Federation of Liquor Dealers will meet in Harrisburg, Thursday and Friday, to discuss plans to raise a fund of $7,500,000 to fight local option in the State. The dealers are alarmed by the recent local-option elections in Ohio.

Of the sixty-seven counties of Pennsylvania, thirty-eight will be represented at the meeting. Efforts will be made to organize thoroughly in every county.

Temperance people in Pennsylvania are preparing for an aggressive local-option fight in the next Legislature.

MULBERRIES IN FLORIDA AND IN OHIO; MULBERRIES AND THE FEATHERED TRIBES.

On page 599 of our issue for May 1, 1906, I described a wonderful mulberry-tree with branches away up above the dwelling, and said branches were just bending with the most delicious mulberries I ever saw or tasted. I told you Mr. Collins, the owner of the tree, said he did not know the name of it, but he said it was certainly a superior fruit—far ahead of any of the mulberries cataloged by the Reasoner Brothers near by. Well, last winter Mr. Collins was kind enough to send a dozen or more cuttings from the tree to our island. In a little while these cuttings made quite respectable little trees. I have not heard from them since. I talked with the Reasoner Brothers in regard to it, and have written them since, and have thought best to submit to you the following in regard to this excellent (and I should say *wonderful*) mulberry:

Dear Mr. Root:—I have examined into that mulberry matter, and think the variety is the Stubbs, a Southern sort, hybrid from the native Red and perhaps Downing (at least it shows the blood of the red variety), and is the finest sort we ever saw. Rains are light, but are doing lots of good. We shall be pleased to help you pick out some plants for the new Braidentown place personally. Please phone me

when next you propose calling, so I won't be "away with friends." Sincerely,

Oneco, Fla., Sept. 7. REASONER BROTHERS.

Although they do not say so, I presume they will have cuttings and small trees for sale I think I mentioned before, that in many places in Florida they grow mulberries especially for poultry. If grown in the poultry-yard the fowls give them cultivation and fertilization free of charge, and they harvest the crop free of charge—that is, when it falls on the ground. All of the feathered tribe seem to be especially fond of mulberries. Here in our Medina home we have a Downing Everbearing that is now larger than a very large apple-tree, and this last spring it was a perfect mass of bloom. It seemed as if the tree could not possibly hold and ripen so much fruit; but just as soon as the first ones began to turn red, long before they were dead ripe, the robins and other birds saved us the trouble of harvesting the crop. What they did not pick off and swallow they dropped on the ground for the Indian Runner ducks; and although the tree bore fruit for weeks and months we never got a ripe berry. My son Ernest has a new and improved variety, I do not know the name, that bore berries a year ago almost equal to the large luscious ones I found in Florida. and we were looking forward this season with much anticipation to this delicious fruit; but, alas! the birds found the trees *this* year, even if they did fail to notice it a year ago, but no fruit was allowed to ripen. It has been just the same during the past season with cherries. We shall either have to plant cherry-trees enough to supply the birds, and more too, or else we shall have to curtail by some means the "supply" of birds.

Before closing I wish to call attention to the fact that the mulberry in Florida makes a most wonderful growth. A cutting in a single year will grow away above your head; and the next year, with every thing favorable, it may make quite a good-sized tree and bear a good lot of fruit.

Temperance.

DOES A GREAT CITY NEED A SALOON TO HELP PAY ITS TAXES?

Let those who think so, read the following from the *Christian Herald:*

Knoxville, Tenn., is a prohibition city. In the days of the saloon it had a population of 35,000, and its criminal costs were $50,074 76. Now it has a population of 50,000, and the criminal costs have gone down to $2,076.21—a sufficient answer to those who put forward the absurd claim that a city needs the saloon to help pay taxes and make it prosperous.

"FIGHTING MOTHERS," ETC.

Mr. Root:—Some time last spring you told us how heroically one of your hens on the island defended her chicks. We have a neighbor across the way who raises a good many chickens. He also owned a huge Maltese cat. One day we heard a great outcry, and noticed that the cat was catching and killing those little chicks right before their mother's eyes, and she rendered them no assistance, and why? She was in a coop. I thought, "Poor mother!" But how many mothers are obliged to stand and see their boys caught and dragged off into dens of iniquity, but still can do nothing? They are cooped. They are women. They have no voice in making the laws. I do trust that you will raise your voice like a trumpet, for it always has the right ring.

My daughter Nellie and I expect to spend this winter in St. Petersburg, Fla. We have some friends there. We expect to rent a small house one mile out of the city, on a trolley line. We don't expect to live very grand, but hope to avoid the cold winter.

I once taught school in Medina Co., and Mr. Barnard was the man who examined me and gave me a certificate. W. C. GAULT.

Savannah, O., Sept. 21.

My dear old friend, your suggestion is a good one. Yes, you are right. The mothers of our boys and girls here in our United States of America are at present, at least to a certain extent, cooped up. To our *shame* we must acknowledge that it *is* true that, while the saloon-keepers are laying their snares and traps for the mothers' boys—yes, and girls too—when they can, these mothers are, to a certain extent, helpless. While I write they are not permitted to have a vote as to whether saloons shall be located near their doors or not; but, God helping, this thing shall not continue long. I am expecting to hear every day the good news that our mothers, sisters, and daughters shall have a voice in saying whether or not our land shall be cursed with these devil traps or not. Thanks for your suggestion; and it may happen in God's providence that I may make you a brief call in your Florida home, and then we will talk about the time when we went to school to S. G. Barnard.

GOOD WHISKY AND BAD WHISKY.

We copy the following from the *Maine Farmer* for July 4:

Of the 8000 places in New York dealing in liquor, all but 700 are said to sell adulterated whisky which costs only 40 cents per gallon to manufacture. This goes over the bars at 15 cents a drink. In the face of such profits, and the pressing need of this class of people for money, is it any wonder that the saloon evil is a difficult proposition to handle?

Why, what is the matter with the York State people, any way? Why don't they get a move on them as they do here in Ohio, and enforce the pure-food laws, even if they are unable to enforce the laws for temperance?

INTEMPERANCE IN THE BARBADOS.

Mr. Root:—GLEANINGS for March 1 came to hand a short time ago. I notice your inference from my letter on p. 344 and must hasten to remove a misconception. The government taxes liquor here *very heavily*, along with all luxuries. It has no favor to pay to the drink-traffic, however. Public opinion is dead against intemperance, and a large section regard even moderate drinking as injurious. In my district of nearly 3000 people there are only two men selling drink, and they sell it as an adjunct to their provision business. There is not sufficient drink business done to provide a living for even one man.

Wages in the island are low; and the man who would waste his money in drink when there is so much otherwise that he ought to do with it would be rebuked severely by the neighborhood. This is the feeling here, and I believe it is the same to a greater or less extent all through the island. So it happened that, not long ago, I noticed the official returns for a quarter for drunkenness showed 3 cases, while the largest number I have noticed in any quarter has been 22. W. G. HUTCHINSON.

Boscobel, Barbados, March 19.

Two Years for One Dollar

After a man succeeds in publishing a good journal, the next step is that of getting it into the hands of the people, of getting them to reading it, and becoming acquainted with its merits. This can be done by advertising, sending out sample copies, circulars, etc. All this costs money. I think I am safe in saying that for every new subscriber I have received I have paid out $2.00 in advertising; hence, I have often said that a publisher of a good journal could afford to send his paper one year free, for the sake of getting it into new hands. It would cost no more than other forms of advertising, and would be very effective, but, for obvious reasons, this plan could not be put in practice, but I am going to come as near to it as I can. I have between 200 and 300 complete sets of back numbers for the present year, and as long as the supply holds out I will send a complete set, and the rest of this year free to any one who will send me $1.00 for the REVIEW for 1908.

THE REVIEW FOR 1907

It is impossible, in this space, to touch more than briefly upon a few points. Perhaps the leading feature of the year is a series of articles by E. D. Townsend. Mr. Townsend has been a specialist for many years, probably

Making More Clear Money

out of bees than has any one else in Michigan. You may have read occasional articles of his scattered through the different journals, but in the Review for the present year he began at the beginning and wrote in a consecutive manner—just as though writing a book. One article, showing the comparative cost of producing comb and extracted honey, is especially valuable just now when some are thinking of abandoning the production of comb honey.

Another man, whose experience and success have probably equaled Mr. Townsend's, Mr. E. F. Atwater, of Idaho, has furnished the Review with several articles the present year. If asked to give the keynote of these articles, I should say that it was the control of increase, or

Prevention of Swarming.

Perhaps the most satisfactory plan was the use of the Dudley tube; a very simple device that not only prevents swarming, but there is no dividing, no shaking, no absconding, no sulking, and no scattering to other hives, but *big results*.

Another successful specialist, who has been a frequent contributor, is Mr. M V. Facey, of Minnesota; and I think the most helpful feature of his writings is that of trying to tell his readers how to

Diagnose inside Conditions

of a colony by outside symptoms. Many bee-keepers think they must open every hive and take out all of the combs before they can know the condition of the apiary. It is wonderful, as you will admit after reading these articles, that an apiary may be managed with so little work—so little opening of hives.

A strong feature of the Review is its editorials. By actual count, 276 have appeared this year. They are helpful, inspiring, and encouraging—often the result of

Actual Personal Work

in the apiary. The Northern Michigan apiaries and their management are delightfully pictured with both pen and camera, and have brought forth more enthusiastic praise than any feature of the Review for several years. It is a record of *actual work*, with hundreds of colonies—the failures and successes. Two editorials deal at length with "Simplicity in Hive Constructive," showing how the editor made hives and frames, and wired the latter and filled them with sheets of foundation, all the work being done at home, and at a low cost.

What the REVIEW has been in the past, it will be in the future—a real help to practical bee-keepers who are in the business to make money. Send me $1.00, and you will get the REVIEW for 1907 and 1908; and after you have read it these two years I feel sure that you will become a life-long subscriber. For $2.00 I will send you the REVIEW for 1907 and 1908 and also a copy of the book "Advanced Bee Culture."

W. Z. HUTCHINSON, - FLINT, MICH.

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Yours truly, LAURENCE C. CLARKE.
Morden, Man., March 5, 1907.

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We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

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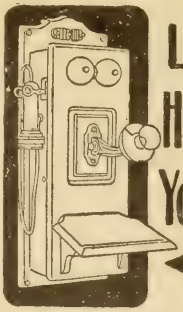

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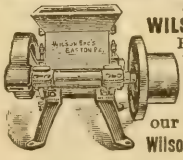

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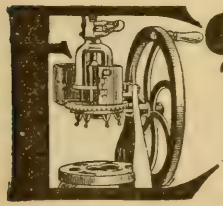

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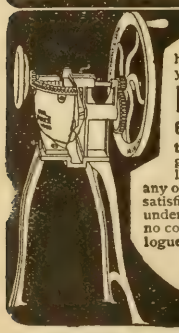

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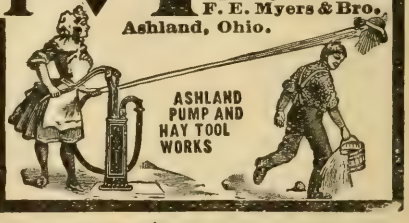

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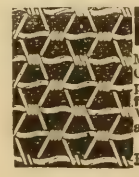

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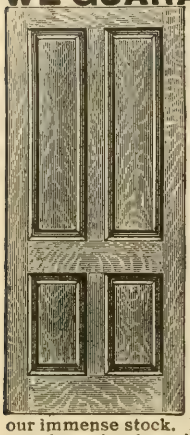

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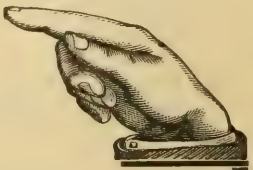

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Extra honey queens and choice mountain honey.
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QUEENS.—Pure Gold, Red-clover, Caucasian, Banat.
ROSE LAWN APIARIES, College View, Lincoln, Neb.

ITALIAN QUEENS.—Golden and leather, 60c each; worth $1.00. G. W. BARNES, Box 340, Norwalk, O.

Bee-keepers' supplies, Italian queens. Send for a free catalog. ARTHUR RATTRAY, Almont, Mich.

ITALIAN BEES and queens—Red-clover strain imp'd mothers. A. W. YATES, 3 Chapman St., Hartford, Ct.

ITALIAN BEES, queens, and Root's bee supplies.
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I club a high-grade Italian queen with GLEANINGS, new or renewal. W. T. CRAWFORD, Hineston, La.

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Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York City.

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GOLDEN-ALL-OVER Caucasian Banat bees and queens. We book orders for early queens from our best imported breeding stock for honey, with 600 twin mating-boxes. THE SNYDER APIARIES, Lebanon, Pa.

QUEENS.—Improved Red-clover Italians bred for business; June 1 to Nov. 15, untested queens, 60c; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

I must say to my friends, please do not send me any more orders for queens this season, as my health is so poor I find it impossible to continue queen-rearing. Thanks to all my friends for their very liberal patronage. W. W. CRIM, Pekin, Ind.

IMPROVED ITALIAN QUEENS now ready; nuclei and colonies about May 10, Danzenbaker or L. frames; 20 years a queen-breeder; 500 colonies to draw from. Circular and testimonials free.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

ANGEL'S GOLDEN BEAUTIES and his bright three-banded Italian Queens have but few equals and no superiors. A fine large queen of either strain for $1.00; an extra select breeder for $2.50. I have had 12 years' experience at queen-breeding. Address
SAMUEL M. ANGEL, Route 1, Evansville, Ind.

Convention Notices.

The 28th annual convention of the Colorado State Bee-keepers' Association will be held at the Chamber of Commerce Building, Denver, Nov. 19—21 inclusive. The program will be published later on. It is expected that some prominent bee-keeper will make a practical demonstration of "shook swarming" in a wire cage, and many other stunts which will prove interesting. It is expected to have a contest of putting up sections; also a prize given for the best work and speed in putting up the same.
Erie, Col., Oct. 15. S. FRANCIS, Sec.

BARNES' FOOT-POWER SAW.

We are prepared to furnish a Barnes foot-power machine which sells for $35.00, including a dado head, for $25.00 net cash. The machine is second-hand, but represented to us to be practically as good as new, having been used but a very little. Shipment would be made from Battle Creek, Mich.

SHOP-WORN OBSERVATION HIVES.

We have a few varnished observation hives, both one-frame with super and ten-frame, which have been in sample-rooms, and are not as fresh and bright as new goods. We offer these, while they last, at 20 per cent discount from list price.

ADVANCE IN PRICE OF BUSHEL BOXES.

Because of increased cost of lumber we are obliged to mark up the price on bushel crates and boxes. Until further notice the price of all-slatted bushel boxes, 14 to crate, is $2.10 per crate; 12 to crate, $1.90; galvanized bound, 12 to crate, $2.50. A corresponding advance is made in wholesale and jobbing prices.

DEATH OF MRS. GEO. W. YORK.

We are very sorry to record the death, which occurred on October 14th, last, of Mrs. Geo. W. York, wife of the editor of the *American Bee Journal*. She was a most estimable and lovable woman, and her death will be mourned by a very large circle of friends. She has attended one or two of the National conventions and several conventions of the Chicago Northwestern. We feel sure that Mr. York will have the sincerest sympathy of the whole GLEANINGS family.

A GERMAN REVISION OF THE A B C OF BEE CULTURE.

We now have on hand 1000 copies ready for distribution. This edition is a translation of the edition for 1905; but it contains some new articles that were taken from the new edition of the A B C book, which was being prepared when this translation was made. We anticipate quite a demand, as we have a good many bee-keeping friends who, while they speak English, yet the language of their fatherland is more familiar to them. We are now able to supply them with our book in their own tongue. The regular price of this work, owing to the great expense of the translation, will necessarily be a little higher than the English—viz., $1.75 in paper, or $2.00 cloth-bound.

YELLOW-SWEET-CLOVER SEED.

Our repeated calls for seed of yellow sweet clover have not brought to light a single offering as yet. This being an earlier variety than the white, it is probable that the seed was too far advanced, and dropped off before it was known that seed was wanted. Unless we are able to locate a supply of seed of this variety we shall be unable to furnish any till another season's crop is gathered, when we trust some of those who are growing this variety will save the seed. We have not yet secured enough seed of white sweet clover for the coming season. If our readers know of any lots of seed of either variety available we should like to get a sample, with price asked. State also the quantity in pounds which can be furnished.

SIMPLEX AND NO. 25 JARS AT LAST.

As we go to press we are receiving from the factory the carload of jars which were to have been shipped last August. Some of the large orders which have accumulated have been filled direct from the factory. We are now in shape to supply promptly No. 25 jars holding 1 lb. of honey, 2 dozen to the case, at $1.10; 6 cases, $6.30; 20 cases or more at $1.00 a case.

Simplex jars holding 18 oz. of honey, 2 dozen to the case, at $1.15 per case; 6 cases, $6.60; 20 cases or more at $1.05 per case. This simplex jar is over-size for one pound of honey, but are the best we can do in this style. There seems to be a great difficulty in producing this style of jar with a glass cap which screws on, especially the cap with internal spiral thread. There is a small stock of the 1-lb. size in our Philadelphia branch; but aside from these the 18-oz. size is the only one we can furnish.

CHANGES IN PRICES FOR 1907-8.

Up to this time we have determined on the following changes in list prices. During the past season we have worked off our surplus stock of No. 2 plain sections so that from this date forward, until further notice, the price on B grade or No. 2 plain sections will be 25 cents per 1000 higher than the rate given in our catalog.

We cut out the dozen rate on No. 30 wire on spools, and increase the 5-lb. coils to $1.00 each.

B. P. S. paint for hives is advanced to $1.75 per gallon; 90 cts. per ½ gallon; 50 cts. a quart; 30 cts. a pint.

Painted wire cloth is advanced to 2½ cts. per foot for cut pieces; 2 cts. in full-roll lots. Galvanized wire cloth, 8 mesh, is advanced to 8 cts. per sq. ft.

The A B C of Bee Culture, very greatly enlarged and improved, printed on enameled paper, is advanced to $1.50 postpaid; $1.25 with other goods by freight or express. The new edition will not be completed till November. Half-leather editions will be $2.00; full leather, $2.50.

There has been an advance of over 30 per cent in material for bee-veils, and new prices are adopted as follows: No. 1, all silk tulle veil, 90 cts.; No. 2, cotton tulle with silk face, 60 cts.; No. 3, all cotton tulle, 50 cts.; No. 4, mosquito-bar veil, 30 cts.; bee-hat, 30 cts.; silk tulle per yd., 60 cts.; cotton tulle per yd., 25 cts.; mosquito-bar, per piece of 8 yds., 75 cts. No change in globe veil.

EARLY-ORDER CASH DISCOUNT.

We have been obliged to cut down the early-order cash discount below that offered in former years; but it is still sufficiently liberal to pay transportation charges quite a distance, or to pay liberal interest on the money invested in supplies early, and should attract those forehanded people who know pretty well what they want for the coming season.

The following is the schedule of discounts for early cash orders for bee-keepers' supplies, subject to the conditions below:

For cash sent in	November,	deduct	4½	per cent.
" "	December,	"	4	"
" "	January,	"	3½	"
" "	February,	"	3	"
" "	March.	"	2½	"
" "	April,	"	2	"

The discount is only for cash sent before the expiration of the months named, and is intended to apply to hives, sections, frames, foundation, extractors, smokers, shipping-cases, cartons, and other miscellaneous bee-keepers' supplies. It will not apply on the following articles exclusively; but where these form no more than about one-tenth of the whole order the early-order discount may be taken from the entire bill: Tinned wire, paint, Bingham smokers, Porter bee-escapes, glass and tin honey-packages, scales, bees and queens, bee-books and papers, labels, and other printed matter, bushel boxes, seeds, and other specialties not listed in our general catalog.

CANADIAN WILDS.

This book is one of a series published by the editor of the *Hunter-Trader-Trapper*. It deals largely with the life of a trapper in the wilds of the Dominion of Canada, and the author was for many years employed as a buyer of furs for the Hudson's Bay Campany, one of the most remarkable business concerns ever organized. The author is remarkably modest and sincere in his statements, and for that reason the book may be recommended to any one interested in the life of the northern wilderness. Those who are thinking seriously of taking up land in the Canadian Northwest will doubtless be much interested in the simple story of a man who has spent many years on the northern frontier. Naturally he tells some of the "secrets" of the trapping business, particularly how much money

the hunters make, and it is evident some of them do very well at it.

Information of this kind that can be relied on is scarce and often quite unobtainable, as information about the Hudson's Bay Territory was always hidden until a few years ago when the land was thrown open to settlement. Many Americans of late years have gone to Canada with the object of engaging in farming, and many of them have become trappers during the winter, when the icy hand of Jack Frost has every thing frozen hard. The country is naturally adapted to fur-bearers, so nearly all farmers become trappers very quickly. For this reason the book will have a ready sale. The price is reasonable (60 cents), and we can club it with GLEANINGS for $1.30. Canadians will be obliged to pay a little more, the same as for Fox-trapping and Mink-trapping.

Special Notices by A. I. Root.

PUBLIC OWNERSHIP, ETC.

After my remarks on page 1391 were printed, a friend ("Neighbor H.") suggested that our pavements and sidewalks in towns and cities are made by the people, owned by the people, and used by the people, and that the arrangement also seems to be fairly satisfactory all around. Where the matter is properly managed we get these excellent things at cost, and everybody has the benefit of them without paying a cent *more* than cost. While we are about it we might say that the free schools of this our free land are also managed much in the same way. Now, why should we not have a parcels post to let our people, especially our hard-working people, have the things they want transported at cost, or pretty nearly that, in the same way that we have our sidewalks and pavements, instead of paying the express companies untold millions in the way of undeserved profits. I came pretty near saying *insurance* companies instead of express companies; and I do not know but I should have hit the nail on the head had I done so. Hurrah for parcels post! We are told it is coming, and is already on the way.

BASSWOOD-TREES FOR FALL PLANTING.

In our last issue, page 1349, I said "1 to 5 feet, 75 cts. for 10," meaning that we would send ten little basswood-trees, running from 1 to 5 feet in height (*averaging*, perhaps, 3 feet), for 75 cents. Several of our friends seem to have gotten the impression that we gave 10 trees, all five feet high, for 75 cents. But we can not fill such orders without writing back. The reason why we say "from 1 to 5 feet" is this: The trees do not all grow alike as they stand in nursery rows. Some will be a foot high, others 2 feet, some 3; a few will be 4 or 5 feet high. When we take up the trees we want to clear the ground so as to plant something else. Accordingly, we advertise to take up 10 trees just as they come, only we do not take any under a foot, and probably none over 5 feet. These prices are for trees to go by express. Where we send them by mail we seldom take any much over a foot. We have now had sufficient frosts so that the leaves are dropping, and we are prepared to fill all orders promptly. I suppose we can fill an order for trees 5 feet high if we go all over the nursery and pick out the largest ones; but we should have to have double prices or more if we did that, and we do not like to do it, as it would not be fair to the rest.

"PROFIT-SHARING," ETC.; AND THE PREMIUM BUSINESS IN GENERAL.

We are pleased to note that Montgomery Ward & Co., in their last catalog, say they will not, after this year, give "dividend certificates," etc. They say in regard to it, "We will admit we entered into it (the above) with reluctance. Our business has been built up on a strictly cash basis, giving full cash value for cash received." I want to say that I for one have been having, for some time past, a growing feeling of dislike for all sorts of schemes for making customers a present in a straightforward legitimate business; and I believe the world generally is in favor of getting what it wants at a reasonable price—a *close* price if you choose to put it—*for spot cash*, and let that end the transaction. For instance, I am sure that the great bulk of the regular subscribers of GLEANINGS would prefer to have "their money's worth" in that journal rather than to have any sort of premium or present thrown into the transaction. There may be circumstances that justify things of this kind. As an illustration, in order to get that exceedingly valuable work, Holden's corn-book, into the hands of as many people as possible at once, the *Farm News* people offered to make every subscriber a present of the book by sending 50 cents in advance for the *Farm News*. But even then a good many people got the corn-book who do not want it, because they have nothing to do with growing corn.* Now in regard to this journal: I think the majority of our readers will prefer, when they send money for GLEANINGS, to have that and nothing else, as far as the money will go or pay for; and as it is some little trouble to send a dollar each year, a good many remit for a year or two in advance. Sometimes they neglect it, and do not send the money in advance. Now, to accommodate you all, we offer GLEANINGS three years for $2.00, or five years for three dollars. This is only 60 cents a year, and that is our lowest clubbing price, without any premium or any thing else thrown in Now, to make it still easier, especially on those who have neglected to renew promptly, we will say that any subscriber who pays up all *past* dues, and sends us as much as $3.00, may have the journal for five years for $3.00, including the past that is not paid up, as well as the future. In other words, when you find you are owing for GLEANINGS, and have not paid up, remit us $3.00, and then it costs you only 60 cents a year, past as well as future. Can you afford to pay a dollar a year when you can so easily get it for 60 cents? This liberal offer is from your old friend A. I. Root, and I hope many of you will take advantage of it.

SASHES FOR HOT-BEDS, COLD-FRAMES, AND LITTLE GREENHOUSES.

Now is the time to begin to think of giving some protection to plants and flowers that are to be wintered over; and there is not only pleasure but profit in seeing stuff grow all winter long. With a few sashes you can make a cold-frame that will grow lettuce, cabbages, and a lot of hardy stuff without any heat; and when you get ready toward spring, with fermenting stable manure you can get both pleasure and profit from the hot-beds. With a dozen sashes or less you can make a greenhouse opening out from your cellar so you can grow vegetable-plants and other things; and with present prices for almost every thing grown under glass you can make a profitable investment of your time on stormy days, and even keep your hired help busy that would otherwise be unemployed. Any one who does just a little in the way of market-gardening should have some sashes and start a little greenhouse. Now, I have just sent for samples (so as to be up to date) of the latest and most improved patterns of hot-bed sashes to be found in and around our largest cities; and while we are making them of late of cypress, the best wood in the world for the purpose, our prices are still unchanged. We keep constantly in stock, ready to ship, sashes both in the flat and nailed up.

PRICES OF OUR LATEST IMPROVED COLD-FRAMES OR HOT-BED SASH MADE OF CYPRESS.

Price of one sash, in the flat, for sample, without glass, 90 cts.; 5 in the flat, 85 cts. each; 10 in the flat, 80 cts. each. Glass, 8x10, just right for the above, $2.90 per box of 90 lights; 5 boxes, $2.80; 10 boxes, $2.70.

Sash put up, no glass or paint, 10 cts. each extra; 10 cts. each extra for each coat of paint, and $1.15 each extra for glass set in place, making the sash put up, painted two coats, and filled with glass, at $2.25 each in lots of 5. The risk and freight charges are so much more shipped put up with glass that we do not recommend you to order this way, and we can not well pack less than five safely.

We would not advise shipping a less number than five; but if you take our advice you will have all your glass sash shipped in the flat. In this case they go as fourth-class freight; whereas, all complete they will have to go as first-class, and some roads rate them as double first-class.

* As an illustration of the way the premium business often works, some years ago we advertised to give every subscriber to GLEANINGS one of our agricultural books; and I instructed the clerk to use such books as we had the largest stock of when the subscriber did not say what book he wanted. Pretty soon a friend down in Florida complained because we had sent him as premium "The Winter Care of Horses and Cattle." He said that, where he lived, he did not have any horses, nor cattle either, because they did all their traveling by boat; and, furthermore, in their locality they did not have any winter. What use would such a book be to him under such circumstances!

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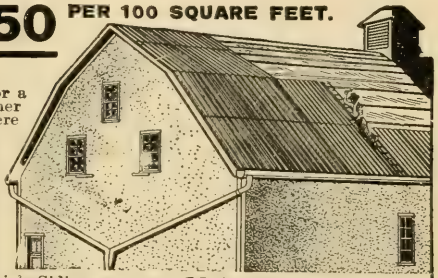

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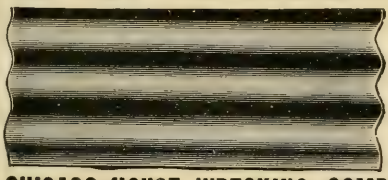

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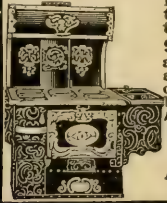

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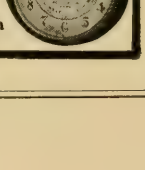

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Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered.

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Gleanings in Bee Culture

An Italian Apiary, belonging to Signor J. Rinaldo, at Bagadali.

The A. I. Root Co., Medina, O., U. S. A.

Entered at the Postoffice, Medina, Ohio, as Second-class Matter.

Vol. XXXV November 15, 1907 No. 22

HONEY PACKAGES

OUR CASES are the non-drip "Root Quality" kind. Also can supply you with glass and tin packages for extracted honey.

BUY NOW FOR NEXT YEAR

and get four and one-half per cent cash discount for cash orders in November. We will quote you prices on the goods you will need for next season. Get your goods ready through the winter before the rush in the spring. ¶ We carry the Danzenbaker Hive, the Comb-honey Hive.

M. H. HUNT & SON

REDFORD, ~ ~ MICHIGAN

GREAT FIRE SALE

On account of a recent fire which slightly damaged our stock of goods, we are closing out all

POULTRY AND BEE SUPPLIES

AT A 10 PER CENT DISCOUNT.

It will pay you to order any supplies which you will need for next season's use. Make up your order and deduct 10 per cent. Goods guaranteed to be as good as new, except hives are discolored on outside. Don't delay, as they are going fast. Will exchange supplies for honey and wax

The Griggs Bros. & Nichols Co.

523 Monroe St., Toledo, O.

BIENENZÜCHTER!

von Deutschland, Schweiz, Oesterreich, u. s. w., senden Sie fuer unsere 1907 Preisliste von

Bienenwohnungen, Rauchapparaten
Honigschleudern, Handschuhen,
Bienenschleiern, Walzwerken,
Futterapparaten,
Porter's Bienenflucht,
Fluglochschiebern für Kasten,
Königinnenabsperrgittern,
Weiselkäfigen,
Schwarmfangbeuteln,
Entdecklungsmessern,
Dampfwachsschmelzern,
Wabenentdecklungsapparaten, und allen anderen Bienengerätschaften der

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General Vertreter für Europa und Kolonien

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C. H. W. WEBER

Headquarters
for . . .

BEE-SUPPLIES

Honey! Who Wants Honey?

We have just received several carloads of water-white sage honey, the finest that can be produced, put up in 60-lb. cans, two to a case. We have also several cars comb honey in stock, white-clover and alfalfa.

If in the market, state quantity and we shall be pleased to quote you prices.

C. H. W. WEBER

Office and Salesroom, 2146-48 Central Ave.
Warehouse, Freeman and Central Avenues.

CINCINNATI, OHIO, U. S. A.

Honey Markets.

GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct, to the retail merchant. When sales are made by commission merchants, the usual commission (from five to ten per cent) cartage, and freight will be deducted, and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

ZANESVILLE.—This market is well supplied with comb honey, especially alfalfa. Practically no change in prices since last quotations; 19 to 20 cts. wholesale. There is some demand for extracted in glass retail packages; otherwise market is very quiet. Little demand for beeswax in a wholesale way. I offer 29c f. o. b. here in exchange for bee supplies.

EDMUND W. PEIRCE,
Nov. 6. 136 W. Main St., Zanesville, O.

PHILADELPHIA.—The sales of honey have been quite active on this market. We quote: Fancy comb honey, wholesale, 17 to 18c; No 1 white, 15 to 16; amber, 14. Extracted honey, water white, 8½ to 9; amber, 7½; dark, 7. Beeswax, 30. We are producers of honey, and do not handle on commission.

WM. A. SELSER,
Nov. 9. 10 Vine St., Philadelphia, Pa.

ST. LOUIS.—Since our last of Oct. 10, this market is unchanged on honey. There is now an ample supply of both grades, comb as well as extracted honey. The demand is steady but by no means urgent. We quote as follows: Fancy white comb honey, 17c; No. 1, 16; choice amber, 15 to 16. Broken or defective honey sells at considerably less, and very difficult to place. Extracted, white, in cans, 8 to 8½; amber, 7½ to 8; in barrels and half-barrels, 1c per pound less. Beeswax firm at 28c for choice pure. All impure and inferior, lower.

R. HARTMANN PRODUCE CO.,
Nov. 9. St. Louis, Mo.

CINCINNATI.—Owing to the unsettled condition of finances throughout the country, causing much uneasiness and anxiety among the buyers, we look forward to seeing honey reach lower values in the very near future. We are at a loss to say what prices we will ask in 10 days hence, but at this writing we are quoting extracted amber honey in barrels at 6 to 7½ cts.; fancy white extracted, in 60-lb. cans, at 10; and strictly fancy white comb honey (which is moving slowly), at 16½ to 18, according to the quantity purchased. For choice yellow beeswax, free from dirt, we are paying 30 cts. per lb., delivered here.

THE FRED W. MUTH CO.,
Nov. 8. 51 Walnut St., Cincinnati, O.

DENVER.—The comb-honey crop of Colorado has been good, and so far as we know, every thing available for carload shipments has gone out of the State at satisfactory figures. Local trade will absorb the stray lots that are left. We quote our market as follows: No. 1 white, per case of 24 sections, $3.25 to $3.50; light amber and No. 2, $2.75 to $3.00. Extracted, white, 7½ to 8½; light amber, 6¾ to 7½. We pay 24 to 25c for clean yellow beeswax delivered here. Offers wanted with samples from parties having extracted honey to sell.

THE COLORADO HONEY PRODUCERS' ASSO'N,
Oct. 28. F. RAUCHFUSS, Mgr.

INDIANAPOLIS.—Honey is in good demand; but with the approach of holidays the market usually shows a lack of vitality. Jobbers are paying the following prices, delivered here: No. 1 and fancy white comb, 16 to 17c, actual net weight. Extracted, white clover, 9 to 10. Beeswax, 28c cash or 30c in exchange for merchandise.

WALTER S. POUDER.
Nov. 4. Indianapolis, Ind.

CHICAGO.—The honey market is quiet with offerings increasing. No. 7 to fancy brings 17 to 18c, but other grades are difficult to sell at from 2 to 5c per pound less. Extracted, 8 to 9c for white, with amber and dark ranging from 6 to 7c per pound. Beeswax, 30c per pound.

R. A. BURNTT & CO.,
Nov. 8. 199 So. Water St., Chicago. Ill.

SAN FRANCISCO.—Honey is firm at former quotations, with offerings small, and very little coming into the market. Little is now heard of any movement in other quarters, and holdings in the country seem to be about exhausted. Light amber, extracted, 7 to 7½c; water white, comb, 16 to 17; white comb, 15; water white, extracted, 8 to 8¼.

Oct. 26. —*Pacific Rural Press.*

SCHENECTADY.—Receipts have been somewhat larger during the past week; many producers are complaining about not getting their shipping-cases yet, so we look for the free arrival of stock the rest of this month. No change in prices. We could place some fancy white in tall sections to good advantage.

CHAS. MACCULLOCH,
Oct. 19. Schenectady, N. Y.

WHAT HAS MUTH GOT NOW?

Genuine **Orange-blossom Honey.** Genuine **Black-sage Honey.** Genuine **White-clover Honey.**

(All in crates of two 60-lb. cans each)

and Fancy Comb Honey in 24-section cases, averaging 22 lbs. to the case.

You better write for prices; this honey is too good to stay long on our hands.

THE FRED W. MUTH COMPANY,

51 WALNUT STREET. The Busy Bee Men. **CINCINNATI, OHIO.**

DETROIT.—Honey continues to be scarce, and prices are much the same. There seems to be no Michigan extracted, and prices quoted are for the California extracted. The feeling seems to be among commission men that the bee-keepers are holding for a high price, and will have to let it go later cheaper. No. 1 and A No. 1 white comb honey, 20c; No. 2, 15 to 18. Extracted, 8 to 8½. Beeswax, 27 to 29.

M. H. HUNT & SON,
Nov. 11. Redford, Mich.

BUFFALO.—The demand for honey is slow. Not very much good honey arriving. Prices are held firm for all first quality. There ought to be a better demand soon, for fruit is pretty well gone, and Thanksgiving near at hand, so we look for a good demand. No. 1, fancy white clover, comb, 17 to 18; No. 2, 12 to 14; No. 1, buckwheat, 11 to 12½. No. 2, 10 to 11. White clover, extracted, 8 to 9; amber, 7 to 8; dark, 6½ to 7. Beeswax, 30 to 32. W. C. TOWNSEND,
Nov. 11. Buffalo, N. Y.

BOSTON.—Our market on honey is very strong ranging from 16 to 18c for No. 1, with, comparatively speaking, light supplies, and a good demand. Extracted honey also very light supply, brings 8c per lb.

BLAKE, SCOTT & LEE CO.,
Nov. 9. Boston, Mass.

KANSAS CITY.—The demand for comb and extracted honey is fair. We quote: No. 1 white comb, 24-section cases, $3.50; No. 1, amber, $3 25; No. 2 white and amber, $3.00; extracted white, 8½; amber, 7½ to 8. Beeswax, 25 to 28. C. C. CLEMONS & CO.
Nov. 11. Kansas City, Mo.

NEW YORK.—There is a good demand for all grades of honey. Arrivals are now coming in more freely; and in good-sized lots, and find ready sale at good prices. Fancy sells at from 16 to 17c; No. 1, at 15; No. 2, white, at 14; dark and buckwheat, at 12 to 13c. Extracted also in good demand, with sufficient supply, principally from California. We quote water white at 9c; white sage, at 8½; light amber, at 8; dark and amber, at 7 to 7½, according to quality. Southern und West India honey, in barrels, at from 70 to 80c per gal., according to quality. Beeswax quiet, at 29 to 30c. HILDRETH & SEGELKEN,
Oct. 24. New York.

LIVERPOOL.—Honey rather lower, and prices are as follows: California extracted, 8c; Chilian and Peruvian, 3½ to 6; Jamaican, 4¼ to 5¼. Beeswax, African, from Sierra Leone, 28¼; American, none; West Indian, 31 to 33; Chilian, 28 to 33. TAYLOR & CO.,
Oct. 25. 7 Tithebarn St.

ANTWERP.—Beeswax, Zanzibar (in pots) 32c; Zanzibar (dirty), 27c; Mozambique (chunks), 32; Morocco, 32; Portugal (in pots) 32½; Benguella, 32; Abyssinia (not refined) 27c. E. BONDONNEAU.

BEE-KEEPERS!

HERE IS YOUR CHANCE

to get a large discount until January 1, 1908: 10 per cent discount on all bee-hives, and a Corneil smoker or A B C book for cash orders for $20.00, or a Clark smoker for $10.00 orders. Write for catalog at once.

Ten years in bee-hive making.

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FOR HIS

"Bee-keepers' Guide"

Liberal Discount to the Trade.

Extracted Honey Wanted

We are always in the market.

If you have any to sell, mail small average sample to

NATIONAL BISCUIT COMPANY

Purchasing Department,

205 La Salle St., Chicago, Illinois.

WE WILL BUY AND SELL

HONEY

of the different grades and kinds.

If you have any to dispose of, or if you intend to buy, correspond with us.

We are always in the market for WAX at highest market prices.

HILDRETH & SEGELKEN,

265-267 Greenwich St. 82-86 Murray St.

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I WILL BUY YOUR

HONEY

for cash. Send sample, and mention quality, style of package, and price.

ONE CAR OF ALFALFA HONEY WANTED.

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Established 1873. Circulation 32,000. 72 pages. Semi-monthly.

Gleanings in Bee Culture

$1 per year. When paid in advance: 2 years, $1.50. 3 years, $2.00. 5 years, $3.00.

Devoted to Bees, Honey, and Home Interests.

Published by
THE A. I. ROOT CO., Medina, Ohio

J. T. CALVERT, Business Manager

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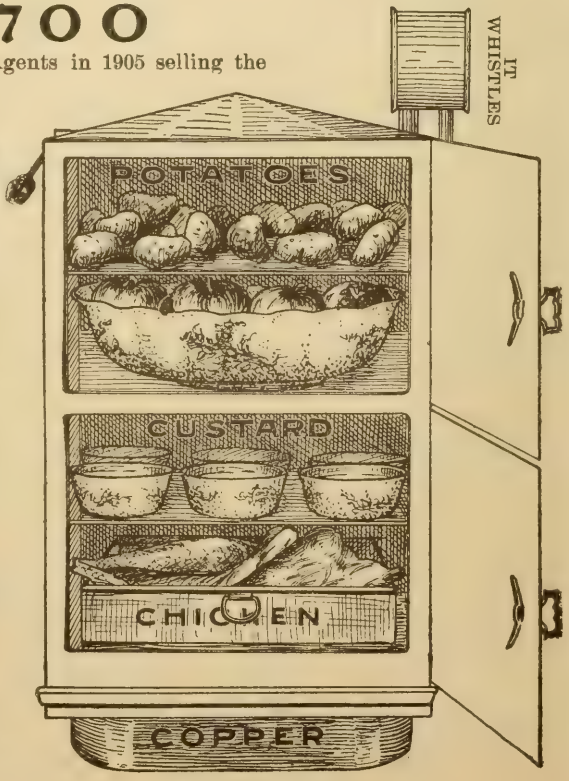

Gleanings in Bee Culture

COMBINATION and CLUB OFFERS.

Last season, without intending to show any partiality, a premium list was issued in the interest of subscription work. A wide choice of books and papers on bee-keeping, poultry-raising, fruit culture, and kindred subjects was open to any one who could devote a little leisure time in securing GLEANINGS subscriptions, either new or renewals.

ONE RESTRICTION—that a renewal for ones self did not entitle the sender to a premium—caused an occasional protest.

Fair to Every one

During the season 1907–8, both old and new subscribers may secure a year's subscription to GLEANINGS IN BEE CULTURE, and choice of any of the following books, papers, or articles, by sending a small additional amount to subscription price, as specified under terms of the offer which meets his needs. We feel certain that these offers will be appreciated by all, especially by any who may have felt that the list last season was too restrictive.

Offer No. 1 B.—A B C OF BEE CULTURE (1907 edition), postpaid, and GLEANINGS one year, for $2.25. This edition of A B C will be ready to mail about November 1.

Offer No. 2 B.—HOW TO KEEP BEES, postpaid, and GLEANINGS one year, for $1 50. A handbook for those who keep bees for happiness and honey, and, incidentally, for money. It serves as an introduction to more extended manuals, such as the A B C of Bee Culture.

Offer No. 3 B.—FORTY YEARS AMONG THE BEES, by Dr. C. C. Miller, and a year's subscription to GLEANINGS, $1.75, postpaid.

Offer No 4 B.—STANDARD ROOT SMOKER, postpaid, and GLEANINGS one year, $1.85. One of the best smokers made, both in principle and construction.

Offer No. 5 B.—WHAT TO DO AND HOW TO BE HAPPY WHILE DOING IT, by A. I. Root. This book postpaid, with GLEANINGS one year, $1.35.

Offer No. 6 B.—A copy of MINK-TRAPPING, postpaid, and GLEANINGS one year, $1.30. The methods published are those of experienced trappers from all parts of the country.

Offer No. 7 B.—A copy of FOX-TRAPPING, postpaid, and GLEANINGS one year, $1.30. A book of instructions telling how to trap, snare, poison, and shoot. A valuable book for trappers.

Offer No. 8 B.—BEE-GLOVES. One pair of cloth bee-gloves, with or without fingers, with GLEANINGS one year, $1.35, postpaid.

Offer No. 9 B.—One FOUNTAIN PEN, postpaid, with GLEANINGS one year, $1.50. Price of pen alone is $1.00; not equal to pens sold at $2.50 and up, but as good a pen as we can find for $1.00.

Offer No. 10 B.—A year's subscription to GLEANINGS and THE AMERICAN BOY, $1.65.

Offer No. 11 B.—DEADFALLS AND SNARES. (Just the book for trappers, hunters, woodsmen, and the country boy who wants to know the different ways of capturing fur bearing animals of all kinds). This book, postpaid, with a year's subscription to GLEANINGS, $1.30.

Canadian postage on each of the above offers, 30 cts. per year additional.
Foreign postage on each of the above offers, 60 cts. per year additional.

THE A. I. ROOT COMPANY, MEDINA, OHIO.

Gleanings in Bee Culture

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RURAL WATER SYSTEMS.

The above is the title of a unique little book on the subject of the Deming Hydraulic Ram, made by the well-known Deming Co., of Salem, Ohio, who manufacture all sorts of pumping machinery. This

booklet is so neatly and attractively gotten up we take the opportunity of illustrating it here. It is only twelve pages all together, and it may be easily read in ten minutes; but it nevertheless conveys a considerable amount of information regarding the value of a hydraulic ram in the country-house. Methods of installing a water supply for the home are briefly treated, and suggestions offered bearing on each particular case. Water may be forced to all parts of the house, the barn, watering-trough, and, if necessary, a supply for operating a honey-extractor, a washing-machine, or sewing-machine. Many do not realize the great value of the hydraulic ram where there is a stream of water. It is excessively simple in its operation, so if you want the conveniences of a water supply just write to the Deming Co., Salem, Ohio, mentioning GLEANINGS.

PRACTICAL DAIRY BACTERIOLOGY.

This book, by Prof. Conn, of the Agricultural Experiment Station of Connecticut, is the very latest book on the subject. It is probable that bacteria attack milk quicker than any other medium and it has come to be recognized they play a very important part in every operation connected with milk production. A crowd of expert bacteriologists are now engaged in studying milk production, with a view to making the work of the dairymen easier and more scientific, and at the same time protect the consumers from noxious bacteria. One of the most prominent of these bacteriologists, if not the most prominent, is the author of this book.

Prof. Conn has the rare faculty of supplying his readers with the right kind of knowledge on the subject, without using terms and words which very few can understand. For this reason this book can be recommended to all those who are engaged in milk production, no matter how small a scale they work on.

Even if you have only one cow for family use you ought to know something about this matter. This book shows how long-keeping milk is produced, and also why some milk sours in a very short time.

We are sure this book is a safe and reliable guide to the whole subject of bacteria in milk. It can be supplied from this office at the publisher's price, $1.25 (cloth), postpaid anywhere.

Gleanings Magazine Clubbing Offers

In the list below we have arranged to furnish our readers with GLEANINGS and certain magazines, and other periodicals, at prices far below the cost of the same papers if ordered separately.

McClure's Magazine. We do not expect to be able to supply this magazine after Feb. 1, 1908, at the prices below. It is important therefore that your order be sent before that time.

Order Early. Publishers are greatly crowded with orders in December, so your order will get much better attention if you send it in this month.

Other Periodicals. In our December 1st issue we expect to give some additional clubs, but still we urge your immediate consideration of those below, and your orders for GLEANINGS renewal in connection with some club herewith. However, if you do not find here what you want, we will quote you by letter on receipt of your list.

Gleanings	1 yr.	$1 00	
Suburban Life	"	3 00	
McClure's*	"	1 50	
		$5 50	$3 35

*Or Harper's Bazar, Success, Cosmopolitan, American, The World To-day, American Boy, Woman's Home Companion.

Gleanings	1 yr.	$1 00	
Suburban Life	"	3 00	
McClure's*	"	1 50	
The World To-day*	"	1 50	
		$7 00	$4 00

*Or Good Housekeeping, Woman's Home Companion, or any magazine in offer No. 1.

Gleanings	1 yr.	$1 00	
Suburban Life	"	3 00	
Review of Reviews*	"	3 00	
American Magazine	"	1 00	
		$8 00	$4 70

*Or Outing, Reader Magazine, Independent.

Gleanings	1 yr.	$1 00	
Suburban Life	"	3 00	
Review of Reviews*	"	3 00	
McClure's	"	1 50	
		$8 50	$5 05

*Or Bookman, Yachting, or any magazine in offer No. 3.

Gleanings	1 yr.	$1 00	
McClure's	"	1 50	
Woman's Home Companion	"	1 00	
		$3 50	$2 65

Gleanings	1 yr.	$1 00	
McClure's	"	1 50	
Woman's Home Companion	"	1 00	
Review of Reviews	"	3 00	
		$6 50	$3 65

Gleanings	1 yr.	$1 00	
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McClure's	"	1 50	
World's Work	"	3 00	
		$6 50	$3 65

Gleanings	1 yr.	$1 00	
McClure's	"	1 50	
Good Housekeeping	"	1 00	
		$3 50	$2 65

Gleanings	1 yr.	$1 00	
St. Nicholas (new)	"	3 00	
Review of Reviews	"	3 00	
		$7 00	$4 05

Gleanings	1 yr.	$1 00	
St. Nicholas (new)	"	3 00	
McClure's	"	1 50	
Woman's Home Companion	"	1 00	
		$6 50	$4 00

Gleanings	1 yr.	$1 00	
McClure's	"	1 50	
World To-day	"	1 50	
		$4 00	$2 65

Gleanings	1 yr.	$1 00	
McClure's	"	1 50	
		$2 50	$1 70

Gleanings	1 yr.	$1 00	
Good Housekeeping	"	1 00	
		$2 00	$1 70

Gleanings	1 yr.	$1 00	
American Magazine	"	1 00	
		$2 00	$1 70

Gleanings	1 yr.	$1 00	
Review of Reviews	"	3 00	
Rural New-Yorker	"	1 00	
Woman's Home Companion	"	1 00	
		$6 00	$4 00

Gleanings	1 yr.	$1 00	
Review of Reviews	"	3 00	
Sunday School Times	"	1 00	
		$5 00	$3 25

Gleanings	1 yr.	$1 00	
Sunday School Times	"	1 00	
		$2 00	$1 80

Gleanings	1 yr.	$1 00	
Rural New-Yorker	"	1 00	
		$2 00	$1 90

Gleanings	1 yr.	$1 00	
Farm Journal	5 yrs.	1 00	
Garden Magazine	1 yr.	1 00	
		$3 00	$2 20

Gleanings	1 yr.	$1 00	
Sunday School Times	"	1 00	
McClure's	"	1 50	
		$3 50	$2 50

Gleanings	1 yr.	$1 00	
Sunday School Times	"	1 00	
Rural New-Yorker	"	1 00	
		$3 00	$2 75

Send all orders to *The* A. I. Root Co., Medina, Ohio

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Fourteen lines to inch.

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No medical or objectionable advertising accepted.

INSECTS INJURIOUS TO VEGETATION.—BY CHITTENDEN.

The above is the title of the latest book on the subject of injurious insects, from the standpoint of the farmer. The author of this work is Dr. Chittenden, of the United States Department of Agriculture, where he has had many years of experience in the work of devising ways and means for destroying injurious insects. He has been the recognized authority in this line for some time, and this book is the fruit of his experience. One of the features of the book are the many plain illustrations, which enable the reader to recognize the insect he has to deal with. Of course, the latest methods employed for their destruction are also given in full. In this way our farmers may be able in some measure, to prevent the enormous losses from insects now sustained. This loss amounts in this country alone to hundreds of millions every year, so that every book of this kind is very welcome indeed. The book can be supplied from this office at the publisher's price, $1.50, clothbound, and postpaid.

How to Keep Bees

By Anna Botsford Comstock

228 pages. 32 pages of illustrations.

A charmingly written manual describing clearly and in detail the outfit, first steps, and methods. The author's well-known literary ability has combined with her enthusiasm for a subject to produce a very unusual volume. It is a handbook for those who keep bees for happiness and honey, and incidentally for money. It serves as well as an introduction to the more extended manuals already in the field. "Finally with all due deference to the authors of the excellent books on bee culture which we have already, my opinion is that this new book, 'How to Keep Bees,' is the best one for a beginner, or one who does not wish or expect to keep more than a dozen colonies, that has yet come before the world."—*A. I. Root, in Gleanings, July 1, 1906.*

Chap. 1, "Why Keep Bees," urges honey, perhaps money, recreation, love of nature study, and the need of bees in "a perfect garden," as good reasons for keeping bees. The second chapter tells "how to begin" in a small way, and we may get all the necessary detailed information for management from later chapters, arranged in order of demand for information.

Price $1.00. Postage 10 cents extra.

Money refunded to any dissatisfied purchaser.

The A. I. Root Co., Medina, O.

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If you are in position to offer an unusual bargain to an agricultural class and are looking for some advertising medium which will bring you quick results, you will be interested in examining the following statement from one of our advertisers:

Special Offer for the Season for Queens.

Golden-all-over, Gray Caucasian, and Banats

FIVE HUNDRED queens ready to mail. All queens mated with select drones; no foul brood here; all hardy stock. Banat bees from Hungary. This wonderful new race of bees takes the lead of all other races; are great honey-gatherers; builders of very white combs; do not stick the joints all over with propolis so that the frames can not be moved; very gentle, quiet on the comb; are not inclined to swarm; if a hive is boiling over with bees they will keep at work while other races are swarming. My Banat bees were gathering 42 lbs. extracted honey while many other races were loafing.

Price list from Aug. 1.

GOLDEN-ALL-OVER QUEENS.
Untested queens, 1, 75 cts.; 6, $4.00; 12, $7.00.

GRAY CAUCASIAN QUEENS.
Untested queens, 1, 75 cts.; 6, $4.00; 12, $7.00.

BANAT QUEENS.
Untested queens, 1, $1.00; 6, $5.00; 12, $3.00.

Also fine tested and breeding queens. We are ready to fill orders by return mail. Ask for price list. We guarantee safe arrival in lots of one hundred or more. Ask for special price.

The Snyder Apiaries
Lebanon, Pa.

This is his advertisement August 15.

The Snyder Apiaries
All queens bred from very best imported stock

Lebanon, Pa.,

Sept. 11, 1907.

I have had a wonderful demand for queens ever since my quarter-page advertisement appeared in GLEANINGS, August 15th. Since that date I have received orders for over a thousand queens. I am still unable to fill all orders.

very truly yours,
Snyder Apiaries.

The above is what he says.

Our purpose in giving the above is to bring to your attention the value of our columns in bringing quick results. We do not expect such a wonderful result can be obtained every time; we do not claim impossibilities, but the above is an example of the satisfactory service we give to our readers and advertisers through these columns.

To the advertiser of products suitable for bee-keepers and their families, the above should be convincing evidence of the desirability of securing space in our columns.

It should be borne in mind when making inquiries or sending in orders, that, unless we already have an acquaintance with you, we require evidence that you are in position to handle satisfactorily trade resulting from advertising in these columns.

It isn't entirely because we have a circulation of 35 000 copies per issue that advertisers secure such results. The circulation is of no value unless it reaches a good class of people. We are proud of our readers and know that in a large measure results are secured because our readers are of the buying and trustworthy class, and, furthermore, that they have implicit confidence in what is advertised in our columns.

Although I am not a bee-keeper and probably do not see a hive once in three months, nor do I know enough about bees to read understandingly all the articles which appear in GLEANINGS, there is something about the tone of your publication which makes me want to read the next month's issue. R. A. Reed.
Manager Seaboard Publishing Co., Norfolk, Va.

Mr. Reid's letter is a sample of hundreds received in our office expressing their appreciation of GLEANINGS. It naturally follows that such a list makes an army of first-class buyers. What have you to sell to our readers?

ADVERTISING DEPARTMENT GLEANINGS IN BEE CULTURE, MEDINA, O.

Our Clubbing Offers!

Gleanings in Bee Culture 1 year. . $1.00

The Hunter-Trader-Trapper 1 year 1.00

Total . . .$2.00

BOTH FOR
$1.50.

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McClure's Magazine,
World's Work,
Gleanings in Bee Culture,

COMBINED PRICE,
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Garden and Farm Almanac (one copy),

Gleanings in Bee Culture (one year),

CLUB RATE,
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It preaches the religion of "DO," and not that of "DON'T."

Is doing more for the Uplift and Encouragement of Boys than any other agency.

Approved by parents and educators. Boys (250,000 of them) everywhere enthusiastic for it.

The subscription price of The American Boy is $1.00 per year.

The American Boy (1 yr.) . . $1.00
Gleanings in Bee Culture (1 yr.) 1.00
Total $2.00

BOTH FOR **$1.65**

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. . . . . Address all orders to . . . . . .

THE A. I. ROOT COMPANY, :: :: :: MEDINA, OHIO.

Gleanings in Bee Culture
PREMIUM OFFERS

CONDITIONS

The following offers are self-explanatory in most cases. Their purpose is to induce both present nd prospective subscribers to interest *others* in GLEANINGS IN BEE CULTURE.

Please Observe Carefully the Following General Rules

1. Trial subscriptions are offered only for uniform time of six months, and must in each case be a new name—that is, the name of some one who has not been a subscriber to GLEANINGS during the preceding year. One sending in a trial subscription for himself is *not* entitled to a premium.

2. Any one, whether a subscriber or not, may take advantage of the offers given on this page by complying with given conditions, except that no one is entitled to a premium for his own renewal unless he sends two or more subscriptions besides his own. It then counts the same as the name of any other renewal he may send.

NOTE.—We have, however, provided a list of CLUBBING OFFERS and COMBINATIONS, including GLEANINGS, which we are very glad to extend to our old subscribers. In those offers a renewal for oneself may be sent; and by making payment of additional postage required, a book on bee-keeping, subscription to some other paper, or something in the line of bee-keepers' supplies, may be secured for an amount only slightly in excess of the regular subscription price of GLEANINGS. (For more detailed information see page 1357.)

3. Please note that our premiums are divided into three classes as follows: For six months' trial subscriptions (new only); for new yearly subscriptions; for yearly renewals (for some one else).

4. Premiums should be claimed when orders are sent. Please order your premium as numbered and lettered, and also specify the article or articles desired.

5. All former premium offers are canceled at this date.

For New Six Months' Trial Subscriptions

SEE Rule 1 given above. As many premiums may be claimed as you send subscriptions. A subscription to one of the papers will apply to either new or renewal subscription to that paper.

Premium 1C. For one trial subscription we will advance your own subscription three months.

Premium 2C. One year's subscription to Farm News and a copy of Prof. Holden's Corn Book, postpaid.

Premium 3C. Two years' subscription to the Farm Journal (Philadelphia).

Premium 4C. One year's subscription to Farm and Fireside.

Premium 5C. One copy of "Child Training," an excellent little book by one who is herself a lover of children, and whose life work has been teaching in primary grades.

(The next five premiums are books in the Swarthmore Library.)

Premium 6C. One copy of "Increase." The first of the series. Any one desiring to enlarge his apiary should learn the Swarthmore way.

Premium 7C. One copy of "Baby Nuclei." The using of little frames and a handful of bees for mating queens has created a stir in the queen-rearing business. From this booklet you get your information direct.

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Premium 10C. One copy of "Forcing the Breeding-queen to Lay in Artificial Cell Cups." This little book is fully explained by its title; and, though it may be considered a small book by some, it contains important information of great value to a queen-breeder, which can not be obtained elsewhere. A queen-breeder must have it. It says the last word on this great subject of queens.

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ANY one of the following premiums may be selected for each new yearly subscription sent to us with $1.00. As many premiums may be claimed as you send subscriptions. If a subscription to one of the papers is selected, it will apply to either new or renewal subscriptions to that paper.

Premium 1. For one new yearly subscription sent to us with $1.00 we will send GLEANINGS to your own address one year, or one Style D. GLEANINGS binder; postage 15 cts. extra.

Premium 5. How to Keep Bees, one copy, cloth-bound, by Anna B. Comstock; postage 10 cts. extra.

Premium 6. One Doolittle's Queen-rearing, cloth-bound; postage 10 cts.

Premium 7. One Langstroth on the Honey-bee, revised; postage 15 cts.

Premium 8. One Forty Years Among the Bees, by Dr. C. C. Miller; postage 10 cts.

Premium 9. One Standard Root smoker; postage 25 cts.

Premium 10. One fountain pen, postpaid; as good as any $1.00 pen on the market.

Premium 11. One untested Italian queen, leather color, to be sent at our convenience during the season of 1908.

For Renewal Yearly Subscriptions

SEE condition under Rule 2 given above. Any one of the following premiums may be selected for each renewal yearly subscription for *some one else*, sent to us with $1.00. If a subscription to one of the papers is selected, it will apply to either new or renewal subscriptions to that paper.

Premium 11C. One copy of any of the following books, the publisher's price of which is 50 cts: Poultry-house and Fixtures; Artificial Incubating and Brooding; The Chick Book; Eggs and Egg-farming; Plymouth Rocks, Leghorns, Asiatics; Ducks and Geese, Turkeys, Bantam Fowls.

Premium 12C. Either of the following books described in our book catalog; The A B C of Strawberry Culture; The A B C of Potato Culture.

Premium 13C. One untested Italian queen, Southern bred, to be sent at our convenience in season of 1908, when we have a surplus.

Premium 14C. For a renewal yearly subscription (not your own) we will advance your own subscription six months, or send you a GLEANINGS binder, Style C, postage 10 cts. extra.

Premium 15C. One Junior Root smoker; postage 20 cts. extra.

Premium 16C. One pair cloth bee-gloves, with or without fingers; postage 7 cts.

Premium 17C. One Porter honey-house escape, postpaid.

Premium 18C. One year's subscription to the American Poultry Journal.

Premium 19C. One copy of any of the following books: Fox-trapping; Mink-trapping; Deadfalls and Snares (a book on trapping); Biggle Horse Book; Biggle Berry Book; Biggle Cow Book; Biggle Pet Book; Biggle Orchard Book.

Premium 20C. One copy of "What to Do and How to be Happy while Doing It," by A. I. Root. Postpaid.

Send all subscriptions to The A. I. ROOT CO., Medina, Ohio

Some Good Offers for You

The American Bee Journal, on July 1, 1907, was changed from a 16-page weekly to a 32-page monthly, at 25 cents a year. September 1st the yearly subscription price was placed at 50 cents, which is very low indeed when you consider what the Journal is. It is now in its 47th year—the oldest bee-paper in America. We want *you* to see a copy of it; if you have not already seen it, send us a postal-card request at once and we will mail it.

A Few Special Combination Offers

1. One Untested Standard-bred Italian Queen (in Sept. or Oct.), with the American Bee Journal one year—both for only one dollar. (Queen alone, 60 cts.)
2. An Ideal Hive-tool (postpaid) with Bee Journal one year—both for only 60 cents. (Tool alone, 30 cents.)
3. One Queen-clipping device (by mail) with Bee Journal one year—both for only 60 cents. (Device alone, 25 cts.)
4. Ten Bee and Teddy Bear Souvenir Postal Cards (by mail) with Bee Journal one year—all for only 60 cents. (10 cards alone, 25 cents.) Address

GEORGE W. YORK & COMPANY,
118 W. Jackson, Chicago, Ill.

Now Is the Time

TO LAY PLANS FOR NEXT SEASON.

Before you plan, investigate the merits of our Divisible Brood-chamber. There is NO DOUBT of the shallow hive giving better results in control of swarming and the securing of FANCY COMB HONEY.

The A. I. Root Company
Syracuse, New York

Suburban Life

FOR DECEMBER

$3.00 A YEAR 25 CENTS A COPY

A Magnificent Christmas Issue

Leading Features

A CHRISTMAS TOAST By J. Horace McFarland, *Pres. American Civic Association*

CHRISTMAS DAYS IN OLD VIRGINIA By Booker T. Washington

BRINGING HOLIDAY CHEER TO CITY WAIFS By Jacob Riis

SPYING ON SANTA CLAUS A Poem By Arthur Guiterman

SUBURBAN LIFE AS A MOTHER SEES IT By Harriet Woodward Clark

BUSINESS VS. COMMUTING By H. W. Mathews

OUT-OF-THE-ORDINARY CHRISTMAS GIFTS By Mary Taylor Ross

SKIS AND SKI-ING By Edwin C. Dickenson

WHAT BETTER CHRISTMAS GIFT?

Can you imagine any more acceptable Christmas gift than a year's subscription to SUBURBAN LIFE, coming twelve times a year into the family circle, bringing its messages of beauty and helpfulness?

Our Special Holiday Offer

To any reader of this magazine who will send us **$3.00**, we will forward a year's subscription to SUBURBAN LIFE, commencing with the Christmas number, and the choice of any book published in America at $1.50. The book and the magazine may be sent to different addresses, if so desired.

When you consider that SUBURBAN LIFE alone is worth **$3.00**, the value of this offer will be appreciated.

This gives an opportunity for two beautiful gifts. Where can you do better?

PUBLISHERS SUBURBAN LIFE

34 West 26th Street NEW YORK CITY, N. Y.

"If goods are wanted quick, send to Pouder."
Established 1889

Look Ahead!

By the Bee Crank.

Look ahead!

Just let your thoughts circle about those two words for a little while.

The difference, you know, between civilized man surrounded by luxuries, and the starving, stupid savage, is that one does look ahead and the other does not.

The average man of to-day can look ahead for enough to provide for his immediate future.

Bee-men, it seems to me, can look ahead as far as a bee can. That is, most of them can.

Some, of course, never buy supplies till after they are needed. But the men who are most successful are preparing right now for next season, and planning further ahead than that. That's WHY such men succeed.

I've noticed that I have no better class of men to deal with than those whose orders keep me busy through this month. I appreciate early orders--they help me out in many ways. So I offer a liberal discount as an extra inducement to those who look ahead.

You Can't Buy "Old Truck" from Me

—because nothing ever stays here long enough to get old. Whatever comes to you from Pouder will be fresh, new, and up to date. This is the live trading-center for the bee-keepers of the world—the house of promptness.

New edition of the A B C of Bee Culture now ready. By return mail, $1.50. By express or freight with other goods, $1.25. The book and GLEANINGS one year, all postpaid, $2.25.

Catalog of bee-supplies mailed free.

I also have large stock of finest white-clover honey on hand. Write for quotations.

Walter S. Pouder.

513-515 Massachusetts Avenue, Indianapolis, Ind.

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Company, Medina, Ohio

E. R. Root, Editor A. L. Boyden, Advertising Mgr.
H. H. Root, Asst. Ed. J. T. Calvert, Business Mgr
A. I. Root, Editor of Home Department

Vol. XXXV. NOVEMBER 15, 1907. No. 22

THE *Irish Bee Journal*, p 56, says that 2 oz. of saltpeter to a gallon of water is the right strength for paper fuel. Guess it would be all right for saltpeter rags too.

E. BOHM had a number of drone-laying queens sent to him, of which 25 per cent were unfertilized. All the remainder had diseased intestines, and to this he attributes their defective laying.—*Leipz. Bztg.*, p. 151.

YELLOW sweet clover may succeed in Florida, but I may remind W. K. M., page 1372, that the late Mrs. L Harrison could not succeed in getting white sweet clover to grow there. [I have also failed so far to get even a single plant, doctor.—A. I. R.]

"YON YONSON," that interesting Swede Sucker, has gone from Illinois to New Mexico, and, according to his report, in which I have entire confidence, if I were looking for a new location as a bee-keeper I would visit his locality before settling down. Alfalfa, sowed May 5, bloomed in 65 days, and yielded 3 crops. Where alfalfa acts in that way bees ought to find employment.

SOME ONE, I can not now recall who, goes Mr. Alexander one better in his plan of extracting from the brood-chamber in the spring, p. 1377. by taking combs of honey out of the brood-chamber, replacing them with empty combs, setting the full combs to one side of the apiary for the bees to rob out, then taking the honey away to be robbed over and over again. Saves all the bother of extracting.

MR. EDITOR, you are breeding trouble for me by saying, p. 1368, "Better keep on breeding those 'hornets.'" I've had a hard fight with my assistant to get in any other blood; and now that you are giving aid and comfort to the enemy, it will be worse than ever. [Nothing would suit me better than to get into an argument with your assistant; and for the sake of argument I may have to take the other side of the proposition. Yes, sir; I think that, if you had started with perfectly pure stock, you would have had as good strong gatherers as you now have.—ED.]

HERR MUCH reports in *Leipz. Bztg.*, 152, that 60 to 80 per cent of the young queens of American goldens are lost on their wedding-flight. He thinks the chief reason was that their bright color especially attracted the attention of the birds. [There may be something in this; and for that reason nature has provided that most races of bees, and especially the honey-bees, shall be of a somber color. A bright golden yellow is very striking, and certainly would attract birds; but when man steps into the problem he disregards the principle of the survival of the fittest in nature by making his queens a bright yellow.—ED.]

FERD. C. ROSS sends me a sample of his honey, and another sample that is poorer, the latter being taken from a bottle containing 15 ounces, and of which the grocer sells lots at 25 cents a bottle, and he thinks that at that rate a section of 15 ounces ought to bring more than 25 cents. Sure; and if the two are put fair and square before the people there ought to be no doubt about it. It's up to the bee-keeper himself; and if he persistently keeps his sections on show, in the best possible shape, there is little doubt as to the final outcome. But if bee-keepers don't ask a fair price they're not likely to get it.

EDITOR DIGGES, of the *Irish Bee Journal*, pokes fun at "Bee Expert," who tells us that "a hive is sometimes in its most amiable mood, and at other times shows temper, and that a hive with no stores is exceedingly difficult to handle." Now, that's just like a hide-bound Irishman to insist on exactness of language. Over here we have people who favor calling a colony of bees a hive, a swarm, a stand, or

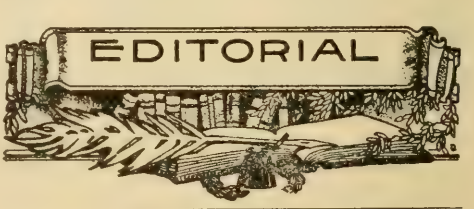
any other old name that happens to come handy. To write so that people can always tell exactly what you mean by what you say is monotonous. To have half a dozen names for the same thing, and to use the same name for half a dozen different things, gives variety, keeps the readers guessing, and allows each reader to understand a thing his own way. No wonder the *Irish Bee Journal* is dull with such a narrow-minded editor. [While you are digging at Editor Digges, we are wondering if you are not digging at another editor for allowing in his columns such a variety of words to express the same thing to avoid tautology. If you are, just speak right out.—ED.]

REPLYING to your inquiry, Mr. Editor, p. 1384, sweet clover begins blooming earlier than cucumbers, and continues later. But this year a large part of my surplus was other than white clover, sweet clover, or cucumber. It was whiter than either. I *think* it was from heartsease. I say that hesitatingly for fear of being laughed at, for I have always supposed that heartsease honey was amber, but there was no amber about this. It was the most beautifully white honey I ever had. A fall flow of white honey is a new thing here, but I could find nothing but heartsease to charge it up to The bees worked busily on that, and carried into the hive abundance of pollen that looked exactly like what they gathered on the heartsease. [Is there anybody else among our subscribers who is able to report beyond doubt that heartsease honey may be light-colored? We are of the opinion that there have been reports to that effect.—ED.]

JUST BEEN reading what a bee State California is, p. 1374. Mr. Editor, please change my address to California.

Later.—I note that only about one year in five is favorable for honey in California, p. 1370. Please continue my address in Illinois. [No. While California can make the greatest showing for honey of any State in the Union, it does not offer any great inducement to the honey-producer. We believe we are not overstating the fact when we say there is only one fair year there in three, and only one good one in five. The bee-keeper, therefore, finds it a problem to keep bees there over the two or three bad years until a good one comes. When we were in that State in 1901, which was an exceedingly good year, we were shown yard after yard that had been practically neglected because the owners had become discouraged, and the bees starved or died from disease. It is only the stayers who are able to make a fair living —ED.]

LOCALITIES differ. While the plan of extracting in spring from the brood-chamber, as given by Mr. Alexander, p. 1376, may be the very best thing for him, and while sealed combs of honey might hinder the spreading of the brood-nest, I do not believe they would work so in general—certainly not here. Of course, it is possible to fill the brood-chamber with sealed comb so full that there is no room for brood. But added as they are needed I think my bees uncap them as fast as they need the room. If the brood-nest keeps expanding so that there is all the brood the bees can cover, what more can you ask? At the beginning of last season, on coming to No. 211 my assistant said, "There is too much honey in this hive; the queen will not have room to lay." It was the only colony in the apiary accused of having too much sealed honey. At the close of the harvest it had stored more surplus than any other. I do not say that the combs of sealed honey were the cause of the extra yield, but I do say that they did not prevent it. [This is a very fruitful theme for discussion, and we should like to hear from others of our subscribers. Mr. Alexander finds it pays to extract and feed back. If one practice pays well in one locality, and another gives better results in another—well, let us have the thing discussed, and at the same time let the surrounding conditions of locality be given in order that others may be guided.—ED.]



ON the Santa Barbara national forest there are 40 apiaries having permits from the government Forest Service. There are 15 apiaries on the other reserves in California.

THE special clause of the national pure-food law relating to the correct labeling of all food products is now in active force, the period of probation having expired October 1. The Board of Food and Drug Inspection decided some time ago that a further extension of time could not be granted, and all foods must now possess a truthful label, if there is any label at all. It is necessary now, if a label is applied, that it tell the exact truth in such a way as not to mislead any one who intends to buy. W. K. M.

ACCORDING to some of our exchanges the raising of clover for its seed is rapidly becoming a recognized industry of the Willamette Valley, in Oregon. At Albany, for example, 200,000 lbs of seed were shipped out this season. The price obtained for seed is said to be about 10 cents per lb., but the growers think they ought to get more for that which is entirely pure, and unmixed with weed seeds. They say there is not enough difference between weedy seed and that which is pure, and that is probably true. The bee-keepers will want to be on hand when this clover seed is being produced. W. K. M.

SOME of the large grocery firms are still putting on the market a mixture of glucose and cane syrup which they term "California Honey Drips." As this mixture has no connection with California honey we respectfully call the attention of the National Board of Food and Drug Inspection to this misleading label. In the mean time bee-keepers whose trade is affected by this cheap substitute should protest to the proper authorities in each State where it is sold. The public will in time learn that California honey is not a mixture of glucose and cane syrup—the former predominating. W. K. M.

ON the Pacific coast there has been an enormous number of eucalyptus-trees planted during the past year, and one of the nurseries actually asks its patrons not to order more than 20,000 trees at a time. Millions have been planted, under the idea that there is money in it. Some are afraid that the honey from this source will be too strong in taste; but these trees have been grown for many years without any complaint. A few varieties may produce a strong-flavored nectar; but these do not seem to be common in California. In any case a strong-flavored honey will suit the baking trade.

W. K. M.

OUR good friend Herr Emil Schenk, of Taquary, Rio Grande do Sul, Brazil, has kindly sent us a copy of his book on bee-keeping (Bienenzucht), which has just been published by the Agricultural Department of Rio Grande do Sul. It is written in the German language, because that section of Brazil was largely settled by people from the "fatherland," and hence the principal bee-keepers are German-speaking. The bulletin is nicely illustrated with some good pictures, and no doubt it will be of considerable benefit to that country. Mr. Schenk is editor of the Brazilian bee-journal (*Bienenplege*, published at Port Alegre), so that he is quite capable of giving good advice. He gets assistance from Heinemann, the inventor of the queen-excluder. W. K M.

FIGHTING, ROBBING, OR ENTANGLEMENT?

ON page 1154, Sept. 1, Mr. H. W. Doerr, of Beardstown, Ill., presented a case which we diagnosed as robbing; but Mr. Doerr comes back at us and insists that we were wrong, and in proof encloses a letter from Mr. Fred H. May, of Meredosia, Ill., stating that he has found a similar condition among his bees; and on close examination he found that, while they appeared to be fighting in front of the entrance, they were really entangled in the stamens and pollen of certain flowers; that these stamens and pollen were of a sticky nature, and, adhering to the bees, they were met by their fellows at the entrance, when a mutual effort was made to remove the offending substance, and that their actions looked very much like fighting; but, so far from doing that, the bees all belonged to one hive, the one lot trying to free the other from the entanglements of the sticky pollen and stamens.

Milkweed, it is well known, will cause trouble of this nature, and Mr. Fred H. May found a similar difficulty from horsemint, or sandmint as it is called in his locality. Mr. Doerr says he is satisfied that Mr. May has given the correct diagnosis, and desires us to correct the statement, which we are pleased to do.

COLORADO HONEY PRACTICALLY ALL SOLD OUT FROM COLORADO.

WE learn from what we believe to be good authority that practically all of the large lots of Colorado honey have been sold and are now in the Eastern markets. As this honey finds a ready sale almost anywhere we may conclude there will not be much of it left after the holidays. We informed our readers in our last issue that practically all of the California honey was sold out. All that will be available, probably, from now on will be Eastern honey; and as the crop of that was short we may see, instead of a decline in the price of honey along about the holidays, an actual increase. It would not be at all surprising. The national pure-food law, as well as the rigid State laws, has put the glucose concoctions where they can not compete—that is, they can not masquerade under the name of California, Colorado, clover, or farm honey.

Our own experience shows that we never had so much difficulty in buying a little honey to supply our own local trade as we have had this year. Several times when we thought we had snapped up a fine lot we found that some one had got ahead of us and bought it.

THE IMPORTATION OF BUMBLE-BEES FROM THE UNITED STATES INTO THE PHILIPPINES.

THERE have been numerous items in the newspapers to the effect that the United States Department of Agriculture was sending consignments of bumble-bees to the Philippines. Not daring to trust to newspaper reports we addressed a letter to Dr. E. F. Phillips, of the Bureau of Entomology, requesting that, if he were unable to give us authentic information on the subject, he turn our letter over to the proper official in the Department. This he did, and the following reply from Mr. Webster, in Charge of Cereal and Forage-plant Insect Investigations gives us the facts.

UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF ENTOMOLOGY,
Washington, D. C.

Gentlemen:—Your letter of October 14, addressed to Dr. E. F. Phillips, has been referred to me for reply.

The newspaper clipping which you enclose is very much of the same nature as newspaper clippings in general. The facts relative to the exportation of bumble-bees to Manila are simply these: Some months ago, probably during last winter, a request was received from some agricultural investigators in the Philippines asking the Bureau to endeavor to send them some of our native bumble-bees for the purpose of fertilizing clover in that country. Dr. Phillips last spring undertook to send them some bumble-bees by mail, shipping them in the manner in which queen-bees are usually sent; but, owing to their wild nature,

they did not take kindly to this sort of usage, and all of them died in transit. The experiment was simply discontinued until this fall, when the whole matter was turned over to me. We had arranged to send another consignment, but were waiting until the proper season, and the Philippine government was evidently getting impatient, and cabled the request that gave rise to the newspaper clipping that you enclosed.

On the government transport sailing from San Francisco November 5 there will go a second consignment, this time packed in small refrigerator baskets, and in the care of two Philippine government students who are returning home from the United States. The bees are being collected by one of my assistants, Mr. W. J. Phillips, in the vicinity of Richmond, Ind.; and as soon as they are taken they are at once placed in cold storage, and will be kept in a dormant condition until they are placed on board the transport by the two students having them in charge. They will then be put in the refrigerator of the transport, with the result that they have been put to sleep in Indiana and will wake up in Manila. Just what they will do over there remains to be seen; but the expectation is that they will fertilize the common red clover which the government is introducing into those islands. The transportation is being carried out by this Bureau in coöperation with the Bureau of Insular Affairs of the War Department.

F. M. Webster,
In Charge of Cereal and Forage-plant Insect Investigations.

Oct. 22.

VENTILATORS FOR BEE-CELLARS — WHERE SHALL THEY BE PLACED?

A SUBSCRIBER asks where the ventilator to a bee-cellar should be placed — at the top or bottom; that is, should it open near the ceiling or near the floor? This is a hard question to answer, as a good deal depends on conditions. If the temperature can be kept very near 45, no higher than 47, and not lower than 43, very little ventilation except what can percolate through the doors and walls will be needed. But if the temperature is likely to vary considerably, and especially if it goes too high, the cellar should have means for ventilation. The ideal plan is to run an eight or ten inch sewer-pipe, with the joints well cemented to keep out wet, 100 feet from the cellar, and on a level with the cellar bottom. One end is to open up near the ceiling of the cellar. The other end should connect with a perpendicular shaft projecting above ground outdoors. The passage of the air down through the ground warms it so that it is not so chilling when it arrives at the cellar. At a point remote from the inlet there should be an outlet, the pipe coming down close to the floor, communicating with a chimney.

While the sub-earth ventilator is ideal providing it is dry from end to end, it is not absolutely essential. Fresh air may be brought in to an outer cellar, warmed, and then conducted into the cellar where the bees are. Where this is not practicable the cellar-door may be left open at night when too warm, to let air in that way; but it should be closed before morning.

If the cellar becomes too cold, say below 40, it should be warmed, either by opening the door into the furnace-room or by means of a little stove connected with a chimney. But never use a coal-oil stove, as it consumes too much of the oxygen of the air, rendering the atmosphere more impure.

But care should be taken, during the process of ventilating, not to make the cellar too cool nor too warm — not higher than 50 nor lower than 40. During a very warm spell the outside atmosphere may be very much warmer than that of the cellar. The ventilator should then be used only at night.

To answer our subscriber's question more definitely we may say that the location of the fresh-air ventilator, either at the top or bottom, is not so very important. But the problem may be how to get a circulation, even with the ventilator wide open. It may then be necessary, even when not too cold, to build a little fire in the stove so that the draft up the chimney will draw out the foul air; or, better still, an electric fan in front of the inlet will be found very serviceable providing the premises are equipped with an electric current. But when this can not be obtained it has occurred to us that a good mechanic might rig up a clockwork that would run a small fan for two or three hours after winding it up with heavy weights. This ought to furnish air enough to last three or four hours.

As we said at the outset, if the temperature can be controlled within three or four degrees, and held there, very little ventilation will be required, providing, of course, that the cellar is not hermetically sealed. Usually enough air will come through the walls and doorway and windows to give the bees all the air they require if the temperature can be kept at 45, where they will go into that quiescent sleep that nearly approaches hibernation. At that temperature respiration is very low and the consumption of stores light. Above a temperature of 50° the bees become active and consume the oxygen in the air, when they become uneasy. In such cellars there must be an abundance of ventilation or there will be trouble.

THE NATIONAL BEE KEEPERS' CONVENTION AT HARRISBURG, OCTOBER 29, 30.

WHILE the attendance was not large (as it has been a poor year with bee-keepers generally), the general interest in and the character of the discussions were of the very best. No program had been announced, as the secretary, Mr. J. A. Green, owing to a pressure of other duties, was unable to get any program ready; but President Aspinwall, during the last week, secured a number of valuable papers which were read before the convention, and in all, except one case, by the author himself.

Prof. H. A. Surface, Economic State Zoologist, of Harrisburg, gave the address of welcome to the city, and before closing referred to the benefits derived from membership in the Association. Some, he said, complained because they had never gotten any thing out of the organization. The trouble was, too many expected a direct benefit to themselves. As in the case of fire insurance, perhaps only one man out of a large number would get back his money, and yet no one would think of going without insurance. He urged that every one become a member of the National, not only for the direct benefit he might or might not secure, but be-

cause of the great good to the industry as a whole

At this time he referred to the fact that Professor Martin, of the Division of Farmers' Institutes of Pennsylvania, had expressed a willingness to make bee-keeping a subject for discussion at the institutes Soon after, the gentleman himself came into the room, when he was introduced by Professor Surface. The former showed that he was interested in bee culture by stating that he had requested the State Bee-keepers' Association to name persons who would be able to give talks on bees before the farmers; that the State had already eight speakers who took up the general subject of bee culture at the institutes. So far as the Division of Farmers' Institutes of Pennsylvania was concerned, it was glad to join with the National Bee-keepers' Association and the State Bee-keepers' Association in making bee culture more prominent than ever.

BEES AND HORTICULTURE.

This subject was handled by Prof. H. A. Surface in a most admirable manner. Instead of taking up the old hackneyed line of discussion as to whether bees benefited the orchardist in helping to pollenate the blossoms of the fruit-trees, he preferred to take up an entirely different line of thought; but before doing so he took occasion to state that the fruit-men generally agreed that the bees performed a very valuable service in pollenating their trees in the spring of the year, and that many of them now were inviting bee-keepers to plant a few hives in their orchards. But the line of discussion that he would take up he put under three heads—1. "The relation of bees to the ripe fruit;" 2. "Do bees scatter the pear-blight among the pear-orchards?" 3 "Does spraying the trees kill bees?" Under point No. 1 he had conducted a number of experiments, among which was putting a plate of plums on top of a strong colony; two of the plums were sound, but soft and ripe; two slightly punctured, and two partly rotted. After two months' time he took the fruit off the hive and brought it into the convention room. An examination showed that the rotted and broken fruit had been eaten by the bees to an extent that the soft pulpy portion had been considerably reduced. The sound fruit showed no injury whatever, and simply dried. He gave this as an instance to show that, if bees could have cut through the skin of the sound fruit they would have done so, as they had in the case of the partly rotted and broken fruit. In addition, he could see no evidence that bees had ever punctured the fruit on the trees, although we must admit, he said, that fruit cut or broken by insects or birds would be visited by the bees, and sometimes to an extent that would cause complaint on the part of the orchardist.

Point No. 2 "Do bees carry pear-blight?" He thought they might do so, but he was certain that there were other agencies that would scatter the blight. It was his opinion that, if all the bees were removed from the vicinity of the orchard, the blight would continue as before.

Third point, "Does spraying kill the bees?" He thought altogether too much ado had been made about this alleged destruction. In the first place, the intelligent and up-to-date orchardist does not now spray (because he knows better) during the time that trees are in bloom. He went on to show that, while they were in full flower, the spraying mixtures were very destructive to the blossoms. In the second place, many of them were entirely harmless to the bees, and, even if they were applied during the blooming time, no harm could come. He admitted, however, that certain of the arsenical poisons would kill the bees; but as these were not applied during blooming time they would do no damage. Lime-sulphur wash, which is now used to a very great extent in the treatment of the San José scale, would not kill bees. This liquid he had repeatedly sprayed upon the hives and bushes near them, but in no case were any bees killed. But where the fluid was thrown directly on to the bees it might and probably would destroy them.

At the close of this excellent address Mr. Hershiser wished to put Professor Surface more strongly on record. As the report was being taken down in shorthand, and would be quoted largely, he wished to know what Professor Surface had to say about the bees as pollenators of orchards Professor Surface thought there could be no question on that point. They were of immense benefit to the fruit-men While they were not valuable alike to all kinds of fruit, there were certain kinds where they performed a very essential service.

Mr. Holtermann then brought out the point that large numbers of bees were often killed because they would appropriate the poisonous spraying-liquids, even when the trees were sprayed out of bloom. He gave as a reason for this that many bee-keepers were short-sighted enough not to place in the bee-yard plenty of water where bees could easily get it without going any great distance. Professor Surface admitted that, where they did not have enough water to carry on brood-rearing, there might be some losses in this way.

In the general discussion that followed, it was very clearly shown that bees need a great deal of water, and, further, it is not sufficient that they can get water half a mile or a mile away—they ought to have it close to the hives; and it should be there continuously while the bees can fly, as, whenever short of water, they will always go to these watering places.

Some one asked if a running stream passing through the apiary would be sufficient. Mr. Holtermann replied that it ought to be still water, and even went so far as to say it should be stagnant; but to this several demurred. Some even went so far as to place warm water where the bees could get to it, especially in the colder weather.

In referring to the value of bees as pollen-

ators, Mr. France referred to one A. D. Barnes, one of the most extensive fruit-growers of Wisconsin, who offered to furnish room and a building at each one of his orchards to a bee-man who would put a few hives in the vicinity of the trees. He stated that a large number of fruit men were beginning to find that it was to their distinct advantage to do this.

PLURALITY OF QUEENS.

At this point a very valuable and suggestive paper was read from Mr. E. W. Alexander, of New York. It was brief and to the point, calculated to draw out discussion, which it did in a most admirable manner. He spoke of the advantages of the plurality of queens in a hive; that we had already made a good start toward the successful handling of them. One could thus keep a good supply of queens on hand, secure strong colonies, and supersede at any time.

He also referred to the advantage of uncapping the combs and feeding honey back again to the brood-nest in the spring, for the purpose of stimulating brood-rearing. But this question he has already covered in these columns, and we will not attempt to give his line of argument at this time.

He had tried a gasoline-engine for running a large eight-frame extractor, and expressed himself as believing this was the coming way of taking off a large quantity of honey.

He thought that the subject of keeping more bees in a large apiary was coming more and more into prominence. At one time he was almost the sole advocate of it; but judging from his correspondence there must be quite a number of bee-keepers who were gradually working into the scheme of using fewer yards and more bees to the yard. He spoke of the peculiar conditions of his locality: of the large amount of honey that he secured from buckwheat, goldenrod, and aster.

In the general discussion that followed, goldenrod as a honey-plant was discussed first. Some one asked for reports. A few found that it did not yield any honey, while others secured considerable from it. Some question then arose as to whether goldenrod was a dark honey or not. Mr. O. L. Hershiser held that it was not dark unless it had buckwheat in it. As both bloom simultaneously in many localities there was apt to be considerable buckwheat in it. Others, not in the buckwheat country, testified that goldenrod was a light honey.

At this time some discussion arose as to the different honey-plants—what they were, and whether they yielded honey, and under what conditions. Prof. Surface offered the suggestion that a committee be appointed to work in connection with the State and federal governments, to have a botanist or botanists appointed, who were to name, for members of the National Association, honey-plants that might be sent in. A committee was duly appointed; and probably something along this line will be announced later.

At the next session, or the following afternoon, the subject of plurality of queens, as introduced in Mr. Alexander's paper, received a spirited discussion. We will not attempt to give all that was said, any more than to state that there seemed to be a general agreement that two or more queens, each one separated by perforated zinc from every other queen, could be kept in one colony of bees so long as there was general prosperity in the hive; but when a dearth of honey came on, there seemed to be a feeling that all the queens would disappear except one. Two or three reported they made a success of the two-queen system. Among them was Mr. E. E. Pressler, of Williamsport, Pa. He, like Mr. Alexander, had made a success of it, and even gone so far as to make the system work without the use of even perforated zinc, but had not been able to test the principle this past summer, owing to an affliction of the eyesight; but he thought there was great possibility along that line. But the majority of those present who took part in the discussion seemed to feel that it was practicable to run two queens to a hive, *providing* they were separated by perforated zinc.

As noted at the outset, the secretary, Mr. Green, had been very busy, and therefore was unable to prepare a program. In view of the fact that he had been formally nominated to succeed himself, some of the members present felt that it was unwise to force upon him a duty that he would probably have declined if he were present and knew that he had been nominated. Mr. R. F. Holtermann, therefore, introduced the following resolution:

Resolved, That the members of the National Bee-keepers' Association assembled at Harrisburg, Pa., feel that, owing to the very many duties of their present secretary, Mr J. A. Green, and his inability to attend to those duties properly, this position should not be forced upon him for another year; that we take this action with regret, realizing that, if other duties would permit, Mr. Green would make an able and capable secretary.

It is further resolved, that, while we would in no way seek to dictate to any member how to vote, in view of all the circumstances we would recommend that, at the coming election, Mr. O. L. Hershiser, of Buffalo, N. Y., receive the undivided support of the Association.*

As it would be practically impossible to get this resolution before the general membership before the next election, the editor of GLEANINGS was requested to place it in his next issue. While this resolution is nothing more than a recommendation, yet it is a suggestion to the membership at large.

We were also requested to announce that the members of the Pennsylvania Bee-keepers' Association in their Convention which was held just before the National, introduced the name of Prof. H. A. Surface for Director from Pennsylvania. It was felt that the great Keystone State had no representation, and it was no more than fair and right that it should have a Director. As there are three whose terms of office expire, the membership will now be at liberty to act accordingly. We will, if our space permits, continue the National report in our next issue.

*A copy of this was sent to Mr. Green; and just as we go to press we have received a telegram reading: "I withdraw; could not serve if elected.

"J. A. GREEN."

UNQUEENING, WHEN AND HOW DONE.

"Mr. Doolittle, I wish to have a talk with you about unqueening, or taking the queen away from colonies of bees."

"But you are not wanting to take the queens from any of your colonies at this time of the year, are you?"

"No; but I tried the plan in a limited way last summer, and have been very enthusiastic over it. A bee-keeper who knows you, told me you had two plans of unqueening, and I want you to tell me how you work with them. When do you begin the work?"

"About fifteen days before the expected honey-harvest."

"Why that number of days?"

"So that the young queen may commence to lay a day or two after the honey-flow is on."

"What do you do with the old queen?"

"I kill her or form a nucleus with her and one comb of bees and brood, just in accord with which seems the most profitable to me."

"What do you do with the nucleus?"

"Use it for taking an occasional queen from to replace poor queens, or from which to get an occasional queen at any time of emergency when it is necessary for me to have a queen at once. No bee-keeper should attempt to keep bees without running one nucleus to about every twenty-five colonies he may have in his apiary. If queens are not needed, these nuclei will build a frame of worker comb every week or so during the summer months, and thus add much value to the sum total at the end of the year."

"I see. What further do you do with the colony now made queenless?"

"Ten days later all queen-cells are cut, and a ripe queen-cell, from my very best comb-honey queen, is given, and that ends the matter, unless by outside diagnosis I mistrust this young queen is lost or fails to become a perfect mother."

"If you mistrust the queen is lost, what then?"

"The hive is opened; and if no eggs or larvæ are found, a queen from the nucleus is given."

"Ah! I now see something of the value of that nucleus. I could have saved quite a considerable the past season if I could have had queens for three or four colonies which I found queenless just in the height of the honey-flow. But do the bees not swarm out with the queen when she goes out to meet the drones?"

"Some claim that they do so; but with me no such trouble has occurred during the past."

"What about the other plan?"

"The other plan uses the old queen; or, in other words, the queen is not killed nor taken from the hive."

"Do you begin about the same time as with the first?"

"Not quite as soon. With this plan I wait till about five days before the expected harvest, when the queen is caught and caged, the cage containing her being placed just on top of the bottom-bar to a central frame in the hive, near the entrance end."

"Why do you place her and the cage thus?"

"Because I find that, when she is at this point, the bees as a rule work right along the same, or nearly so, as they would if the queen had her liberty. In other words, when I cage a queen and put the cage near the top of the brood-chamber the bees seem to feel as if they were queenless, start queen-cells at once, or as soon as they would if the queen were taken from the hive, and lack in energy about working, very much the same as a queenless colony does. But cage her near the entrance, at the bottom of the hive, and work goes right along, often without any queen-cells being started at all."

"That is a point worth knowing, certainly. But what next after caging the queen?"

"I wait ten days, then open the hive, cut the cells, if any are found, when the stopper to the cage is removed and replaced with one having about two inches of queen-candy in it."

"Why that much candy?"

"This amount requires about two to three days for the bees to eat through it so as to liberate the queen, thus keeping them without a laying queen for about fifteen days."

"But ten and two or three does not make fifteen days, does it?"

"No; but I said without a *laying* queen. A queen just from a cage does not begin to lay at once, or immediately upon her release from her imprisonment. She has to be fed prepared food for about two days before she begins to lay very much."

"That is something I had not thought about, but presume you may be correct in the matter. But does not this week or ten days of honey harvest, when no eggs are being laid in the cells, cause the brood-chamber to become filled with honey?"

"To no great amount, where the queen is caged near the entrance, for the bees are at work in the sections all the while, very nearly the same as would be the case did the queen have her liberty. And this way seems to work fully as well as the first regarding the prevention of swarming; and, so far as I can see, the presence of the queen thus caged in the hive gives all the energy to the bees ever obtained under any circumstances where the old queen remains in the hive during the swarming season."

"But does not such a liberating of the queen just at this time in the harvest result in a whole lot of brood-feeding when the honey-harvest is at its height?"

"All the eggs laid by the queen are gener-

ally matured. Why do you ask that question?"

"Because I am against much brood-feeding when the harvest is at its best. It takes too much of our surplus crop."

"All of my past experience says that for energy, and a great rush of honey to the sections, give me the colony whose queen begins to lay right in the height of the honey-flow, when said colony has been without a laying queen for about two weeks. I claim that this extra energy gives far more honey in the sections, besides feeding the brood, than can be gotten by any other plan where there is no brood to feed after any colony has been without a laying queen from two to three weeks."

"Well, I did not think so, but I will try it next summer."

"I would advise you not to run wild over these or any other plans you have not tried; but just try the thing on three or four colonies; and then, if you are pleased, try it more extensively the next year; and then, if fully convinced, use the whole apiary in the successful way till something which outrivals the plans you are using turns up. Then go slow again, and in this way you are always safe."

DOING THE FAIRS WITH BEE EXHIBITS.

This has been my hobby for years, but I have broken it only well enough to ride it this year. Bee-keepers' exhibits at fairs are very profitable to the bee-keepers, and are great educators to the general public. Here it is that they are given an opportunity to learn and to see many things pertaining to bee-keeping. Then the honey in the comb and glass makes many a spectator's mouth "water"—we've heard the expression hundreds of times.

We have just been at the State Fair at Dallas, and are now at the International Fair at San Antonio, with an exhibit of the Texas Bee-keepers' Association. Besides the bee-keepers' exhibit of bees, honey, wax, etc., we have a large wire-cloth cage in which daily demonstrations are made in handling bees. This is a great drawing card. The results of such exhibits will be profitable for the members of the association.

The matter of bee-keepers' exhibits has been made a permanent one of the Texas Bee-keepers' Association, and a general premium list that will be suited for the purpose has been adopted, which is in effect now at the Dallas and the San Antonio Fairs, and is also used at the annual exhibit of the association at its annual meetings. The amount of premiums is the same at each of the three places, and are well worth working for. I will give a copy of it here, and should like to ask every reader who is interested in this matter to keep this page for future reference. Mark the number of this page somewhere on the wall or in your reference-book.

BEE AND HONEY DEPARTMENT—CLASS A.

Golden Italian bees and queen in single-comb observatory hives	$5.00	$3.00
Three-banded Italian bees and queen in single-comb observatory hive	5.00	3.00
Carniolan bees and queens in single-comb observatory hives	5.00	3.00
Caucasian bees and queens in single-comb observatory hives	5.00	3.00
Cyprian bees and queens in single-comb observatory hives	5.00	3.00
Holy Land bees and queens in single-comb observatory hive	5.00	3.00
Banat bees and queen in single-comb observatory hive	5.00	3.00
Black queen and bees in single-comb observatory hive	5.00	3.00
Best display of bumble-bees	5.00	3.00
Best display of ground bees	5.00	3.00
Best and largest display of bees of various races in observatory hives	10.00	6.00
Best and largest display of queens of various races in mailing-cages	5.00	3.00
Best case of white section comb honey, 12 lbs. or more	5.00	3.00
Best case of light-amber section comb honey	5.00	3.00
Best and largest display of section comb honey	5.00	3.00
Best display of special designs of comb honey	5.00	3.00
Best 12 lbs. friction-top pail white bulk comb honey	3.00	2.00
Best 6 lbs. friction-top pail white bulk comb honey	3.00	2.00
Best 3 lbs. friction-top pail white bulk comb honey	3.00	2.00
Best display of bulk comb honey	5.00	3.00
Best dozen jars white extracted honey	3.00	2.00
Best dozen jars light-amber extracted honey	3.00	2.00
Best display extracted honey, granulated form	5.00	3.00
Best sample cake of bright yellow beeswax, not less than 2 lbs.	5.00	3.00
Best and largest display of beeswax	5.00	3.00
Best display in special designs in beeswax	5.00	3.00
Best display of fruit preserved in honey	5.00	3.00
Best honey vinegar	3.00	2.00
Best instructive display in apiarian products and of the various uses made of honey and beeswax	20.00	10.00
Best and largest display of bee-keepers' supplies	Diploma.	
Best collection of Texas honey-yielding plants, pressed and mounted	5.00	3.00

All matters pertaining to the above may be addressed to me as chairman of the committee on exhibits, and secretary of the Texas Bee-keepers' Association. LOUIS SCHOLL.

SUPERSEDURE OF QUEENS.

There has always been a doubt in my mind whether we could leave it to the bees to supersede their queens at the proper time. Arguments both pro and con have been many; but I have come to the conclusion that it will pay, and pay big, for the apiarist to look after this instead of leaving it to the bees. My experience is that the bees will tolerate old queens in their hives longer than is profitable for their owner. Too often the queens get so old and feeble that the colony dwindles down to a mere nucleus before it gets a new queen and will require a long time to recover, if at all, at the expense of the bee-keeper. In one of my apiaries of 42 colonies the failure to look after and replace the old worthless queens at the proper time resulted in decreasing the number to 34 in one season, and then to 26 during the one following. At this rate it would not take very long to have a beeless yard.

This danger is greater during poor seasons than in more favorable ones; and where bees do not swarm it is also much greater. If the colonies swarm, a new queen takes the place of an old one; and this accounts largely for

the rapid dying-out, sometimes, of an apiary that has been neglected, or an apiary in which the colonies will remain in good condition for many years. In the first, a few poor seasons and no swarming leaves the old queens in the hives, and the colonies soon give way in a few years. In the latter, during several favorable years, during which the bees have been left to swarm, and go to the woods, new queens have kept the colonies up.

I believe in requeening with good young queens, yet not in a wholesale way. Every fall is entirely too often to requeen every colony; and even to do this every two years is too much, as I have had many queens do excellent work in their third year. Whenever a queen fails to do good work she ought to be superseded, and this can be done at any time; however, I prefer to do all requeening immediately after our honey harvest. This is when queens can be obtained easily and at a very low price from reliable queen-raisers.

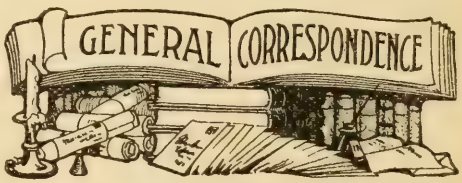
The exclusive honey-producer, during the rush, has not the time to raise the *best* queens; his time is too valuable during the honey-flow, and after that he is occupied with profitably marketing his crop. So it has been easier for me to get my queens annually by the hundred from a competent queen-raiser, and requeen all colonies having poor queens. Herewith I am giving a letter from my friend Sueltenfuss right along this subject. Besides, it contains some other notes.

I am in a bad fix this fall with some of my queens, as they are too old—some two, some three years old. I should have killed them just after the honey-flow, and let the bees requeen themselves. Only a few colonies superseded their queens themselves One of these I just looked into when it had nearly ripe supersedure cells. On seeing this I took out the old queen, which had been a good one, went to another colony which also had an old but undesirable queen of the fall of 1904. I quietly picked her off the comb, killed her, and placed the first one in her place. The bees took kindly to her, but superseded her after a few weeks, as she was very feeble. But that was just what I wanted. Last year I did this twice over with an old queen, and I had the intention of practicing it more extensively this season; but the honey-flow was cut off so short here the first week in July that I found it impossible to do it, on account of robbing; and when there is no honey coming in, the bees are much less disposed to accept a strange queen kindly. That is the reason I have the old queen on hand now; and another obstacle was the robber-flies in July and August. I have a suspicion that they caught two young queens which were lost when they were out to mate. Robber-flies can often be seen on the hive covers watching their chance. A good way to kill them is to take a light piece of lath, about 18 inches long and 1 to 1½ inches wide, and quietly but quickly hit them on the head. They can easily be approached, as they are very bold and saucy. By the way, the large black or gray robber-flies also catch the large brown wasps (those that build their paper nests in trees). I saw one with a wasp myself. Robber-flies are a menace to young queens here every summer. The first few years I had bees I thought birds were to blame, but I know better now.

I could buy queens, but they cost money; but I suppose I shall have to buy a few to replace the oldest and most undesirable. I didn't see any drones, so it is out of the question to let the bees requeen themselves now. I have one colony with a virgin queen. I am wondering whether she will be able to mate yet or has mated. I looked into the hive to-day and found her too. She was very quiet, but not laying. She had not the appearance yet of a laying queen. Perhaps she mated yesterday. I will find out in a few days. I have found so far that it is poor business policy to let the bees do their own superseding.

I found out something this year in connection with the clipped-wing plan. One afternoon four swarms came out, and all went into one hive. That was after the first extracting, and I had no idea they would get the swarming fever. The assertion is made by some that bees will supersede their queen if one of her legs is cut off. Well, last year I cut off a leg of an old queen, and the bees promptly superseded her; and this year I practiced it on two old queens, but the old ladies are still on hand. The colony last year was yellow Italians, three-banded. Those two this year are black hybrids. OTTO SUELTENFUSS.

San Antonio, Texas.



POSITION OF HONEY IN REFERENCE TO THE BROOD-NEST.

Does a Normal Colony Ever Store Honey Below the Brood?

BY J. E. HAND.

I notice that the Straw man, p. 948, takes exception to my statement, page 899, that bees always store honey at the sides of and above the brood, but never below it. Of course, this statement has reference to bees in a normal state unrestricted by the hand of man. Nor did I intend to convey the idea that honey would always be found at the sides of the brood and along the top-bars of brood-frames, for this is a matter that is governed by the extent of the honey-flow, the amount of super room, the prolificness of the queen, and, I might add, the race of bees; for it is a fact well known that the Italian bees are more inclined to store honey in the brood-chamber than the blacks. It is true that a prolific queen will often fill the outside combs of an eight or even a ten frame hive with brood in the height of the breeding season; however, if there is any honey in the brood-apartment it will be at the sides and above the brood and not below it; and if there are combs below the brood-chamber not occupied by the queen for brood they will be empty. The habit or instinct of the bees to surround their brood with honey at the top and sides, working the brood downward to make room for the honey above as well as drawing it in at the sides, leaving the outside combs for honey, is more noticeable in the sectional hive where three brood-sections are used, making a brood-chamber 15⅝ inches deep.

The fact that bees may be compelled to store honey temporarily below the brood proves nothing, and does not change the nature or instinct of the bees; for as soon as the pressure that compelled them thus to store honey is removed, such honey will be quickly removed and placed above and at the sides of the brood, even though it be capped.

If I am not mistaken it has been only a few years since Mr. Doolittle practiced placing sections at the sides as well as at the top of the brood-apartment to have them filled with honey. In fact, this practice was in common use some 25 years ago. I hardly think Dr. Miller would wish to go on record as saying that bees in Illinois are as likely to store their surplus below the brood-apartment as at the sides and above it, and yet that is about the impression one receives from reading the Straws above referred to. My statement on page 899 to which the good doctor takes exception is perfectly orthodox in my location, and I suspect that bee nature is very nearly the same in Illinois as it is in Ohio.

Birmingham, Ohio.

BEE-HUNTING.

More Profitable to Cut the Trees in the Fall.

BY ELIAS FOX.

In reply to John R. Lockard, page 322 of the March 1st issue, I would say that, unless his bee-trees are better supplied with honey than most of them are here, his profits (if any) would be greater if he would cut them in the fall, and it would also be much more humane, for swarms could be saved that otherwise would perish long before spring from the want of sufficient stores to carry them through.

I hunt bees for recreation and to save swarms that would starve if left in the tree and take a *chance* on the possible profit, and I have driven into the country in the fall and brought home swarms where others had cut the trees, robbed the bees of their honey, and left them to perish. Two years ago I wintered ten swarms that I took from trees, mostly of my own finding. My method is this:

I have a box made of thin boards, 17 inches long, 11 inches wide and 6 inches deep, with 3 very thin boards 5 inches wide, slipped inside between thin cleats tacked inside the ends (wooden combs or dummies), for the bees to cluster on, with half-inch space at bottom and top, so as not to crush the bees and allow them free passage. The cover is thin boards with half-inch cleats on each side to slip down over the top of the box, with four 1½-inch holes, one near each corner, with wire screen tacked on under one side to give plenty of air, cover fastened on with a wire hook and a screw-eye at each end, and a strap firmly nailed across the top for a handle to carry it by. Then I bore a 1½-inch hole in the center of one side at the bottom, and this is closed with a little sliding gate that also has a 1½-inch hole in, covered with wire screen. This box, by taking the three division-boards out of the cleats and laying them in one side of the box, makes room for a whisk-broom, smoker, and honey-knife; and when thus packed I slip it under the buggy-seat with my ax and hunting-box, and set a lard-can, with the cover on, in front of the seat, and hitch up my team, and away I go to some place favorable for bees; and, after getting permission from the land-owner, I usually put my team in his barn and feed them, and away I go with hunting-box to attract the bees so I can trace them; and when I find the tree I return to the buggy and get my outfit and cut the tree by falling it on to some small tree to break the force; blow a little smoke in at the entrance and chop in two cuts and split off one side; then I set my box on the log, close it, and proceed to take out the combs and brush the bees in front of the entrance (always making sure to get the queen in); and in they go. I cut the honey out and put it in the can and put the empty combs and brood on top of it and put on the cover and wait an hour or so for the flying bees to get in the box.

When I get home I fit up a hive with honey, cut out some of the old combs, and insert the brood in the combs, jar the box down on the ground, which loosens the bees from the cover which I remove, and dump the bees in front of the hive, and in they go.

I have eight swarms thus taken last fall (the last one Nov. 28); all are apparently in fine condition and perfectly contented. Out of the eight, only three had enough honey to have wintered them. I have had but one man refuse to let me cut a tree, for I usually divide the honey with the owner of the land.

I enjoy hunting any and all kinds of game; but there is a fascination about bee-hunting that I find in no other kind. I like to watch them as they cautiously at first approach the box; then, after filling themselves, watch the zigzag circles they describe before they make straight away.

Hillsboro, Wis.

WINTER CASES.

Cheap and Effective Ones Made out of a Good Grade of Manilla or Flour sacking Paper; Some General Suggestions on Outdoor Wintering in Mild Climates.

BY E. R. ROOT.

A year ago we made some winter cases of a heavy grade of roofing-paper; but the stock was so heavy it was very difficult to fold it; and, when once folded, it was necessary to rivet it at the folds. Even when completed, the thing was very flimsy and it did not look as if it would possibly stand more than one season's use. When we came to figure on the cost of material and labor of making, it was almost as much as a case made of ⅞ lumber. While the roofing-paper itself was cheaper than wood we discovered, somewhat to our astonishment, that the labor of folding and riveting it into a winter case was considerably greater than when made of wood.

But the suggestion has been made, and made repeatedly, by different ones who have tested it, that it is not necessary to use such heavy paper. A good grade of manilla, about

the heft and grade of flour-sacking or any strong wrapping-paper that can be obtained at the stores, it was claimed, would make a winter case that is very cheap and satisfactory.

We have accordingly prepared a few hives for outdoor wintering in our yards, and herewith append illustrations to show what we did. We first took several thicknesses of newspaper long enough so they would reach down over the sides and ends. For a climate like this we would estimate it would require

FIG. 1.—RIGHT WAY OF FOLDING THE PAPER TO SHED WATER.

about two inches of loosely folded paper or old grain-sacks that are not fit for any other purpose. A large square of manilla paper is laid on top of the hive. The sides and ends are tucked down and folded (as one would do up a package), when they are tied, as shown in Fig. 1; but do not make the mistake of folding the paper as shown in Fig. 2, for then it will be apparent that the folds will catch water, resulting in a leak.

Whether it will be necessary to oil these papers to prevent their water-soaking during the winter we can not say from experiment; but we are oiling ours, and would advise others to do so.

The two illustrations do not show a large enough sheet of paper. It should be wide enough and long enough so that, when folded, it will reach clear down to the bottom-board, leaving just space at the entrance for the bees to pass in and out.

But it may be argued that a few hives would take all the spare newspapers that could be found in any ordinary home; perhaps, but in these days of a large daily for one cent, most homes will have a good supply if they have not sold them to the paper-rag man; but if these are not available one can go to the produce-grain dealers and buy up old sacking, or burlap wrappings, for a very small sum. This will be better than paper, and, what is more, will fold nicely over the sides and ends of the hives as well as the tops.

The two illustrations show two hives prepared after they were set out of the cellar in the spring, and did not have any paper between the covering and the hive proper. Moreover, the regular hive-cover with projecting cleats was left on the hive. We would advise putting on a thin super cover for outdoor wintering; then put on the two inches of sacking or old newspapers, old quilts or carpeting, and then afterward the hood of manilla paper. When in place, put on the regular hive-cover to cap the whole. This will help to make up the roof proper, and at the same time give additional protection to the top of the hive.

This scheme of wrapping hives with heavy manilla paper, or any good wrapping paper that will shed water, is very easy to carry out; and there should be no excuse on the part of any one by reason of expense to let his bees winter outdoors unprotected when a few minutes and a cent or two per hive will probably give every colony cheap and good protection. We do not positively say it would, but we are relying upon the reports of others who have tested it, and say that it is very satisfactory. We have tested the same kind of winter case made of heavy roofing-paper, and find that bees winter very nicely, or, so far as we can discover, winter bees well.

In the colder climates it will be necessary to use a thicker layer of packing material between the paper hood and the hive. One will have to judge from his own climate.

PAPER HOODS FOR SPRING PROTECTION.

This method of protecting colonies is so very cheap and effective that, in our opinion, one could use it to good advantage on colonies just set out of a cellar in the spring. The slight cost would be more than made up by the saving in stores, more brood, and, consequently, a colony further advanced for the harvest. In the spring of the year most apiarists will have plenty of time in which to do this.

If the paper be not too heavy, and be carefully laid away in the flat after removal, it might answer for two or three seasons, and the inner packing of old sacking or newspapers could be used for many years.

FIG. 2.—WRONG WAY.

We have tried different ways of holding the folds in place, but know nothing better than common wool twine tied in a bow knot. The drawing of the knot releases the whole thing. The hive is then ready for examination.

CELLAR VS. OUTDOOR WINTERING.

It is our opinion that, in all localities subject to two or three good fly days almost every month in the year, that the outdoor method of wintering will be far more satisfactory, especially to the beginner. Cellar wintering requires ideal conditions, considerable skill, and a climate where there are no fly days during mid-winter. Any locality where it warms up so the bees can fly during January and February is apt to warm up the cellar so as to cause uneasiness on the part of the bees. A repository that can not be cooled off, and the bees are uneasy, is liable to cause a large death loss before spring, especially if this uneasiness occurs during the period of January-February. Where one has a certain amount of open winter, this paper method of protection will, we believe, prove to be cheap and effective; and even in climates where outdoor wintering gives fairly good results without any protection, we would say by all means use a paper hood like those here shown, without any packing underneath. The cost will be slight but the gain will be great. There are a good many localities in the South, especially those exposed to strong winds, where a paper covering of this kind will be found to be very advantageous.

While on this subject we would advise for outdoor wintering that the entrance be contracted about as shown in the illustrations; namely, $\frac{3}{8}\times 8$ inches wide for strong colonies; for the medium, $\frac{3}{8}\times 4$ or 5 inches; and the weak ones correspondingly smaller; but very weak colonies we would advise putting into the cellar during the months of January and February where the climate is more or less open, and then setting them out the first of March; or, better still, unite the weak ones and put them in an outyard.

HARVESTING SWEET-CLOVER SEED.

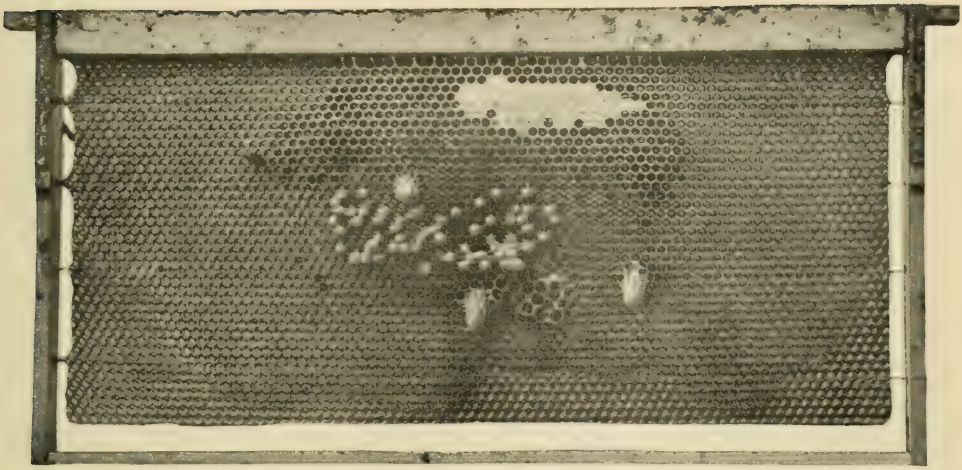
BY A. L. AMOS.

When, in my enthusiasm, I commenced to write of yellow sweet clover as a honey-plant it was without the slightest intention of going into the seed business; but so many inquiries came to hand asking if I could supply seed or tell where it might be obtained, that I began to study whether I could not do something toward supplying the demand. I hit upon a plan of harvesting the seed in a small way, which may be of interest to those who would do likewise.

I have the clover cut with a mowing-machine when the seed has partly ripened. I have this cutting done after a rain, or in the morning when the dew is on it, as the seed does not shake off so easily when wet. It is allowed to lie for a few days to finish ripening, when the girls and I "go for it" as shown in the picture.

We spread the buggy canvas on the ground, and pile on the clover. We do this in the morning when it is wet, and allow it to lie till late afternoon, when it is thoroughly dry and yields readily to the feet and sticks of the young harvesters. After a vigorous pounding and tramping we

THRASHING OUT YELLOW-SWEET-CLOVER SEED.



THE RESULT AFTER INTRODUCING A DRONE-LAYING QUEEN.

find from ten to twenty pounds of seed on our canvas. We sift it twice and put it in a sack. Our work with the clover stretches over a week or more, and we have no very large quantity then, but enough to supply many bee-keepers who want only a little to try it.

If one wants a clover-field to be good year after year as I do, I consider it very important to remove the greater part of the seed. If this is not done it sows itself too thickly. In harvesting as we do, there is always enough left to seed the ground nicely for another year.

Comstock, Neb.

[While this may savor of free advertising we are glad to give the space, as it is difficult to get nice yellow-sweet-clover seed. As many desire it, here is a chance to get some of it.—ED.]

A TESTED BREEDER THAT PROVED TO BE A DRONE-LAYING QUEEN.

BY W. A. PRYAL.

I have recently had a very interesting study in queens, which came about in this way: I wanted a tested Caucasian queen which I could use as a breeder, as I wished to raise a few queens for my own use. I therefore sent to a breeder who had an established reputation, and in the first week of August I received the queen. She was to be one of "last season's crop," and fully guaranteed.

After introducing her I noticed that she was a poor layer; but this I attributed to her shyness, and the further fact that the bees had not yet "taken to her," as I found evidence of an inclination on the part of the bees to build queen-cells. When I found some drone-brood doing nicely in cells to their liking, I did not think any thing more of the matter than that I was fortunate in getting a batch of Caucasian drones at a time when all other drones in the apiary were being banished for the remainder of the year, and I removed this comb to a hive where I believed the forthcoming Caucasian drones would be cared for. There was now no comb in the hive with the queen I am writing about, the frames being filled with new foundation. I did not open the hive again for several weeks, as I thought it was about time that some of her workers should be hatching out, and I wanted to see what they were like.

At this point I got a rather "bad jolt." There were no young workers, but plenty of drone brood and some queen-cells. I thought she might have been superseded, but she was not, for I found her with one wing clipped. There were some eggs in the combs. She was laying at random in two of them. I concluded that the fine tested queen I purchased was a first-class drone-layer. But how did she become such? There was the rub!

I studied the matter over, backward and forward, but to no purpose. I thought she might have been injured in the mails; that she might be an ancient one, and that her days of fertile prolificness were spent. Then I thought that perhaps the breeder clipped her wings before she was fertilized. This latter could not be so, inasmuch as she was sold to me as a tested breeder of "last year's crop."

Well, I took a photograph of one of the two combs she was laying in. I never saw one sheet of comb that contained at one time so many stages of comb-building. Here we have the undrawn foundation—as may be seen about the outer edges, the cells in all stages of development; the beautifully capped honey, the capped brood, two completed queen-cells, and one unfinished one. The most remarkable feature is where the bees have started to convert worker-cells into drone-cells, and have even been fashioning

one of the latter into a queen-cell. But, strive as they would, the bees were unable to bring forth a single worker, much less a queen.

Upon laying the foregoing state of affairs before the breeder, he mailed me another, which at this writing is going through the process of "introduction" in another colony.

Oakland, Cal.

[This is certainly a very interesting exhibit of comb-building—one of the best of which we have any photographic representation; but the bees did nothing more than what we would naturally expect and what practical bee-keepers have seen time and again, where there is a drone-layer. Nature in a case of this kind seems to have skipped a cog, for every thing seems to be out of balance; and the bees—well, they hardly know what *is* the matter. Apparently they are seeking to raise a queen, not being satisfied with what they have. Then they attempt to take care of the drone-larvæ, which means larger cells. Where there were no eggs they built worker comb because that was easier off the foundation.

A rather interesting part of this comb-building was the two queen-cells. It has been stated that, where cells are built and completed from drone-larvæ they will be very smooth without any corrugations. This does not appear to be true in this case at least.—ED.]

CITY BEE-KEEPING.

Bees on a Tin Roof.

BY A. KIRCH.

The photo shows a view of my apiary. Honey is not plentiful here in Brooklyn, owing to the great distance bees have to fly to find something. My crop amounts to from one to three gallons a year from each hive. I have kept bees since 1886. The eight-frame Dovetailed hives are over 20 years old, and it seems they will last another 20 years.

It was owing to a lack of room on a small city lot that I had to place the bees on a roof. If there were any other way I would not advise anybody to do so, because it is very hard to go up or down the ladder or stairs with large supers, bringing new colonies up, etc. On the other hand, they are out of the way, and would not sting anybody. I formerly kept bees on the outskirts of the city, but it is troublesome to be away from the bees in swarming season, so I had to give it up. Clipping the queens' wings I think is not advisable on a tin roof, because in the summer time the queen is likely to be hurt if she crawls out on the hot tin. My wife catches all the swarms because I am not home in daytime. I keep down increase by uniting the weaker ones in fall. The

KEEPING BEES ON A TIN ROOF IN THE CITY OF BROOKLYN.

honey harvest is small where the bees have to fly from three to five miles to cemeteries or parks, and gardens are scarce in large cities because ground is too valuable.

Brooklyn, N. Y.

THE ASPINWALL NON-SWARMING HIVE.

A Second Year's Test at the Vernon Burt Yard; what One of the Most Extensive Bee-keepers in the United States Thinks of the Hive.

BY E. R. ROOT.

By referring to page 399 of our issue for March 15, this year, one will see several illustrations showing the Aspinwall hive after one season of test; but, unfortunately, the photo at that time failed to show the vital feature of the hive—namely, the slatted divider that is inserted between each pair of frames and each row of sections. Mr. Burt has given the hive another severe test for another year; and while the colony was booming at its height we took some more photographs showing its external and internal construction. These we present herewith.

It will be recalled that the Aspinwall hive is different from any other that was ever invented. While it employs some well-known old principles, it uses one feature that is certainly novel. This is the slatted divider, a sort of frame in which are mounted a series of perpendicular slats ¾ inch wide, § thick, and § apart. One of these dividers is inserted between every alternate comb. First there will be a divider, then a comb, then a divider, then a comb, and so on. The practical result of this is that every comb is separated from its neighbor by one inch. There would be no need of having perpendicular slats bee-spaced apart except that these must necessarily be used to keep the bees from building comb between the two others. It will be seen that the brood-nest is broken up into a series of divisions, each division consisting of one comb of bees and brood; but these divisions are not separated, but are made homogeneous with the others by the cluster of bees reaching from one comb to the other between the slats. Just why this splitting-up of the brood-nest should stop swarming may not be entirely clear; but, apparently, these slatted dividers have the effect of keeping the bees all in the hive, no matter how hot the weather, where they do not seem inclined to swarm; but, on the contrary, work and store honey in the supers.

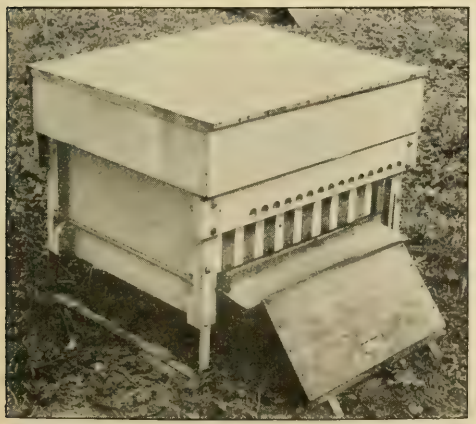


FIG. 1.—ASPINWALL NON-SWARMING HIVE.

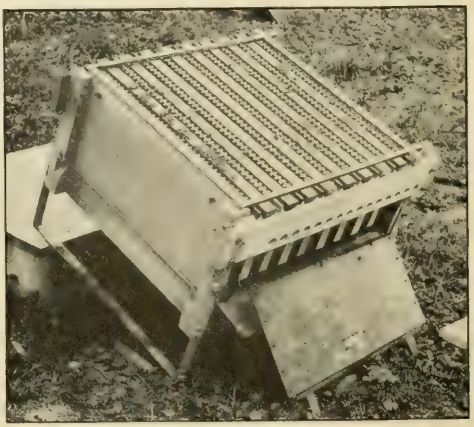


FIG. 2.—ASPINWALL HIVE WITH COVER REMOVED SHOWING POSITION OF FRAMES AND DIVIDERS.

Last year and this year were rather poor, but Mr. Burt, in order to bring on swarming conditions, jammed in the feed day after day, to see if he could not force out a swarm; but the bees stayed contentedly at work. While this with one colony is by no means a conclusive test, the fact that he could not force the colony to swarm, which was a powerful one, is somewhat significant.

THE ASPINWALL BROOD-FRAME.

Fig. 4 shows at the top an Aspinwall frame, and at the bottom one of the slatted dividers. One will notice that there are four instead of one end-bar. But those next to the comb are one inch wide, or the same width as the top-bar of the frame, while the outer end-bar is 1§ wide, and therefore wider than the others. The purpose of these extra bars is to give a large cluster of bees around the ends of the combs as well as between them. It will be seen, then, that every comb is surrounded with a large amount of animal heat. As there is a lot of space inside the hive, there is no need of the bees clustering outside, where they become discontented and finally swarm.

The same scheme of separating the sections above, that is employed in the brood-nest, is used. It will be noted that these slatted dividers not only separate the rows of sections,

but act as separators or fences at the same time.

The hive proper consists of only a framework made of narrow stuff. The ends are closed up by the end-bars of the frames, the same as in the Quinby system, while the two sides exposed are covered with a couple of panels. These are secured in place by means of a wooden rod inserted in one of the holes shown in front and a corresponding hole in the rear. See Figs. 1, 2, and 3. Between the wooden rod and the panel there is inserted a wedge which, when pushed down, crowds the follower against the brood-nest.

The framework is secured together by means of bolts; and for the purpose of packing or re-shipping, the hive could easily be put in the knock-down condition in a few minutes by removing the bolts.

As will be seen by reference to Fig. 3, the frames are suspended, not in a hive-rabbet, but on a cross-bar of the framework. To provide the necessary bee-space between the brood-nest and super, narrow strips of wood ¼ inch wide are laid just over the end-bars at each end when the super is put in place, the extra width of the follower-boards closing up the gaps at the sides.

The several illustrations will show the general principle of the hive; and for the purpose of taking a photograph, in order that the internal arrangement might be shown, the hive was tipped up, the back end resting upon the telescope cover, also made of narrow slats and covered with tin. See Figs. 2 and 3. It will be noted that the slatted dividers have the end-bars painted white. While this was merely accidental on the part of Mr. Burt, it shows for the purpose of the photograph a sharp dividing line between the dividers and the frames.

As to the future of this hive, we are making no prophecies; and neither, for that matter, is Mr. Aspinwall; indeed, for an inventor he is very modest in his estimates of what it may do. He has tested it for several seasons with the most gratifying results.

When L. E. Mercer, of California, called upon us a few days ago, as noted in our last issue, we took him out to the Burt yard to show him this Aspinwall hive. After we had explained the hive he seemed to be very much pleased with its construction, and immediately said he belived that the principle was all right—that, while he was an extracted-honey producer in California, if he were producing comb honey in the Eastern States he would be inclined to adopt this hive as

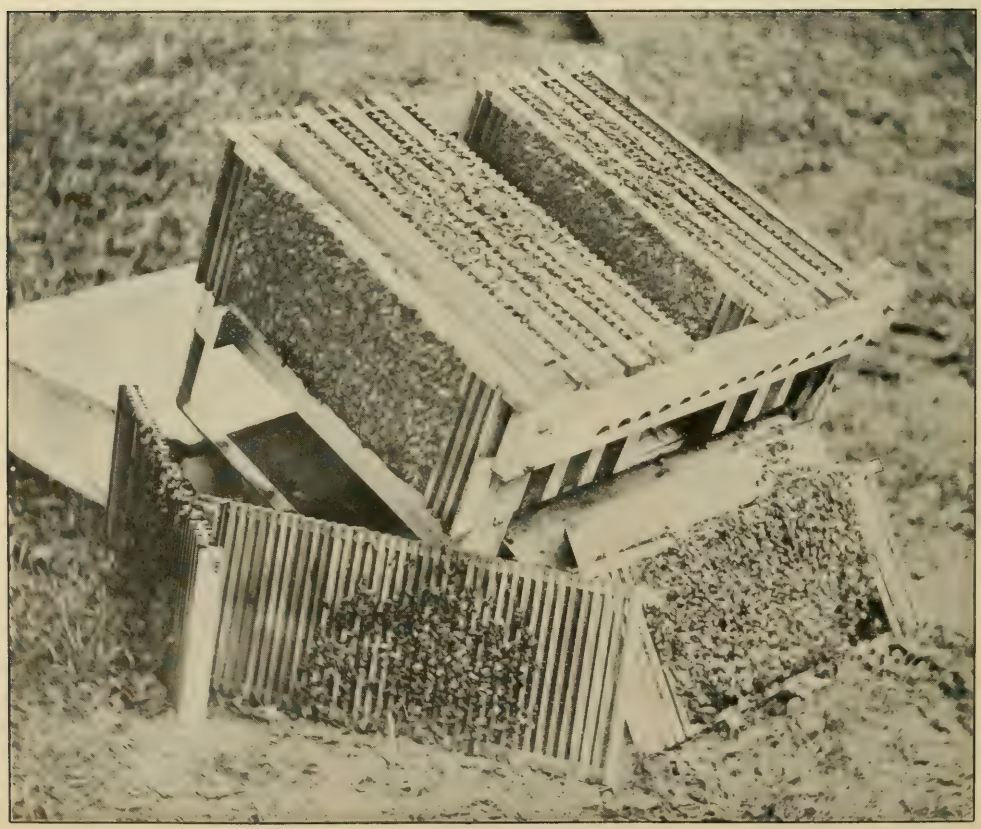


FIG. 3.—ASPINWALL HIVE DISSECTED.

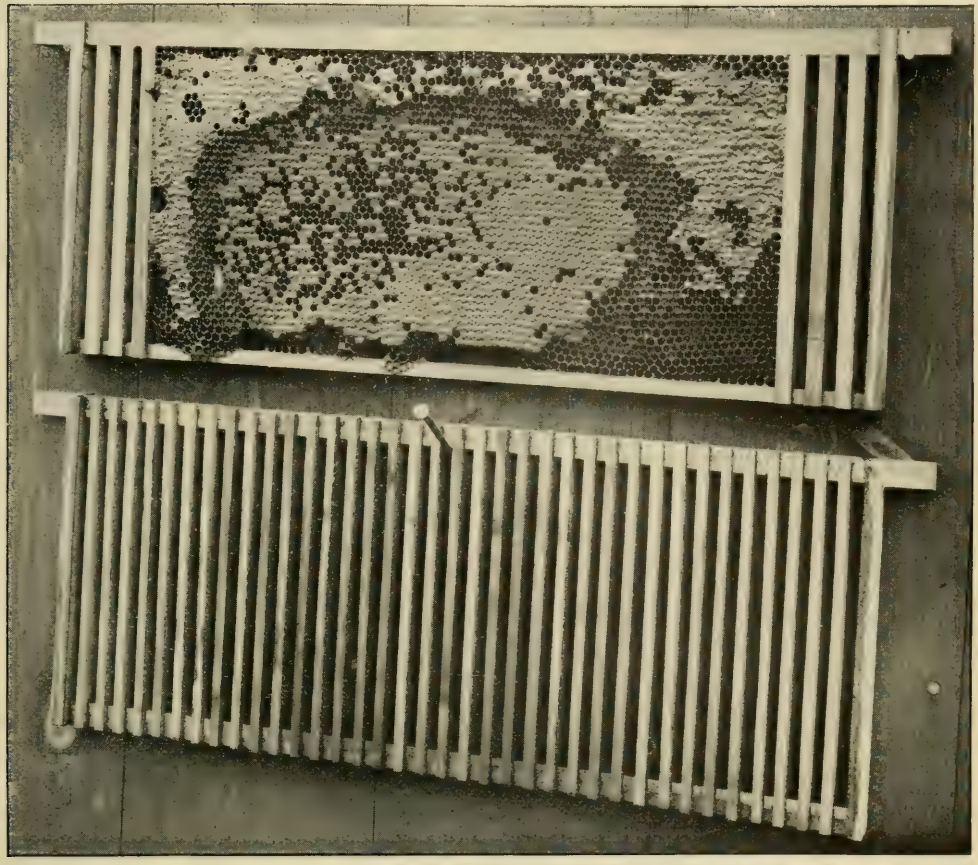


FIG. 4.—BROOD-FRAME AND SLATTED DIVIDER.

soon as it was ready for market, provided, of course, the preliminary tests were satisfactory.

This hive is not yet for sale, as Mr. Aspinwall wishes to test it carefully before it is put on the market.

BEES OF CEYLON.

BY C. DRIEBERG.

You may be interested to know that bee-keeping (*albeit* in a small way) has been started in Ceylon. We have, as you are no doubt aware, three indigenous honey-bees worth mentioning.

1. *Apis Indica*, the common bee.
2. *Apis dorsata*, a large form.
3. *Apis florea*, the smallest of the three.

Apis Indica has for a long time been under partial domestication, and is commonly induced by the natives to build in round earthenware pots. The gathering of the honey is done after driving the bees out with the aid of smoke. In nature these bees build in the hollows of trees. Of late, attempts (more or less successful) have been made to keep them in frame hives of suitable dimentions, but the quantity of honey stored is most discouraging.

Apis dorsata has been referred to as "the giant bee of the East." It builds truly gigantic combs in the open, generally dependent from the branch of forest trees. Mr. Benton considers these bees very promising, both as honey and wax producers; but up to date no one has succeeded in housing them for any length of time in a frame hive, and their reputation for fierceness has not favored the repetition of experiments. The honey is sought after as a medicinal agent, and collected only by the boldest of bee-hunters.

Apis florea is a gentle bee which constructs a delicate white single comb, generally built round the twig of a tree. The quality of the honey is perfect. Owing to the habit of building single combs in the open, these bees can not be induced to take to frame hives.

I should much like to know whether the above-mentioned *apides* are found in the Philippines, and whether any thing has been done by the U. S. Agricultural Department to utilize their produce.

Some time ago I heard of Prof. Benton's intended visit to your New Colony (and we were hoping to catch him here *en route*), but have not heard of any results.

Within the past few years the Society has been interesting itself in bee-keeping in Ceylon, and the success of the West Indies has been a great incentive to us. So far, however, only half a dozen enthusiasts are persisting in their efforts to master the art of apiculture. The bee favored by us is the Italian—a great improvement on the excitable little *Apis Indica;* but under the new conditions of seasons, food, etc., its naturalization must, of course, take considerable time.

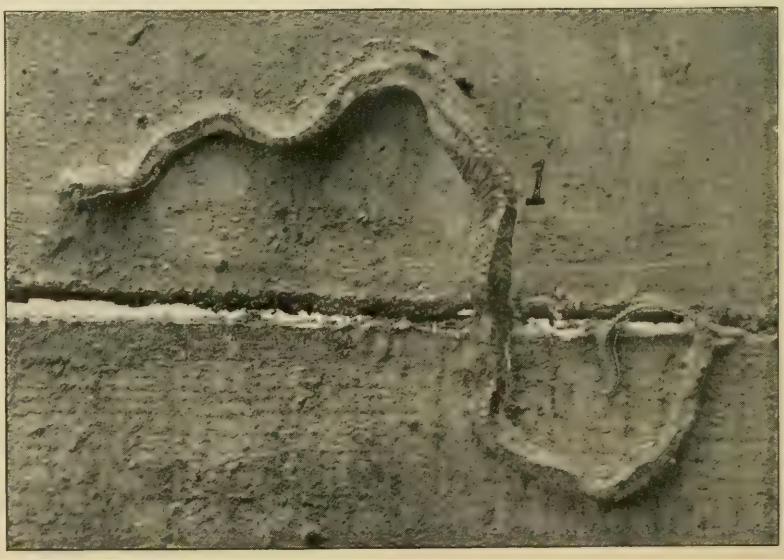
The question of suitable bee pasture is one which has yet to be settled. Our native bees depend chiefly on forest trees (e. g., *Terminalia belerica*), while among cultivated plants the cocoanut palm supplies abundant food material. I see your journal, and find much in it to interest me.

Colombo, Ceylon.

A SNAKE EMBALMED BY THE BEES.

BY WM. A. SELSER.

In opening up a colony of bees we found a bottom-board wit a snake fastened to it, evidently glued there by the bees. I laid it aside in my hurry, and did not pay much attention to it, but a photograph was taken later, as shown in the engraving. The snake must have entered the hive while it was inhabited by the bees, and they killed it in some way and then glued it down to the bottom. The view should have shown the body raised above the board at some of the points, especially at Fig. 1, indicating that the snake was still writhing when it was fastened down.



A PROPOLIZED SNAKE FOUND ON THE BOTTOM-BOARD OF A HIVE.

Philadelphia, Pa., Aug. 29.

[The unwritten history of this must have been somewhat interesting, not to say tragic. His snakeship probably crawled into the entrance and there met a "warm reception;" or to put it another way was stung to death. The bees, unable to remove the carcass, embalmed it—that is, covered it over with propolis. The hide of the average snake is so tough that it will resist stings of bees. Some years ago we "experimented" with some snakes in connection with Mr. J. M. Jenkins. The serpents were found in a yard. We drove them up to the hives. Although the bees attacked them with fury we could not see that the stings penetrated the horny hide. The specimen here shown must have had a vulnerable skin.—ED.]

CELLAR WINTERING.

Colonies Consume More Stores than Those Wintered Outside.

BY A. F. EILENBERGEN.

In wintering my bees last year I lost one out of 52, and that was my fault by not putting in a young queen. I knew the queen was old, but thought I would chance it. I shall requeen every year, and not keep any over two years. I put nine colonies in my cellar to try it. I have as good a cellar as can be found for the business. The temperature did not get lower than 40 nor over 48 degrees, with good fresh air all the time. As for results, the ones in the cellar ate the most. Not one of them came out as strong as those outdoors. The only benefit I can see is that if there are any light colonies in the fall they may be fed a little early if they are in a cellar; whereas, if they are outside they stand a chance of spring dwindling and breaking their cluster oftener. But I will not put any more in the cellar. If there is an outside case, plenty of room for late

brooding, the brood-chamber arranged so the bees can get to the honey, and a good young queen, they will winter outside in better condition than in the cellar. I put one-inch blocks between the brood-chamber of one colony and the bottom-board, so the wind went between the bottom and frames, and the hive is full of bees to-day. I let them have 19 lbs. of honey, as nearly as I could weigh it. Understand, I had an extra case to the bottom of the hive, and four thicknesses of carpet and one of burlap, and had one frame on one side of the hive with carpet instead of honey or comb. The frame of carpet collects the dampness. I wintered these on 7 brood-frames of honey and dry comb, 16 inches from ground.

You may think this is a queer way, but it works well. Another thing, I give all of them a large entrance in winter, just so mice can not get through. I have four colonies up from the ground 25 to 28 ft., and they have the same entrance they had all summer, and larger colonies can not be found to-day in an eight-frame hive and no outside case on them.

North Tonawanda, N. Y.

BEE-TREE HUNTING.

Is it Necessary to Cut the Trees? a Reply to John R. Lockard.

BY RALPH F. FISHER.

Friend Lockard, p. 322, March 1, made unfavorable mention of the sulphur (necessarily used in my practice of extracting bees and honey from trees, etc.), as being in every way primitive, and that conscience should prevent any further destruction by its fumes.

Now, I use sulphur because it is wise to do so in following my instructions, p. 998. A fully developed Italian queen is introduced into a one-frame nucleus; and as I wish the results to be all that is desired it would be downright foolishness to allow the queen inside the tree one slim chance of meeting her rival outside.

Here I will say the queen inside the tree is not likely to come out at any time, as she generally clusters with the last bees of the colony, and gradually starves to death. However, if the hole or entrance in said tree is next the starving queen and brood, and the cluster already trapped outside has gone to work in the furnished hive, it is very probable the fanning bees before the hive entrance and next to the Porter escape will entice the queen inside to join those outside. This may happen; and as a meeting with the Italian queen is to be avoided, sulphur is used to prevent this very thing; but if no distinction is to be made between the two queens, sulphur can be dispensed with. As she will not come out in any case so long as there is hatching brood present, the tree may be left fully two weeks after attaching the escape.

It is not necessary to wait five or six weeks, as mentioned in my previous article, because the brood will be hatched into young bees in ten to fifteen days; but as I have always had the time I was never in a hurry.

Friend Lockard considers his experiences rather successful with a fair profit, yet the method I use will give him twice the honey and three times the bees, with one-tenth the trouble in like circumstances.

Great Meadows, N. J.

[Mr. Fisher is the man who showed how to get bees out of a house or bee-tree without cutting the tree. We can scarcely see how there could be any thing about the method that would indicate cruelty to animals.—ED.]

DOES IT PAY TO RAISE QUEENS TO SELL?

BY N. E. CLEAVER.

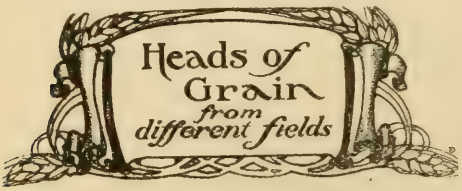
Yes, it pays if you are willing to accept the pleasure of an occupation as the pay for your labor in it. It reminds one of the prayer that is often heard in the churches, that the Lord will give the faithful pastor many souls for his hire. But it takes money to live on. And if the queen business is to be considered from the standpoint of dollars and cents, then I think I can prove conclusively that it does not pay. I have kept accurate accounts. I have advertised by "key advertising," and so know absolutely what results have come from certain investments. My advertisement in one paper has brought me far better results than any other, and so I will consider only the results from that source. My equipment was ample—one apiary of golden Italian bees containing about seventy colonies, with an expert queen-breeder in charge; one apiary of Banat bees containing 36 colonies; 5 imported breeding-queens, and myself in charge of rearing the queens. I have filled all retail orders received except five; they contained the directions "please send by return mail." They came at a time when I was behind with the orders, and so the money was returned to the senders. I filled several large wholesale orders for golden Italian queens at exactly what I paid my man for rearing the queens, so the question of profit or loss will not take such orders into consideration. I also leave out of the account the cost of rearing the golden Italian queens which were sent out at retail, by taking that cost from the total received; and I have left, as the result for the season of 1907, for Banat and golden Italian queens, sold at retail through my advertisement in that one paper, $146. I spent half a day each week answering letters, mailing queens, grafting cells, etc.; during the queen season I answered 241 letters. My expenses for advertising were $38.68; $9.00 for postage on letters and queens; $4.00 for cages; $31.00 for imported breeding-queens. About two-thirds of this latter item, I think, should properly be credited to the present account, making a total expense for the season of

about $72.00, leaving me as pay for the season's work and investment about $74.00.

Now you will say, "Why, it did pay after all. It paid big. It paid 100 per cent.

But, wait a little. I have used 18 Banat colonies, and worked about six full days. On the other 18 Banat colonies I have put about a day's work all together, and have taken off $90.00 worth of honey. I have divided the colonies, and would not take $90.00 for the bees and queens without the hives in these new colonies; but to make it low enough we will call the increase worth $50.00, making $140 00 income from the 18 Banat colonies. If I had not been in the queen business, and had worked the whole Banat yard for honey and increase, I should have saved five day's work and earned $66.00 more. So when I am asked if it pays to raise queens to sell, I answer not, in dollars and cents, at present prices. But in addition to that I must confess that raising queens is one of the most interesting side-occupations of which I have any knowledge.

Emporium, Pa.



BEES STARVED IN WINTER WITH HONEY IN THE HIVES.

I had the same conclusion forced upon me as did Mr. Hutchinson, as mentioned in the June issue of *The Bee-keepers' Review*, but my bees were snugly packed in extra winter hives with fine hay on the sides and planer-shavings on top to a depth of five to six inches, and still mine starved with honey in the hive; but they would not break cluster about the small patch of brood. I had not lost a colony this way before, and counted it a safe way of wintering. C. J. THIES.

Pepin, Wis , July 17.

[During a severe cold winter, during which the thermometer plays around the zero-point, and remains there for ten days or two weeks, you will be quite likely to find exactly what you describe, in some of the outdoor-wintered colonies. While protection, and plenty of it, provides against this difficulty to a very great extent, it does not entirely; and where there is a prolonged zero spell we would advise taking the colonies into a cellar so that they can expand the cluster before they actually starve. When the cluster spreads it will move over to the food; then when hunger is satisfied it gradually contracts, when the hive may be moved out again; but it will do no harm during very severe weather to keep all such colonies confined in a cellar or in an atmosphere or temperature where the cold is not so severe as outdoors. During the very coldest part of the weather, in the absence of a cellar the difficulty may be overcome to a certain extent by throwing straw over the entrance to shut out cold drafts—especially so if there be a high wind at the time. In any case, it is always important with outdoor colonies to keep the entrances contracted down very small, cleaning them out occasionally; for if they become clogged with dead bees the colony is likely to die.

You say that you had not lost a colony this way before. That is probably due to the fact that you had not previously experienced such a severe winter.

After a very cold winter we find in our experience that there will be perhaps ten per cent of the outdoor-wintered colonies that have literally starved to death with stores within an inch and a half of the winter-nest. The same condition has been reported by others. We know of no remedy except as above pointed out.—ED.]

DOES A HONEY-BOARD RETARD THE PROGRESS OF THE WORKERS? LIQUEFYING HONEY.

Friend Root:—Replying to queen-excluding zinc retarding the workers and allowing an occasional queen to pass through, I beg to say I have used it for years and I have the the first queen yet to get through it. Where they do go through, there certainly must be a slight dinge in the zinc. It would be necessary for a dinge to be only *very* slight to let a small queen pass through.

I have never been able to detect any retarding of the workers. I had one colony last summer that stored 125 lbs. in three extracting-supers in two weeks from hiving over a queen-excluder. I should like a lot of this kind of retarding next season.

In regard to liquefying honey in 60-lb. cans, page 335, I would say that, after putting the can in the water, you must remove the cap and press the top of the can down to the honey by striking the top of the can with the palm of the hand, thus forcing the air out; then put on the cap and screw down tight; leave in the water until it is all liquefied, then remove and let it stand until cold before removing the cap, and you will have no overflow, no burst cans, no foam, and no loss of aroma. ELIAS FOX.

Hillsboro, Wis.

TWO QUEENS IN A HIVE SEPARATED BY A DOUBLE ZINC DIVISION-BOARD.

I should like to know if there is any fault to find with perforated zinc division-boards in the center of a hive to separate two laying queens, so the workers can get on each side of the hive. In case the queens climb up the single screen and fight, it can easily be avoided by putting two sheets of zinc on a frame with a half-inch air-space between. In this way I don't see why two laying queens can not be kept in a hive the year round. Two good laying queens in a hive are enough

for any eight or ten frame hives. A bee-keeper who has two queens in a hive and is not satisfied with his queens had better kill them and get a new strain of bees.

MRS. WM. R. MILLER.

Cambridge, Mass., Sept. 8.

[The two-queen system with the perforated zinc, as suggested in your letter, is now a practical working success – at least we have had so many reports showing that two mothers can be kept in hive successfully when separated by a perforated zinc, during the important breeding season at least, that we may conclude the thing is no longer a theory or a possibility but an actuality. There may be times when a double zinc will have to be used; for we have had one report, possibly two, where the two queens would fight through the perforations, with the result that one was killed.

It is not yet proven that the two-queen system in connection with perforated zinc will work in the off season of the year – that is, when brood-rearing naturally ceases, and there is a tendency on the part of the bees to rob. Some reports have seemed to show that one of the queens will be missing.—ED.]

THE TWO-QUEEN SYSTEM; DISTANCE THAT BEES CAN FLY; CAUCASIANS SHORT-LIVED.

I have been experimenting some with two queens to the hive this season, and I like it, as I can keep my colonies so strong; but I use two bodies with excluders between them. I now expect to use very wide bodies, with a queen on each side separated by a queen-excluding division-board.

I have also been experimenting as to what distance bees will carry nectar. I live in the city, and it is one and a half miles to the cotton-fields, and I am harvesting a fine crop of pure cotton honey. We have had the poorest season here up to four weeks ago that I ever saw; but I shall get an average of from 75 to 100 lbs. per colony from cotton, although but very few bee-keepers around here will get any thing, as they have only black bees, and they are not able to get any honey from cotton at all.

I bought several Caucasian queens last fall, and not one of them is alive now. They did not seem to be able to stand their hand with the Italians this poor season; and what puzzles me is that every one of the queens I bought has been superseded. I like the gentle part of them; but if they live only six months I don't want to bother with them.

Spartanburg, S. C. W. M. BAILEY.

BEES ROB FOUL-BROODY HONEY IN GROCERIES AND GET THE DISEASE.

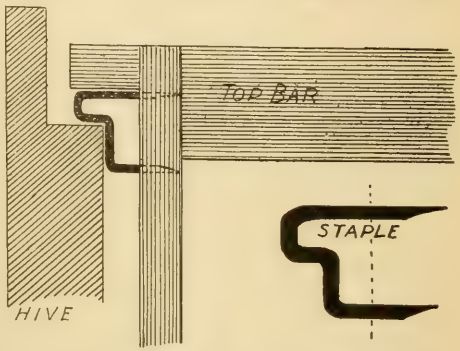
I shall have to give up my bees here, as foul-brood comb honey is bought by the grocers, and exposed at their front doors. My bees sip it and get the disease. This occurred four years ago this last spring with a lot of Cuban honey, and I have had trouble ever since. I have destroyed in that time probably $150 worth of hives and fixtures, and it is in my yard now, with possibly not over three or four colonies free from it, and they will likely take it before the honey season is over. I used the McEvoy system and also izal in trying to cure it, but shall have to drop bee-keeping for the present.

Blairsville, Pa. W. D. KEYES.

FRAME-STAPLES INSTEAD OF RABBET TINS.

Being troubled with propolis in the rabbet I was forced to try for a remedy. The result is shown by the inclosed sketch. So far as one season on one hive can prove, it is a success. It seems to me the tins are no longer a necessity. I wonder they were not discarded years ago by means of something simple.

You will see by the sketch there is only one staple as before; but it does away with the necessity of the tins, and allows more room for the fingers; also relieves the strain



on ends of the top-bar; gives free bee-space all round and under the ends, and the end-spacer also, keeping every thing absolutely clean.

JOHN BELL.

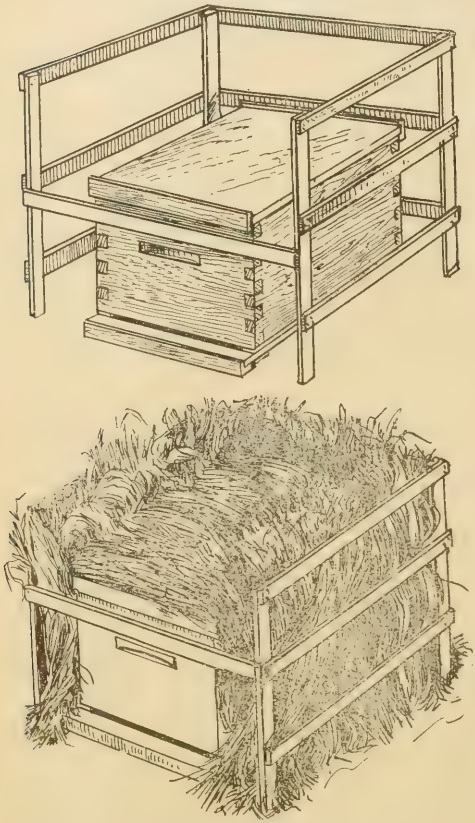
Greenhithe, Auckland, N. Z.

[The same general arrangement has been before illustrated in these columns. There are some good features about this form of staple, but it has one or two defects. First, if it be used with a non-spacing frame—that is, a frame without any side projections—the staple will act as a pivot and the frame will swing like a pendulum. If the staples are not exactly placed, the frames will hang against each other and leave spaces too wide at the bottom. Practically, such a staple would have to be limited to the use of self-spacing frames; and unless it were used with a tin rabbet, lateral movement would be very much impeded because the staple would crowd propolis before it on the wood rabbet in a way that would make frame-handling very unpleasant as well as difficult.

You say so far, one season, the device is a success. Probably propolis will not be accumulated in one year's time to cause any trouble with the arrangement; it is only after several years that you would begin to notice trouble; and if propolis is deposited so badly that the tin rabbet is filled up, your arrangement would make confusion worse confounded the second or third season.—ED.]

PACKING HIVES WITH STRAW.

To pack my bees I make a frame similar to that shown in the cut. When this is set over the hive, 4 or 5 inchesspace is left on



the sides and back I pack straw in this space, leaving the front open as shown.

Hull, Ill. HENRY NYE.

[This arrangement we would consider to be very bad, unless the straw could be kept dry by some sort of roof. As here shown it would hold water, and freeze. The straw *can be laid* to shed water.—ED]

DUAL PLAN OF INTRODUCING; THE CAGED QUEENS DO NOT LIVE.

You say you have caged virgin queens in small nuclei, to be released when the other queen is ready. What kind of cage do you use, and what kind of feed? I find a great many queens dead in cages, even in queenless colonies. Hatching out cells, queens die in 48 hours. A. H. KANAGY.

Milroy, Pa.

[The kind of cage and the kind of bee-candy are not important. We use the ordinary introducing-cages and what is known as the Good candy—a food prepared by mixing powdered sugar and honey into a stiff dough.

In order to make this dual plan of introducing a success, the second queen should not be caged more than two days prior to the removal of the first one. In our early experiments we succeeded in working this dual plan by putting queen No. 2 in a short time after No. 1 was placed in the hive; but we afterward found that this necessarily made too long a confinement for No. 2. Under normal conditions one can easily determine when No. 1 will be ready to lay. If he knows her age, and if he looks her over before caging No. 2. he can tell about when she will begin to lay. He should then plan to put in No. 2 about two days before No. 1 is taken out.—ED.]

HIGHER PRICES OF HONEY.

Now of all the times is the time to boost the idea of higher prices for honey. The crop is short, and the pure-food law is in force now. If the honey-producer doesn't "ask," who will? Honey production to-day is a science. An intense and continued study is needed to keep pace. The same study applied in any thing else would be considered a profession. Honey ought to be paid for. There is no package on the market to-day (as sightly as a section of honey) that sells as cheaply. Great cleanliness and care must be given to all forms of honey: and it ought to bring the price, and would, if bee-keepers in general would think so. Instead of making it compete with the cheapest food products, even with glucose, raise the standard and the price. Every thing else has. Why not honey? M. C. LONG.

Kansas City, Mo., Aug. 19.

GOLDEN ITALIANS STAND THE SPRING BETTER THAN THE HYBRIDS OR BLACKS.

It has been stated that the all-yellow bees do not winter as well as the blacks or the dark-colored bees, and that they would dwindle worse in the spring. I am rather inclined to think this is a mistake. Last spring, which was the worst one in twenty years for bees, I had the all-yellow bees alongside of hybrids and blacks. My all-yellow bees were far ahead of any thing else I had. They were raising brood, and getting along finely with but little feed. I fed the same amount to the black or dark bees, and they raised no brood, and were at the point of starvation all the time. CYRUS LAFOLLETTE.

Craig, Ohio.

THE A. I. ROOT CO.'S EXHIBIT AT THE OHIO STATE FAIR.

The A. I. Root company of Medina, O., had one of the finest and most attractive exhibits we have ever seen on the grounds. The exhibition of bees in observation cases was catching and of much educational value. Apparatus and other materials of interest made up a unique exhibit, in the center of which was a monument designed out of beeswax.—*American Agriculturist* for Sept. 14.

SWEET CLOVER WINTER-KILLING, ETC.

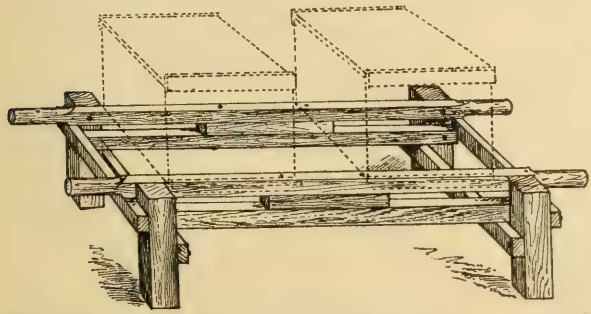
In palliation of my remarks concerning sweet clover, page 1098, I wish to state that perhaps only one-fifth of the area that I have in sweet clover was killed by the frost. While there are but very few fields of red clover here in Grant Co. but were entirely destroyed by the severe winter of 1906, I think it safe to say that sweet clover can stand more heaving of frost than either red, alfalfa, or alsike clover. Yes, my sweet clover grew this summer from 3 feet high to — well, the tallest plant was 8 feet high, and that on pure clay ground. There were large flies, wasps, hornets, and numerous other insects on the fragrant bloom, and among them the bees with their merry labor-song.

Jonesboro, Ind. C. A. NEAL.

A DOUBLE HIVE-STAND AND CARRIER.

I am using double hive-stands constructed as shown in the cut. For three hives I make the side rails longer and heavier. The form of construction gives a wide base, but makes the top about right for the length of hive.

In handling frames they can be set down on the stand between hives. If the upper edge of the side rail is sharpened, killing bees is reduced to a minimum. Solid side rails can be used, cut for handle at end, and the end pieces nailed as above for bracing.



The first I made have both side rails 42 in. long, with the outside end-piece 2×¾ nailed even with the top of the leg. I used oak, but I think poplar or pine would do as well, and would be lighter.

Belpre, O. C. C. MILLER.

[The carrier as here shown is too heavy and clumsy. It should be made much lighter.—ED.]

QUEENS DID NOT FIGHT WHEN ACCIDENTALLY PUT TOGETHER.

While examining some Carniolan bees I made the mistake of returning one frame with the queen to the wrong hive; and not until the next day when going to the hive for larvæ did I discover the error. The two queens seemed to be at peace with each other, and the bees with both. I could not see why one queen was not killed at once, but neither was balled. I don't think this plan of plurality introduction would work again, but I will try it on some other queens. The bees were in a fairly prosperous condition at the time, and getting honey every day. The queens were separated at once, for I did not want to risk the life of either.

Parma, Idaho. H. E. CROWTHER.

THE ALEXANDER PLAN FOR WEAK COLONIES A SUCCESS.

I have tried the Alexander plan of building up weak colonies, without the loss of any. Instead of the wire screen used by some I used mosquito-bar with good success. With two colonies I did it "plain," without the extra screen, with equal success. In one case after the weak colony had been placed on the strong one five days I put weak colony No. 2 on the first, and all is going lovely. The bees from each of the three queens are using the same entrance. I believe the number of colonies that may be tiered in this way needs to be limited only by the amount of recruiting bees. E. S. ROE.

Clarissa, Minn.

A WELL-VENTILATED BEE-CELLAR; FOUR SUB-EARTH VENTILATORS AND ONE IN A CHIMNEY.

I have made a honey-house and bee-cellar combined that is 24 ft. long by 12 wide. The part above the cellar is for my working-room and honey-house. The cellar, which is under all, is for the bees in winter. A cellar-way is at one end, while a chimney built at the middle of the other end starts at the bottom of the cellar, with an opening near the floor for ventilation. There are two holes on each side of the cellar, communicating with tile lines that run out from 12 to 15 ft. These are about 18 feet apart. There is also a tile drain. The cellar wall, which is 12 inches thick, extends 5 feet into the ground, the dirt at the surface being banked up on each side about two feet or more. The wall is made of stone and cement.

Around the inside of the cellar is a shelf 2 feet wide and 18 inches high, this and the cellar floor being covered with cement.

I put 56 colonies of bees in the cellar in the fall of 1905, and in the spring took out 54 colonies in good condition. The two that died did not have enough stores. Last fall I put 105 colonies of bees in the cellar, and this spring took out 105 colonies. My hives were so full of bees that I could not double them up very much. There was plenty of honey left, and brood was hatching in many of them. GEO. J. FRIESS.

Hudson, Mich.

FEEDING BEES THAT ARE CONFINED IN A CAGE.

When bees are confined in a cage or box the under side of which is of wire cloth, they can be fed (as some have already suggested) with honey as long as their tongues can reach

it. My way is to fill the receptacle with syrup; press a sponge down in it, and all the syrup will be appropriated—you would be surprised to see in how short a time, as the sponge presses against the wire, and the weight of the bee-box of whatever kind holds it down. It works finely.

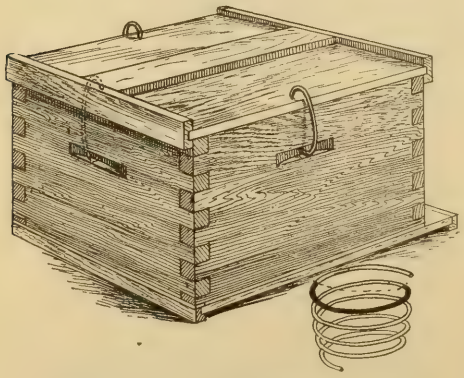
Johnstown, Pa. MARY E. AKERS.

HIVE-LIFTERS.

Of late there has been some discussion in GLEANINGS about hive-lifters. I suggest a tripod with a lever across the top, a grapple something like ice-tongs attached to the end of the lever to hook into hand-holes in the end of the hive. The lever must rest on a pivot so as to swing from side to side. The tripod and lever can be made of light strong material so as to be easily moved from hive to hive as work requires.

Cardenas, Cuba. S. LEE STILLMAN.

[It would seem as though a lever used for a hive-lifter would be harder to manipulate than the self-locking rope-and-tackle arrangement described by Mr. J. E. Hand on page 1026 of the Aug. 1st issue; for such a lever, in order to have power enough, would have to be quite long; and, when lifting hives, the operator would be obliged to stand at the end of the long lever away from the hive. With Mr. Hand's lifter, one hand manages the rope—raising, lowering, or holding the hive in any position while the other is left to manage the clamp or perform any necessary operation about the hive. However, in some places a self-locking tackle may be hard to obtain, so that a lever will have to be used. —ED.]



SPRINGS TO HOLD COVERS ON HIVES.

We use sections of old sofa-springs cut in suitable pieces as clamps to hold on covers of hives. T. T. GROSS.

Janesville, Cal.

YELLOW SWEET CLOVER.

I got from you some yellow sweet clover and some white in the spring of 1906, and sowed it on the banks of a large dredge-ditch. The white did nicely, but the yellow came up and grew about six feet high and blossomed matured seed, and stayed the first year. This year some stalks came up and did the same thing. The stalks were small and spindling, and the blossoms very delicate. Is it an annual or a biennial?

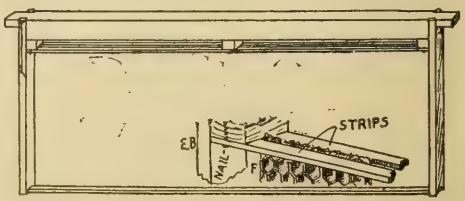
HENRY STEWART.

Prophetstown, Ill., Oct. 15.

[Friend S., we have had one or more reports similar to yours. I think the soil could not have been suitable for yellow sweet clover; but at the same time it is more likely to blossom the first year than the white. We shall be glad to get the experience of others with yellow sweet clover.—A. I. R.]

A FRAME WITH A DOUBLE TOP-BAR.

I should like to see some older and wiser men in the bee business give their opinion on my frames as illustrated. The top-bar is the same as usual, only not so thick; and there



is a second one, a bee-space below it, made of thin stuff. This bee-space, just ¼ inch above the comb, enables the bees to pass more easily from one comb to another, and also takes the place of a bee-space on top of the frame when packing for winter. This ¼-inch strip is ripped in the middle, making two pieces out of it. I nail one on, then place my foundation in place, press the other piece against it, and nail. This holds the foundation secure. H. E. DUPLER.

Thomville, Ohio.

[Years ago the double top-bar was illustrated and described in these columns. At that time considerable enthusiasm was shown, and the Root Co. was seriously considering the adoption of a double top-bar in preference to one solid bar thicker and wider than the standards that then prevailed. ⅞×⅞. But the particular claim that was made in favor of this double top-bar was that the bees did not build burr and brace combs to it. We tested the principle, and found the claim to be on the whole substantiated; but because there were more pieces to handle, and because there was a question as to whether the average bee-keeper would be able to nail it up properly, we decided upon a frame that would be "fool-proof"—that is to say, could not be nailed up wrongly. While there was less of material in the double-top-bar frame, there was more labor in making it.

If the experience of the past is any criterion you will find the frame a very satisfactory one, although it is not necessary to have one thick top-bar and one thin one. Two bars ⅝ thick, and separated ¼ inch apart, will give practically as good results, and at the same time save some expense.—ED.]

OUR HOMES

by A. I. ROOT

He which converteth the sinner from the error of his way shall save a soul from death, and shall hide a multitude of sins.—JAMES 5:20.

Cast thy bread upon the waters; for thou shalt find it after many days.—ECC. 11:1.

In our issue for Aug. 1, 1905, I told you about meeting a boy in our county jail, who, although seventeen years of age, could neither read nor write. Some of you may remember about it. His name was Ransom G. Murray, and the title of that Home paper was, "Out of the Jail into the Prayer-meeting." Over two years have passed, and I have been so busy with other cares, and a good deal of the time with other boys, that I had almost forgotten about Ransom. A few days ago, however, my oldest grandson, who is now himself nearly seventeen years of age, said to me something like this:

"Grandpa, do you believe it is worth while to spend as much time as you do with some of the boys, say Ransom Murray, for instance? He did not turn out very well after all, did he?"

"Why, Leland, it is not proper for me to get discouraged, even if the boys do not all turn out as well as I should like to have them. My duty is to lend a helping hand and do the best I can with them, and trust God for the result. What brought Ransom Murray to your mind just now?"

"Oh! nothing particularly, only he did not turn out very well, did he? He never united with *our* church, and then he finally ran away, and nobody knows what became of him."

"Yes, Leland, it is true he did not unite with *our* church; but I never felt much discouraged about that. He did unite with one of the other churches in our town; and, for any thing I know to the contrary, he did nothing particularly out of the way for a church-member."

"But he ran away, didn't he?"

"Yes, he ran away—or at least he went away without saying a word to anybody, and his friends were all greatly worried about him for quite a spell; but when he left us so suddenly he was not in debt anywhere. His board-bill and all others were paid up, and he did not even draw the wages that were coming to him. He did not even take away his trunk and clothing. Some time afterward he wrote from Chicago, and asked one of his friends to get his pay and pack up his clothing, etc., and forward it. This was done, and we have heard nothing from him since. In regard to his uniting with some other church than ours, I am rather glad he did. Let me tell you a little story. A great preacher was once going along the streets and took an intoxicated man by the hand and lifted him out of the gutter. When he roused up enough to talk he said, 'Why, parson, don't you know *me*? I was one of your converts last winter.' 'Yes,' replied the minister, 'I think you must have been one of *my* converts; for if you had been converted to the Lord Jesus Christ you never would have got back into such a predicament as this in so short a time.' Now, Leland, if Ransom had followed *me* and united with our church I might have feared, as I often do, that the step was taken more to please me, the one who had befriended him, than because he truly felt he was 'born again.' When I learned, while in Florida, that he was going to another church, and had become a member of that church, I felt rather pleased than otherwise. In regard to leaving our employ in the abrupt way he did, it is true he finally became dissatisfied somewhat with the pay we were giving him; but as our people felt that he was getting all he was worth I suggested that he try working a while for somebody else. He did so, but did not stick to his job very long. Ransom had a peculiar disposition. He became uneasy when he was doing reasonably well and seemed to want to get out and see the world. Well, instead of being *discouraged* I expect to hear something good from the boy, even yet. Leland, did you ever hear the Bible text, 'Cast thy bread upon the waters for thou shalt find it after many days'?"

He replied that he had. When asked if he knew what it meant to cast bread upon the waters he said he did not. Then I replied:

"Well, it means that we who are followers of the Lord Jesus Christ should lend a helping hand, right or left, doing good every day as we have opportunity, without questioning whether it is going to pay or not. It is our *duty* to do it. That is what the Bible means where it speaks of casting our bread upon the waters. Now I think you know what the latter part of the text means without my explaining it, do you not?"

"Why, I suppose that it means that some time after—may be a long time afterward—you will find out or hear from somebody that what you did amounts to something after all. But do you expect to hear from Ransom?"

"Yes, I hope to hear something good from him. And since you have reminded me of him I will try to remember to pray oftener for him as well as for these other boys I have helped. But how do you come to know so much about what I did for Ransom, anyway?"

"Why, grandpa, don't you remember? I went with you one Sunday afternoon when he was in jail, and I heard you talk to him and to the rest of the boys in the jail."

After the above conversation I did pray for our young friend Ransom; but I am afraid I did not pray with very *much* faith, after all, for it was a great surprise when our youngest daughter, in New York city, forwarded us a letter she had received from Ransom. Before giving you the letter, however, let me explain that when I told the folks at home about Ransom, that he could

not even write his own name, our daughter Carrie, who had been several years a teacher, especially in the mission fields, volunteered to give him some instruction. Ransom, however, did not make very much progress. He explained his lack of education by saying he had a fall when he was a child, and injured his head. There was a doctor who said there was no use in sending him to school —he was not like other boys, etc. Carrie admitted that he seemed to be rather peculiar, and said it *was* a hard matter for him to concentrate his mind. She succeeded, however, in getting him to read so he read that one verse in the Sunday-school lesson that I told you in that story long ago. Well, now, here is the letter that Ransom wrote to his old friend and teacher:

My dear friend, Miss Root;—As I have not heard from you in over a year I thought I would write and see if you were still in good health. I should like to hear from you and your folks, as I am longing to hear from my Ohio friends with whom I used to have so much pleasure. I am many miles away from them all, but I have not forgotten them. Since I left there I have seen lots of the country and some of the wild and woolly West. I spent the last part of last summer in South Dakota. It was about 30 miles between houses. I spent the last nine months in Nebraska and Colorado. I spent three months in Denver. I am at present working in Havelock, in the C. B. and Q. shops. Havelock is seven miles from Lincoln and thirty-two from Omaha. The wor k is all piecework. I am making all the way from two to three dollars a day. I am working as a boiler-maker helper.

As it is about church time I shall have to close. Please write and let me know all the news from the shop and from all the rest of you.

Hoping to hear from you soon I remain
Yours truly. R. G. MURRAY.

Havelock, Neb., Aug. 25.

Now, the above letter was quite well written for a boy of eighteen or nineteen; but what surprised me most was that there was not a badly spelled word in the whole letter; and it really *was* one of my "happy surprises." Ransom does not tell us very much about how he is holding on to his religion; but he does say, "It is about church time." I might think that he did this because he thought it would please us, and that, may be, he is not attending church very much after all. But this thing is certainly true: The boy who could not write nor read well enough to sign his own name now writes a very fair letter; and the letter gives evidence all the way through that he has been growing in wisdom and in grace. May the Lord be praised that this little bit of casting our bread on the waters brought such a crop. Come to think of it, more is due to Carrie Bell than to myself, for I think she spent much more time with him than I did. When I found Ransom there in jail he had commenced already at the age of seventeen to steal rides on the cars and going about with a circus or show, and was in a fair way to turn out a tramp and perhaps a criminal. Just a little effort on our part started him in the better way.

Once more, this little letter helps to bring out the wonderful beauty and encouragement and inspiration there is in the words of our first text: "He which converteth the sinner from the error of his way shall save a soul from death, and shall hide a multitude of sins." Who knows, or who can compute the trouble and expense to our nation that is saved by turning just *one* boy away from bad habits and vicious ways?

Before closing I wish to say just a word about that statement from the doctor that Ransom could not study because his head was injured. There is quite a little of that sort of talk going on. A certain boy thinks he can not get an education because he is not "built that way"—that some boys are born to be scholars, and some are not. My friend, do not believe a word of it. It is a suggestion of Satan. Along the same line a young man tells you he inherits an appetite for drink and tobacco, and it is the fault of his parents and not his own. Such suggestions come from the prince of darkness—from Satan himself. If it *is* true that some of us are handicapped in some respects compared with others, God has given all a chance. When I was at school I learned very easily. I loved books, and could master them without very much hard work. Now, the truest friend I have in this whole wide world was unlike me in that respect. It was hard for her to get her girlish ideas pinned down to her studies; and she says she did not make as good use of her time as she might have done when her parents labored hard to keep her in school; but when she had some boys and girls of *her own* she began to appreciate what she had missed; and her determination that *her* boys and girls should go to school and improve their time was almost a fierce one. She was so set in giving the children an education that she went over their lessons with them and followed it up for years, and in this way made up for what she neglected before she was married. For a good many years I began to think myself greatly her superior in point of education; but after our five children had grown up and been piloted through their lessons (even when they went *away* to school) their indefatigable mother had got to be ahead of myself in many points of education —especially a good common-school education —and she began to straighten *me* up, not only in my talk, but in my writings here in these pages. Mrs. Root has always been a *worker;* and although she is now toward seventy years of age she is a worker still; and with the multitude of periodicals we have now in such plenty she keeps abreast with pretty much all that is going on in this world of ours.

Now a word more about people who are prevented from getting an education by heredity or some physical trouble or something of that sort. When I last visited my sister in Manistee, Mich., she gave me a little tract that said on the outside of the cover, "Directions for Beginners in Practical Christianity, with Six Days' Course of Treatment." I wish to give you the "treatment" for just one day:

MONDAY.

[DENY]—I deny the belief that I am a child of the flesh and must suffer the sins of my forefathers "even unto the third and fourth generation." Perish all such ignorant claims.

I deny that I inherited from my ancestors lustful passions and sensual appetites.

I deny the belief that the race can reflect upon me lustful passions and sensual appetites. I deny the belief that those with whom I associate can reflect upon me lustful passions or sensual appetites. I deny my own ignorant belief in such erroneous ideas.

[AFFIRM]—God is spirit, and I—the divine image—am spirit. I am born of God. God is too pure to behold iniquity, and I am, therefore, pure being, without a tinge of lust or passion.

Now, even if the above does smatter a little of Christian Science I believe it is, in some respects, true. That is, even though we may be handicapped to some extent by the sins of our ancestors, we may, through Christ Jesus, rise above these hindrances and finally triumph over sin and Satan.

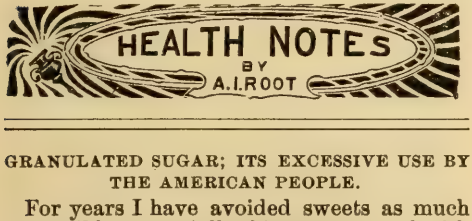
May the Lord be praised that it is our privilege in the pathway of life to lead others out of darkness and unbelief into the light of the gospel of Christ; for in so doing we shall "save a soul from death, and hide a multitude of sins." Therefore let us not be weary, but let us continue casting our bread upon the waters, having faith that the great Father of all will be able to find it after many days.

Permit me to close this Home paper with a kind letter that came while I was preparing to dictate these words:

OUT OF THE DARKNESS AND INTO THE LIGHT.

I never wish to be without GLEANINGS in my home as long as it holds to its present attitude for righteousness. It is eagerly sought for by all members of my family every time it comes and the Home articles written by A. I. Root are one of the principal agencies in making me forsake a life of sin, and led me to the feet of my blessed Redeemer. May the Lord be praised for his life and the good he is doing.

Mattoon, Wis., Oct. 19. MYRON H. HILL.



GRANULATED SUGAR; ITS EXCESSIVE USE BY THE AMERICAN PEOPLE.

For years I have avoided sweets as much as possible—especially things sweetened with *cane* sugar; for I have found that for me such things are unwholesome. At home Mrs. Root cooks all sorts of fruit, especially for myself, without the addition of sugar; but when I am away from home, of course I take what is set before me. A great many times I just taste my sauce and fruit because I dislike so much sugar. The principal reason is, however, that it is sure to impair my digestion. When I feel hungry for something sweet I take it in the form of sweet fruits. I am sure the fashion of giving our children so much candy, and, worse still, sweetened drinks at our soda-fountains, is responsible for the fact that even our *children* have to be drugged and doctored. Maple sugar seems to agree with me much better than granulated sugar. Just recently, however, I was laid up nearly all one day as a result of eating, say, a tablespoonful of maple sprup and hot cakes for breakfast. If I let sugar and sweets alone I get along very well, and pride myself on being in excellent health for a man of my age. Honey I find rather better than sugar; but unless I am going to have some vigorous exercise outdoors I am compelled to give even honey a pretty wide berth. This matter was brought to mind by the following letter:

Mr. Root:—A leaflet came to us a few days ago entitled "The Dietetics of Sugar." It is sent out by the Sanitas Food Co., of Battle Creek, Mich. For all who are interested in a better mode of living it would be of inestimable value; and if you have not seen one I should be glad to send you this one. I think the entire article should be published in all bee-journals, and let all bee and honey people see that their local papers have a copy of it, and induce them to print as much as possible of it. It would certainly be a great advertisement of honey.

San Antonio, Tex., Aug. 28. J. H. CALKINS.

Perhaps our good friend is putting it rather strongly; but after reading the booklet mentioned I should not wonder if he were pretty nearly right. Just try cutting off some of the sugar, friends, and see if you do not feel better; and especially avoid putting sugar in your coffee—that is, if you must drink coffee. If you are subject to headache, sour stomach, etc , try cutting off the sugar.

LIVING TO BE 120 YEARS OLD.

There is a department in the *Sunday School Times* that I think is headed "A Business Man's Talk to his Class" Whether I have got it right or not, there is more common sense packed into a few sentences in it than almost any thing else I ever got hold of. In studying my Sunday-school lesson a few weeks ago I clipped out the following. See what you think of it:

His eye was not dim, nor his natural force abated.

That is what he got for living in the country-side out among the hills. Moses kept his own laws—"took his own medicine," as you fellows say. The way to keep young is to keep from getting sick; the way to keep from getting sick is to take Moses' preventive. Here's the formula which God gave him, and there's no patent or secret about it (Exod. 15:26). The next thing to do is to fall in love—with God's out-of-doors. Then let somebody else do all your worrying for you (I. Pet. 5:7). No reason why all of us should not be young at 120 also. Moses did not smoke cigarettes, nor breathe coal-smoke, street dust, and sewer-gas, nor break all the laws of hygiene, nor abuse his stomach with late suppers and swell cookery. Country skies, plain living, high thinking, and all aboard for Hundred and Twenty!

I thought at first, friends, that I would hunt up and quote the references from Exodus and First Peter; but if omitting some of the reference will induce some of you to get your Bibles and hunt up these texts I think more good will be done. I want you to see how much biblical authority T. B. Terry and myself have for our vehement plea for pure air, pure water, and such food as God intended for us.

A HOME-MADE "SWEAT-BATH" CABINET, ETC.

As I read GLEANINGS every month I have become much interested in your health notes, etc., and could not resist the temptation of giving you some of my experiences along the same line. About fifteen years ago my wife was visiting a doctor friend in Cincinnati, and ran across a medical work that advocated sweat baths. She was so taken up with it the doctor

made her a present of the book. I was sick when she came home, and, of course, was the first "victim;" and, "oh, my!" how quick I got well!

The improvised arrangements were a solid-bottom chair with quilt or blanket folded to sit on and hang down to the floor in front; then two or three blankets folded around the patient from back to front and front to back, reaching to the floor, then have a tin cup a third full of alcohol (wood alcohol is just as good); light it and set it under the chair. When perspiration starts, tie a wet cloth around the head and give the patient plenty of water to drink. Don't keep the patient in longer than twenty minutes; then wash off under the blankets and cool off gradually. If taken at night, going to bed immediately, there is no danger of taking cold, and it's equal to a Turkish bath. My! how the epidermis does roll off, even if taken every week!

After the bath cabinet came out I went to see them and took the measurement with my eye, and made one which cost $3 00 (they wanted $10 00 for theirs), and mine had much better oil-cloth. The cabinet is much the best, as it allows the patient to do his or her own washing.

We raised a family of four boys, and none of the family ever had the grip, although our neighbors had three different runs of it. If any one were feeling badly he took an enema, as large as possible, to flush out the colon; took a sweat bath, and went to bed. The next morning he would get up feeling fine.

Right here is another thing. Flushing the colon I found to be one of the greatest benefits to any one threatened with a fever. It works wonders—will cure almost all cases of indigestion, and that scourge among babies (summer complaint) it will cure almost immediately.

The above way of taking a sweat bath would have some advantages over your Michigan way by not having to work to get up the perspiration, and it can be taken in winter as well as in summer; but in winter one wants to be very careful and wash off in cool water at the last to close the pores, and not go out for one or two hours after cooling off. Down here we have to do very little work to get up the perspiration and the last two months all I have had to do was to go out to feed and water the chickens in the middle of the day, and I am ready for the bath.

I was born in Ohio, and lived there for fifty years, so I know all about your Ohio winters.

I want to tell you about my bees. I took them on as a side line three years ago, and increased up to seven hives. I had an accident in January, and had my right arm broken; so when bee-time came I was no good at lifting or any thing else; but the better half took pity on me and donned a hat and veil and marched into the yard and helped through the season. Now we have 21 fine stands of bees, and have taken a thousand pounds of as fine honey as your best white clover. How's that? J. H. CALKINS.

San Antonio, Texas, Aug. 28.

Temperance.

THE POISON OF THE BEE-STING AND THAT OF THE DRAMSHOP—ARE THEY TO BE COMPARED?

Mr. Root:—I read in GLEANINGS for Sept. 15, p. 1218, "May God hasten the day when they be swept from every State of the Union; and, better still, from off the face of the earth." I personally thank you for your expression. Now, Mr. Root, if one of your bees would sting one of your neighbors, and he should die from the sting, should therefore every bee-keeper be wiped off the face of the earth? Don't you know that life is just as sweet to the Pennsylvania hotel-keepers as it is to the Ohio manufacturer? Give me your explanation on this point, and we go still further. Are you, or do you pretend to be, a good Christian? If so, do you not know that Jesus Christ came into the world to save every soul? He did not come to wipe them off the face of the earth. Who are you, anyhow? We people around my home have churches, the Bible and the law of Pennsylvania. If one man abuses another he has to suffer the penalty of the law; but we are not going to wipe every thing off the earth. If you are prosperous in your business, thank God that he has done you so much favor, and pray that he may do so in the future; and so everybody else should be thankful for all he possesses, for every thing we have is the gift of God. If he withdraws his hand we shall soon all be "wiped off the earth." JOSEPH SCHATZLE.

Trachsville, Pa., Sept. 23, 1907.

Well, my good friend, you have got me in a corner, have you not? To begin with, I think I can say as you do, and "personally thank you" for your illustration; and I thank you, too, for your very kind and Christianlike letter. I do realize that hotel-keepers who have been furnishing beer to their patrons are a different class of people from those who ordinarily run saloons. Yes, it is true a few people have died from the effects of stings, although such cases are very rare; but, my dear friend, have you not failed to consider that he who dies from a bee-sting dies an honest death? He is in no way to blame, and no slur rests on his reputation as it does on that of one who fills a drunkard's grave. If the injury from bee-stings were responsible for nine-tenths of the crime, or something like it, committed in this land of ours, do you think I would continue to be a bee keeper or to publish a bee-journal? If you have been reading GLEANINGS and other periodicals you certainly must know that the world is beginning to wake up to the fact that our jails and penitentiaries are almost all kept up because of the drink-traffic*. Yes, indeed, Jesus Christ did come into this world to save every soul, as you put it, and not to wipe them off the face of the earth; and, my dear brother, in my expression to which you allude I never thought of such a thing as wiping the saloon-keeper *himself* off the face of the earth. God forbid! I would wipe out the saloon and the saloon business that he might be compelled to earn his money in some livelihood that is not a damage to his fellow-men. You say we have the laws; but you do not seem to know that, at the conventions of saloon people, their public speakers have repeatedly declared they could not make a living if they were obliged to obey the law. It is because the saloon business demands that the law shall be trampled under foot, not only on Sunday but every other day and *night*, that our nation is waging such war against it. I can give a most hearty amen to all your closing words; and if it should ever be my good fortune to go to your part of Pennsylvania I shall most assuredly try to put up at your hotel; but unless I go pretty soon, dear friend, I do not believe I shall find a bar attached to it. May God help you out of the darkness, and into the light that is breaking, not only throughout our land but over the whole wide world, along different lines in the way of banishing intemperance.

*Lately there has been a tremendous excitement several times in our region in regard to mad dogs biting people right and left. In one case several schoolchildren were bitten, and death has resulted in some cases. Now, these children died an honest and innocent death. It was death of the body and not death of the soul; and yet we have been severely censured by the liquor-dealers because we have sometimes claimed that a saloon with its attendant gambling-dens and other things was like letting a mad dog go loose where children were near and likely to be bitten.

GORDON, VAN TINE SAVE YOU ½ The Dealer's Price ON FLINT-COATED FIRE-RESISTING ROOFING

Yes, sir, we will actually sell you at one-half local dealers' prices, the most **durable** roofing that's made—Gordon, Van Tine Flint-Coated, Fire-Resisting Rubber Roofing. Don't even **think** of buying shingles or any **other** kind of roofing material till you have read every word of this advertisement and have thoroughly examined and tested for yourself a **free** sample of Gordon, Van Tine Roofing; till you have convinced yourself **beyond any doubt** that Gordon, Van Tine Roofing has every **good** point we claim for it and that it hasn't any bad points at all.

We Sell DIRECT to You

We sell Gordon, Van Tine Roofing to you and to YOU **only**—the man who **uses** it. You see that cuts out the **Jobber's** profit, the **Wholesaler's** profit and the **Retailer's** profit, and you only pay one **small** profit on the original cost of manufacture.

GORDON, VAN TINE ROOFING
Protects House, Barn, Chicken House, Sheds, Etc.

Roof and side your buildings with Gordon, Van Tine Roofing now—before cold weather comes, so as to protect them from snow, sleet, cold and fire. See that your horses, cattle and other stock is well-stabled and kept comfortable. Stock that's kept dry and warm can be wintered on a very small amount of grain and roughness.

Gordon, Van Tine Roofing Protects You from Storms, Fire and Lightning

When your buildings are covered with Gordon, Van Tine Flint-Coated Roofing there is absolutely no possibility of their being set afire by flying sparks or cinders. Gordon, Van Tine Roofing is fire resisting It has nothing in it like tar or anything else that will catch fire. Insurance men everywhere now recognize the fact that buildings covered with Gordon, Van Tine Roofing very seldom catch fire and, for that reason, your fire and lightning insurance rates are lessened from one-third to one-half.

Make These Tests Yourself and Be Convinced that Gordon, Van Tine Roofing Is the Best

Take a piece of Gordon, Van Tine Flint-Coated Roofing and bend the edges so it will hold water; now put it in a warm place and observe that the water all evaporates, but **none** goes through the roofing.

Soak a piece of this roofing in muriatic or sulphuric acid or in ammonia or lye, and note that it is not harmed at all by such powerful chemicals. Smell a piece of Gordon, Van Tine's Flint-Coated Roofing and see if you can detect an odor of tar. You can't, of course, because there is no tar in it

Our Roofing Guarantee Backed by $300,000.00

We, the Gordon, Van Tine Co., guarantee every roll of Gordon, Van Tine Flint-Coated Roofing to be absolutely **water proof** and **fire resisting.** We guarantee that the generous supply of **cement** and **roofing nails** will be sufficient to properly lay the roofing. On request with each sale we are willing to give a written guarantee as follows:

3-Ply Roofing we will guarantee to last AT LEAST 10 years.
2-Ply Roofing we will guarantee to last AT LEAST 8 years.
1-Ply Roofing we will guarantee to last AT LEAST 5 years.

This unqualified guarantee—backed by $300,000.00 and our business reputation—stands behind every roll of Gordon, Van Tine's Flint-Coated Roofing. Write to any bank in Davenport or learn through your local banker that when you do business with the Gordon, Van Tine Co. you are dealing with one of the largest and most reliable firms in the United States.
Gordon, Van Tine Co., Davenport, Iowa

We Save You Freight on Your Roofing

We have established Warehouses at the following points:

Philadelphia Memphis Minneapolis
Chicago Kansas City Davenport

By doing this we enable you to get Gordon, Van Tine Roofing promptly and we save you a **large amount** of freight charges. This item of saving alone is well worth considering.

Why Gordon, Van Tine Roofing Lasts So Long

Gordon, Van Tine **Flint-Coated** Roofing is made from long-fibre wool felt, and is soaked, mind you, in hot asphalt at a temperature twice as hot as boiling water.

This excessive heat separates the pores of the wool felt, and the torridly hot asphalt runs into these pores and fills them so completely that no liquid can ever pass through the material when it cools and the pores have closed. Then, with heavy modern machinery, this roofing is permanently coated with **flint**, so that the natural wool fibre soaked in asphalt can never crack, bake, rust or burn. Read our **personal guarantee** backed by $300,000.

As Easy to Lay as a Carpet

All you need to lay this roofing with is a hammer. Remember, we furnish FREE with every roll of roofing plenty of good cement and plenty of long, non-rusting nails.

We tell you just how to lay your roofing around chimneys, how to make valleys, flashings, etc. The work is so simple and easy that it is no trouble to lay Gordon, Van Tine Roofing so that it will not leak, become wrinkled or get loose.

Gordon, Van Tine Roofing Never Has to be Reflinted or Regraveled

Ordinary roofing—the kind that many local dealers sell—usually has to be resanded or regraveled after a short exposure to heat and rain—but Gordon, Van Tine's Flint-Coated Roofing is so thoroughly flinted by heavy pressure machinery that you never have to re-cover it.

PRICES

Per square of 108 square feet.

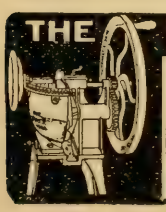
R 350—1-ply, per square . $1.41
R 351—2-ply, per square . 1.96
R 352—3-ply, per square . 2.29

FREE Roofing Book and Samples to YOU

Order from this advertisement or write to us at once—today—and say that you're interested in our Flint-Coated, Fire-Resisting Roofing. Then we'll send you our new Roofing Book and a generous sample of 1-ply, 2-ply and 3-ply roofing so that you can see for yourself that it's just as good and durable as we claim it is.

Now—**before you lay this paper away**—send us your name and address, and we will promptly mail you this valuable Roofing Book and Samples of our Roofing. **Send No Stamps.** Address us—

GORDON, VAN TINE CO., 417 Case St., Davenport, Iowa



THE HUMPHREY
GREEN BONE and VEGETABLE CUTTER

will save half your feed bills and double egg yield. Guaranteed to cut more bone, in less time, with less labor, than any other. Send for Special Trial Offer and handsome catalogue.

HUMPHREY,
Mine St. Factory, Joliet, Ills.

$5 NO MONEY IN ADVANCE AND UP

The "Dandy" is the easiest operated, best built, fastest cutting green bone cutter made. Sold on 15 days free trial with a broad guarantee. If it suits keep it, if not, send it back. Free catalog.

Stratton Mfg. Co, Box 54, Erie, Pa.

JOBBERS FOR
Central Pennsylvania
. . . for . . .

ROOT'S GOODS

TRY THE DANZ.
COMB-HONEY HIVE

The Danzenbaker hives I got last season have given splendid satisfaction; in fact, I have kept my bees outside this winter, which is seldom attempted in Manitoba, and up to date they have come through in splendid shape. I think the hive did it.
Yours truly, LAURENCE C. CLARKE.
Morden, Man., March 5, 1907.

Send for catalog. Best shipping facilities in the State.

Frank W. Prothero
Dubois, : : : Pennsylvania

Northwestern Bee-keepers!

We are headquarters for the ROOT supplies for the States of Montana, Minnesota, the Dakotas, and Western Wisconsin.

You can save freight by ordering from this branch. A complete line of bee-keepers' supplies always in stock.

Secure a catalog at once.

BEES and QUEENS.—Your orders will be attended to.

The A. I. Root Company
H. G. ACKLIN, MANAGER
1024 Mississippi Street, St. Paul, Minn.

At St. Louis

On a Line

to all points in the South and Middle West.

Send for our free illustrated catalog of

Root's Bee-supplies

We sell at factory prices.
Send us a trial order.

Beeswax Wanted.

Blanke & Hauk Supply Co.
DEPT. B,
1009-11-13 Lucas Ave. **St. Louis, Mo.**

Manufacturers and Jobbers of Dairy, Creamery, Ice-cream, and Poultry Supplies.

North Texas . .

. . Bee-keepers

will find Dallas the best point from which to purchase supplies. We have a carload of **ROOT'S GOODS IN STOCK,** and sell them at the Factory Prices. Don't forget that we can furnish any thing in the way of Field or Garden Seeds, Plants, and Poultry Supplies. Our large illustrated catalog for 1907 free on application. Mention GLEANINGS when you write. . . . . .

Texas Seed and : Floral : Company
Dallas, : : : : : Texas

What's the Matter With Hilton?

WHY, HE HAS A LOT OF SUPPLIES HE WANTS TO LET YOU HAVE WITHIN THE NEXT SIXTY DAYS AT A DISCOUNT, TO MAKE ROOM FOR THE NEXT SEASON'S GOODS. JUST SEND A LIST OF WHAT YOU WANT AND GET ESTIMATE. IF YOU HAVEN'T HIS FORTY-PAGE ILLUSTRATED CATALOG, SEND FOR IT AT ONCE

CASH OR SUPPLIES FOR BEESWAX AT ALL TIMES

GEORGE E. HILTON
FREMONT, :: :: MICHIGAN

TO THE

BEE-KEEPERS OF CANADA.

WE are pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we do not offer every thing listed in their catalog we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

E. GRAINGER & COMPANY,
Deer Park,
Toronto, Ontario, Canada.

CANADIAN AGENTS FOR
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

BINGHAM BEE-SMOKER AND KNIFE.

What catalogs say:

The A. I. Root Co., Medina, Ohio: "The cone fits inside the cap so the liquid creosote runs down inside of the smoker."

Chas. Dadant & Son, Hamilton, Ill.: "This is the smoker we recommend above all others, and it has given universal satisfaction."

G.B. Lewis Co., Watertown, Wis.: "We have sold these for a good many years, and never a complaint. They include all improvements."

Marshfield Mfg. Co., Marshfield, Wis.: "The original direct-draft Bingham Smoker is the best smoker made."

The Bingham Smokers and Honey-knives have been the standard in America and every European country 29 yrs. There is no *smoker* so *old*, so *new*, so *perfect*. Accept thanks for 30 yrs. liberal patronage.

BINGHAM SMOKERS. Name.	Size of barrel.	Price of 1	Price of 3	Postage.
Smoke Engine	4-inch	$1 25	$3 45	25
Doctor	3½ "	85	2 40	25
Conqueror	3 "	75	1 95	25
Large	2½ "	65	1 65	25
Little Wonder	2 "	50	1 35	15

Three larger sizes in heavy copper at 50c ea. extra.

Bingham Uncapping-knife, 70c; postage 10c.

T. F. BINGHAM, FARWELL, MICH.

Northeastern and New England
BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine
MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

1884 **1907**

Root's Goods always in stock

FOR YOU

Twenty-two successful years manufacturing bee-supplies and raising Italian bees and queens. . . . . Root's Goods in Stock.

J. M Jenkins
Wetumpka, : : Alabama

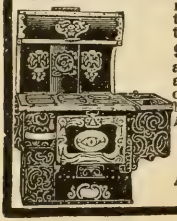
SEND FOR OUR FREE STOVE BOOK

If you want a stove or range of any kind for any purpose, let us send

"A Kalamazoo Direct to You"

TRADE-MARK REGISTERED

at actual factory prices. You save from $5 to $40, because you keep in your pocket all the dealers' jobbers' and middlemen's profits. You run no risk, because we pay the freight and sell you on **360 Days Approval** You not only save money but you get a stove or range of exceptionally high quality. Made of the best pig iron and steel of the highest grade, by the most skilled workmen, in one of the most modern and best equipped stove factories in the world. Every Kalamazoo is carefully inspected and we **know** it is right. If not, you get your money back without a quibble. You cannot get a better, no matter how much extra you pay. Why not save all the dealers' profit? Is it not reasonable to suppose that you can save money by buying direct from our factory!



Send Postal For Catalogue No. 416. Compare Kalamazoo Quality and Kalamazoo Prices with others—and save your money. Our line is complete, embracing stoves and ranges of all kinds for all domestic purposes,—for the home, school, church, halls, lodge rooms, etc. Hotel ranges for restaurants, boarding houses, clubs and camps. Gas stoves and ranges for cooking and heating

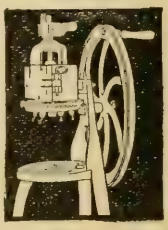
ALL SOLD AT ACTUAL FACTORY PRICES.

Kalamazoo Stove Company, Manufacturers, Kalamazoo, Mich.

All Kalamazoo cook stoves and ranges are equipped with patent oven thermometer which saves fuel and makes baking and roasting easy.

You Can Get More Eggs

And Save Feed Bills.



GREEN BONE fed raw gives fowls the food they need to take the place of bugs and worms. It has more than **four times** the egg making value of grain: is rich in protein and other elements that make **more eggs**, fertile eggs, livelier chicks, earlier broilers, heavier fowls. Cut it with

MANN'S Latest Model **Bone Cutter**

Turns easily; cuts rapidly; never clogs: automatically adjusts itself to any one's strength. Cuts all bone with all adhering meat and gristle.

Ten Days Free Trial We ask no money until you try the machine. If not satisfied, return at our expense. Write for catalogue.

F. W. MANN CO., Box 37, Milford, Mass.

SPRAY PUMPS

"TAKE OFF YOUR HAT TO THE MYERS"

MYERS

The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers. Pumps, Hay Tools & Barn Door Hangers. Send for catalog and prices.

F. E. Myers & Bro. Ashland, Ohio.

HOW TO GET MORE EGGS

Help your hens. Feed them fresh cut **green bone** and you'll get more eggs—you'll get eggs in winter when eggs are worth while. The **Standard Green Bone Cutter** prepares bone right for feeding, quickly—easily. Prices $8.80 and up; sold on **guarantee**—sent on **trial**. Write for catalog.

Standard Bone Cutter Co. Milford, Mass.

FARMERS' NAMES WANTED.

Ten thousand Michigan farmers, and *The Gleaner*, Michigan big farm paper, have established a Farmer's Clearing House in Detroit, where all their farm-produce is shipped and sold by them direct to the consumers at almost double the prices previously obtained. It is the greatest move ever undertaken by the farmers of this country, and is the advance movement which farmers must take in order to protect themselves from being robbed of their just profits by the middlemen who have lived upon them like parasites for many years. *The Gleaner* is the official organ of these farmers. It is published twice a month and the subscription price is 50 cts. per year, but if you will send us ten cents in stamps or currency, and 25 farmers' names and addresses, we will send you our paper for one year, and you can then keep posted how the ten thousand farmers are progressing with this great enterprise of theirs. Address

THE GLEANER, 915-917 Majestic Bldg., Detroit, Mich.

CUTS USED IN THIS MAGAZINE ARE FROM THE MUGLER ENGRAVING CO. MUGLER BLDG. CLEVELAND, OHIO.

Texas Bee-keepers!

Crop Conditions. A careful reading of reports, and inquiry into the various large markets of this and nearby States prior to November 1, show that practically the entire crop of comb and extracted honey produced the past season had already been sold at excellent prices, leaving a clear market, with strong demand for next season.

Fall Rains. These have been reported from nearly all sections of the State, and bees have gone into winter quarters in better condition than for several years past. All of these things point to a good season for 1908.

Supplies. In order to serve the bee-keepers of this State still better than I have for the five years past, I have arranged with my brother, Max Toepperwein, to enter into business with me, as my growing business demands more time than one person can well give it. With his assistance, and other competent help in office and warehouse, I can promise my friends prompt attention to and careful filling of their orders.

First-class Goods. We count it a privilege to announce to the bee-keepers of this State that we have made another contract for the well-known line manufactured by The A. I. Root Co. We do not offer an ill-assorted lot of worthless stuff to our patrons, but the finest goods in the land. Besides buying for spot cash in large quantities we get the most reasonable terms, and base our prices accordingly.

Quality. See what Mr. Tough says about the Root-Hoffman frames:

June 12, 1906.

Gentlemen:--I have just finished unpacking the last box of supplies and must say they are VERY SATISFACTORY. The Hoffman frames especially are extra fine, and I am just wondering how I was so foolish as to buy the thousands I already have from that other firm. After seeing yours I have made up my mind that I would much rather buy yours than take theirs for a gift. This is no jolly, but the simple truth.

Very truly yours,

James Tough,

1013 Clarence Ave., Oak Park.

Agents Wanted. We want to secure a live hustling representative in every county in Texas where we are not now represented. We prefer a bee-keeper centrally located, and one able to pay cash down for the goods he will order and carry in stock. To those who mean business we offer good inducements.

Beeswax. We are in the market for beeswax at all times. At present we pay 25c cash, or 27c in trade for pure average beeswax delivered at San Antonio.

Udo & Max Toepperwein

1322 South Flores St. San Antonio, Texas

Let us send you to-day

These Three Books FREE on Farmers' Phones

They tell you how to get in touch with the world so you can get the latest market or weather reports, summon the family doctor, or call a veterinary for your live stock—quick action on any one of these emergencies would repay you many times the cost.

There are a hundred other uses at your service by installing a telephone system of your own, paying only a small amount for materials—no royalties. Our plans are so simple you can do the work yourself.

10 Men Can Organize a Successful System

by using Stromberg Carlson telephones and equipments and your telephone service will cost you less than a cent a message.

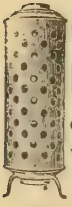
Our free books tell you how to organize your company, and gives all other needed information such as getting township and city highway permits to set poles and string wires. In asking for "How the Telephone Helps the Farmer," ask for 21st edition.

Stromberg-Carlson Telephone Mfg. Co.

Address nearest office.

Rochester, N. Y. Chicago, Ill.

See our Exhibit at the Electrical Show, Chicago, January 13-25. 1908. Space 7-8, Section L.



SAVE HALF YOUR FUEL

BY USING THE

Rochester Radiator

Fits any Stove or Furnace.

Guaranteed to do all we claim or money refunded.

Write for booklet on heating homes.

Rochester Radiator Co.,

50 Furnace St., Rochester, N. Y.

Price from $2.00 to $12.00

For hard or soft coal, wood or gas

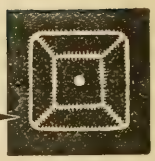
COIL SPRING FENCE

Made of high carbon Steel Wire Horse-high, Bull-strong, Chicken-tight. **Sold direct to the Farmer at lowest manufacturers prices on 30 Days Free Trial,** freight prepaid. 100 page Catalogue and price-list free.

KITSELMAN BROS.,

Box 21 MUNCIE, IND.

It adds YEARS to the life of your ROOF



Before You Roof

house, factory, warehouse, stable, barn, shed, or other building, consider

Paroid Roofing

Paroid is now and has been for years, the best ready roofing made.

Paroid Rust-Proof Steel Caps

(Patented)

add value to any ready roofing but can be had only with Paroid. They are rust-proof on both sides and, being square, have larger binding surface. They will add years to roof life.

To let you test and prove Paroid's superiority, we make this

Money-Back Guarantee

Buy one roll of Paroid, apply it to your roof. If you are not then satisfied that you have the best, we will send you a check for the amount you paid for the roofing and cost of applying.

Send For Free Samples

of Paroid, Rust-Proof Caps and name of our Paroid dealer. If you care for our book of plans for farm and poultry buildings, enclose 4 cents for postage.

F. W. BIRD & SON, Makers,

(Established 1817)

20 Mill Street, East Walpole, Mass.
1420 Monadnock Block, Chicago, Ill.
Originators of complete roofing kit and the Paroid Rust-Proof Steel Cap.

PATENTS

No attorney's fee until patent is allowed. Write for "*Inventor's Guide.*"

Franklin H. Hough, Loan & Trust Bldg., Washington, D.C.

Send for free Catalogue.

Hatch Chickens by Steam with the EXCELSIOR INCUBATOR Or WOODEN HEN

Simple, perfect, self-regulating. Hatch every fertile egg. Lowest priced first-class hatchers made.

GEO. H. STAHL, Quincy, Ill.

FENCE *Strongest Made*

Made of **High Carbon Double Strength** Coiled Wire. **Heavily Galvanized** to prevent rust. Have **no agents.** Sell at **factory prices on 30 days' free trial.** We pay **all freight.** 37 heights of farm and poultry fence. **Catalog Free.**

COILED SPRING FENCE CO.

Box 101 Winchester, Indiana

THE BEE & POULTRY INDUSTRIES DOVETAIL

and go well together

In poultry culture the main thing is health, and

Conkey's Poultry Remedies

Are the World's Standard

This is the season for Roup and the sneezing, wheezing, swollen headed fowls should be quickly restored to health, usefulness and profit. You cannot afford to experiment, so use

CONKEY'S ROUP REMEDY

Just a thimbleful in the drinking water and they cure themselves. Onr absolute guarantee goes with it, and it means your money back should it disappoint you.

Conkey's Book on Poultry Free for 4c in stamps and names of two others interested. It solves the whole poultry problem and is worth dollars to any poultry raiser. **GET IT TODAY.**

THE G. E. CONKEY CO.

315 OTTAWA BLDG , CLEVELAND, O.

Conkey's Poultry Remedies are carried by A. I. Root Co. at their branches, New York, Philadelphia, Washington, Chicago and Medina.

Joseph Horne Co.,

PITTSBURG, PA.

Samples of Dress-Fabrics.

The woman who buys her dress-materials by mail, unless she knows the goods she desires, should NOT ORDER unless she has SAMPLES before her.

In our Mail-order Department there are a number of women who do nothing else than cut up samples of dress-woolens, silks, and dress-cottons to send to people who request them.

These requests come from all over the United States. It is the SAFE way and ONLY way to order dress-fabrics. Each sample is tagged with the price and the width of the material.

The point of this article is that whatever you have in mind regarding Winter Dress-woolens, Dress-Cottons, and Silks, if you will write us we shall be pleased to forward you samples.

Hunter-Trader-Trapper

Here is a magazine that will surely interest many of our readers. It does for the trapper what GLEANINGS does for the bee-keeper, and does it well. It is just the thing for the man or boy who desires to make a little money winter time by trapping fur-bearing animals. It gives all trappers' "secrets," and indicates where to sell furs to advantage.

Hunter - Trader - Trapper

is not intended for city sportsmen with fancy guns and expensive fishing-rods. It is written by real wilderness hunters who know all about the capture of wild animals. It is a monthly, containing as much real reading-matter as the great monthlies, and far more practical. For a limited period we are making the following liberal offer:

HUNTER-TRADER-TRAPPER, 12 issues a year, . . .	**$1.00**
GLEANINGS, ...	**1.00**
Both to the same party and address, $1.50.	**$2.00**

If you desire to inspect a copy of HUNTER-TRADER-TRAPPER, write to the A. R. HARDING PUBLISHING COMPANY, Columbus, Ohio.

A New Contributor!

It sometimes seems as though the REVIEW were favored by fortune in the way of capable correspondents; and the last stroke in that direction was in securing the services of Mr. Elias E. Coveyou, of Petoskey, Mich., whose first article, of a long series, appears in the REVIEW for November.

Mr. Coveyou's experience with bees began some fifteen years ago, when he was a boy in his teens, and has been continued specially and enthusiastically ever since. He was among the first to see the possibilities of "keeping more bees," and has gradually increased his number until he now has three apiaries under his management.

His special *forte* seems to be that of short cuts—especially the invention of labor-saving devices that can be made to take the place of labor; or, at least, to multiply greatly the results of labor. For instance, when I employed an electric alarm to notify me when a can was full of honey I took one step; but Mr. Coveyou took still another, and made an arrangement that not only rings a gong when the can is full, but it *automatically closes the gate* and a bell rings continuously until the can is removed.

He is the first man in Michigan to extract a crop of honey (1906) with gasoline power for running his extractor—an eight-frame automatic. One man controls the extractor, putting in the full combs, removing the empty ones, and changing the cans when the Perfection duplicating scales say one is full, while three men do the uncapping standing along the side of an uncapping-box that will hold the cappings from 10,000 pounds of honey. He is planning to bring all of his honey home another year, and extract it there, after warming it up with steam heat.

There is no one in Northern Michigan, and I doubt if there is any one in the whole State, who has put up as much honey for the retail trade as has this Petoskey boy; and into this bottling business he has carried that same inventive spirit that characterizes his work in the bee-yard and extracting-room. For instance, he has a device that enables him to fill a whole tray of four dozen jars without moving one of them, and the flow of honey is checked only the smallest fraction of a section between the filling of one jar and another. His plans for washing, drying, labeling, and packing his jars are novel, original, and decidedly expeditious.

He is going to tell the readers of the REVIEW how he raises big crops of honey with the least possible labor; and then, more important than all, how, in the fall and winter months, he sells these crops, and thousands of pounds besides, at the highest possible price.

I have known in a general way, for some time, that this northern friend of ours was making a great success along these lines, but it was not until I had the pleasure of several days in his company this last fall, visiting his apiaries and packing-house, seeing his plans and processes put into actual practice, and making photographs of most of them, that I fully realized how far he was in advance of most of us.

In the last issue of GLEANINGS I gave you a glimpse of the REVIEW for the past few months, and, in the foregoing, you can see something of what you may expect in the future. You will always find the REVIEW full of ideas of successful men—those who have succeeded, and can tell you how to succeed.

Send me $1.00 and I'll send you the back numbers for this year, and then continue to send you the REVIEW to the end of next year—two years for the price of one. Send $2.00, and, in addition, I'll send you a copy of "Advanced Bee Culture."

W. Z. Hutchinson, Flint, Michigan

Dittmer's Comb Foundation

is the best, not because we say so, but because the bees prefer it to other makes.

DITTMER'S PROCESS IS DITTMER'S.

It has built its reputation and established its merits on its own foundation and its own name.

We make a specialty of working wax into foundation for cash.

Write for free catalog, and prices on full line of supplies.

GUS DITTMER, Augusta, Wis.

W. H. Laws says, If there is a queen-breeder who can boast of better stock let him trot out the proof. Testimonials enough to fill this book. Will give you only one. Mr. J. C. King, Washington, D. C., writes, "For two years I have had one of your queens in my apiary. Each season she has given me over 200 lbs. comb honey; last season she actually stored while other colonies starved. I have over twenty strains in my three apiaries, but yours is the best."

Now is the time to get a fine breeding queen; stock up this fall and double your crop of honey the coming season. Single queen, $1.00; 6 for $5.00. Extra select breeders, $5.00. Safe arrival and satisfaction guaranteed.

W. H. LAWS, Beeville, Bee Co., Texas.

QUEENS of MOORE'S STRAIN OF ITALIANS

Produce workers that fill the supers, and are not inclined to swarm. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Mr. W. Z. Hutchinson, editor of the *Bee-keepers' Review*, Flint, Mich., says: "As workers, I have never seen them equaled. They seem possessed of a steady, quiet determination that enables them to lay up surplus ahead of others. Easier bees to handle I have never seen."

My queens are all bred from my best long-tongued three-banded red-clover stock (no other race bred in my apiaries), and the cells are built in strong colonies well supplied with young bees.

PRICES: Untested queens, 75c each; six, $4; doz., $7.50. Select, untested, $1.00 each; six, $5; doz., $9.00.

Safe arrival and satisfaction guaranteed.

I am now filling orders by return mail.

Descriptive circular free. Address

J. P. Moore, Queen-breeder, Rt. 1, Morgan, Ky.

Moore's Long-Tongue and Golden

Fine select untested queens, $1; 6, $4.50; 12, $8. Tested, $1.25; 6, $6.50. Breeders, $3.00. Safe arrival gar'd.

Queens

W. H. RAILS, - ORANGE, CAL.

Northern New York Bee-keepers.

5 PER CENT DISCOUNT.

We have a large stock of shipping-cases and feeders, and all orders for same will be filled promptly. Beeswax and old combs wanted; cash or trade; 5% discount during the month of Nov. on every thing but cases and feeders. Comb honey wanted; write stating how put up, kind, and lowest cash price deliver'd in Watertown, N. Y.

A. H. REEVES & CO., 17 Morrison St., WATERTOWN, N. Y.

IT IS JUST OUT

Root's A B C in German

We now have on hand 1000 copies ready for distribution. This edition is a translation of the edition for 1905; but it contains some new articles that were taken from the new edition of the A B C book, which was being prepared when this translation was made. We anticipate quite a demand, as we have a good many bee-keeping friends who, while they speak English, yet the language of their fatherland is more familiar to them. We are now able to supply them with our book in their own tongue. The regular price of this work, owing to the great expense of the translation, will necessarily be a little higher than the English—viz., $1.75 in paper, or $2.00 cloth-bound.

A. I. Root Co., Medina, O.

AND ALL AGENCIES

Furnaces $15 Before shipment. Balance in three ways; on inspection, on trial, or on $10 payments. Furnace-book free.

Century Furnace Company, Box 1, Youngstown, Ohio.

THE "BEST" LIGHT

Portable 100-Candle Power light. Every lamp warranted. The most brilliant, economical light made. No grease, dirt, odor or smoke.

AGENTS WANTED EVERYWHERE.

THE BEST LIGHT COMPANY, 306 E. 5th St., Canton, O.

HONEY-JARS

No. 25, with burnished caps, $5.00 gross. Several other styles of jars in stock.

HONEY!

We have some fine thick white honey, in cans, two in a case, 124 lbs., at 9c lb.; 5 cases, 8¾c lb.; 10 cases, 8½c lb. Catalog of supplies free.

I. J. STRINGHAM,

Apiaries: Glen Cove, L.I. 105 Park Place, New York

"IF You want BEST GOODS QUICKEST, order of PEIRCE.

ROOT'S GOODS AND PRICES

EDMUND W. PEIRCE,

136 W. Main St. Zanesville, Ohio.

SAVE EXPRESS!
SAVE FREIGHT!
SAVE TIME!

by ordering your supplies in ...**Boston**

H. H. JEPSON,

182 Friend St. Phone Haymarket 1489-1

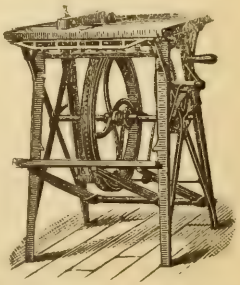
BARNES' HAND and FOOT POWER MACHINERY

This cut represents our combined circular saw, which is made for bee-keepers' use in the construction of their hives, sections, etc.

MACHINES ON TRIAL

Send for illustrated catalog and prices. Address

W. F. & JNO. BARNES CO. 545 Ruby Street, ROCKFORD, ILLINOIS.



PATENTS.

Twenty-five Years' Practice.

CHARLES J. WILLIAMSON,

Second Nat'l Bank Bldg., Washington, D. C.

Patent practice in Patent Office and Courts.
Patent Counsel of The A. I. Root Co.

Classified Advertisements.

Notices will be inserted in these classified columns at 20 cents per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Wanted, Situations.

WANTED.—Position in apiary for coming season. Have had experience EZRA HEININGER, Dexter, Mich.

WANTED.—Position on a bee-ranch; have 15 years' experience; South preferred. T. H. ANDERSON, Winthrop, Minn.

For Sale.

FOR SALE.—Yellow-sweet-clover seed 30 cts per lb. postpaid. MRS. A. L. AMOS, Comstock, Neb.

FOR SALE.—Opaline honey-jars, all kinds; send for price list. HAROLD E. SHORE, Germantown, Pa.

FOR SALE.—Fine job-printing outfit. C. A. STEBBINS, Broad Creek, Va.

FOR SALE.—Homestead farm crops in their season, consisting of honey, grapes, pears, apples, etc. C. J. BALDRIDGE, Kendaia, Seneca County, N. Y.

FOR SALE.—80,000 black-locust insulator pins for telephone and telegraph; will sell them cheap. Apply to D. W. SWITZER, Roebuck, S. C.

FOR SALE.—Scotch Collie pups. Pure bred, of registered stock; finely marked. Satisfaction guaranteed. Males, $10.00; females, $7.00. F. A. KRAUSE, Ridgeland, Wis.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1907 send your name and address to FRANK S. STEPHENS, (Root's Goods.) Paden City, W. Va.

FOR SALE.—Seeds of honey-plants, yellow and white sweet clover, catnip, motherwort, cleome, seven-head turnip, Chinese mustard, touch-me-not, wild cucumber, etc.; 5c per pkg. H. S. DUBY, St. Anne, Ill.

FOR SALE.—One 200-egg Globe incubator and two 200-chick brooders. First-class shape; guarantee them to give satisfaction. Cost me nearly $50.00; will take $25.00 cash. THEO. W. FLY, Coffeyville, Miss.

Real Estate for Bee-keepers.

FOR SALE.—Four town lots with 54 colonies of Laws' Italian bees; all tested queens, introduced this summer. Material and fixtures for comb and extracted honey; fine location with plenty of bee-pasture. Address owner. LOCK-BOX 161, Central Point, Ore.

FOR SALE.—Five-acre tract, good house, barn, honey-house, and improvements; some fruit; 200 colonies bees, all in eight-frame hives; 400 supers. Bees averaged better than $6 per colony this year; fine climate, close to city of 7000. For particulars address L. C. MCCARTY, Longmont, Colo.

Poultry Offers.

FOR SALE.—Indian Runner ducks. Choice stock. Write me your wants. KENT JENNINGS, Mt. Gilead, O.

Post Cards.

POST CARDS.—Sample package of 6 beautiful new Christmas and New Year cards, with descriptive circular, postpaid, 15c; 12 for 25c. Special prices on larger quantities. M. T. WRIGHT, Medina, Ohio.

Bees and Queens.

FOR SALE.—16 colonies of bees in ten-frame hives, with supers, at $2 90 per colony, f. o. b. Muscatine. HARRY G. KLAFFENBACH, Muscatine, Iowa.

FOR SALE.—On account of poor health and failing eyesight, I offer to sell 30 or more colonies of bees, in heavy chaff hives, in very good condition for wintering, at $4.00 per colony. For further particulars write to D. W. W. HODSON, Box 13, Underwood, Clark Co., Ind.

Wants and Exchange.

WANTED.—500 colonies of bees in Texas, Arizona, or California. N. E. MILLER, Box 373, Logan, Utah.

WANTED.—To buy and run on shares 500 colonies of bees in Southern California. HARRY WEBER, Arrowsmith, Ill.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price. OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

WANTED.—Names of parties having bees to sell in South. Give price. Would like to correspond with bee-keepers on or near the Ohio, Cumberland, and Tennessee rivers. W W. CRIM, Pekin, Ind.

WANTED.—500 colonies of bees on shares in Iowa for season of 1908; or will buy if prices are right. Prefer to run for extracted honey. Will run bees of different parties; 14 years' experience. Address VIRGIL WEAVER, Baldwin, Ky.

Honey and Wax For Sale.

FOR SALE.—15 cases clover comb honey. F. M. MAYBERRY, Lederachsville, Pa.

FOR SALE.—Fine white honey, two cans in case, 124 lbs. at 9 cts. per lb.; 10 cases, 8½ cts. Sample, 10 cts. I. J. STRINGHAM, 105 Park Pl., New York.

FOR SALE.—Choice table honey, heavy body, fine flavor, aster-buckwheat blend; 60-lb. cans, $5.00 each. Inquire H. M. WEST, N. Kingsville, Ashta. Co., O.

FOR SALE.—Strictly white-clover fancy comb, $4.00; No. 1 comb, $3.50; No. 2 comb, $3.00; amber, $3 50 and $3.00; in strawed carriers. Extracted, 11 cts. in 60-lb. cans. Sample 10 cts. J. C. STEWART, Hopkins, Mo.

FOR SALE.—5000 lbs. of white-clover and basswood extracted honey in new 60-lb. cans at 11 cts. per lb. by the case, or for the entire crop. Two cans in a case. Cash to accompany order. This honey was left on the hives all summer and is of finest quality. LEONARD S. GRIGGS, 711 Avon St., Flint, Mich.

FOR SALE.—Three tons of comb honey—A No. 1, white, $4 per case; No. 2 white, $3.50; amber or buckwheat, $3 per case; 24 Ideal sections in glass-front case, less than four-case lots, 25 cts. per case extra; honey all well ripened, amber extracted, in sixty-pound cans, two to case, eight cents per pound. QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

Honey and Wax Wanted.

WANTED.—White extracted honey. Give price and particulars in first letter. D. E. LHOMMEDIEU, Colo, Story Co., Iowa.

WANTED.—White ripe extracted honey; will pay cash. GEO. RAUCH, No. 5343 Hudson Boulevard, North Bergen, N. J.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. BURNETT, 199 S. Water St., Chicago, Ill.

WANTED.—To buy for cash, comb and extracted honey, also beeswax. ROBT. A. HOLEKAMP & SON, 4263 Virginia Av., St. Louis, Mo.

WANTED.—To buy basswood, clover, and amber extracted honey for cash. Best prices paid. Send sample, and quote price delivered in Preston
M. V. FACEY, Preston, Fillmore Co., Minn.

WANTED.—Fancy clover honey, both comb and extracted. Send average sample of extracted honey, and give lowest price.
J. E. CRANE & SON, Middlebury, Vt.

WANTED.—I will pay 9 cts. per lb. for well-ripened white-clover honey in 60-lb. cans f.o.b. here; or will sell sweet-clover honey of like quality at the same price. B. WALKER, Clyde, Ill.

WANTED.—Comb and extracted honey, car lots or less; paying 8½ cts. F. O. B. Milwaukee for extracted clover or basswood. Cash on arrival.
E. R. PAHL & Co., Broadway, Milwaukee, Wis.

WANTED.—No. 1 and fancy comb honey; 4x5x1⅞ section preferred. Also light extracted. Must be guaranteed pure. Write, stating grade and how put up, and lowest cash price.
C. M. CHURCH, Arnold, Pa.

Bee-keepers' Directory.

QUEENS.—Clover stock. Experience and methods count. Write me. H. G. LARUE, LaRue, Ohio.

ITALIAN queens bred for honey, untested, 75c each.
GEO. H. PLACE, 816 No. 49th St., Omaha, Neb.

Extra honey queens and choice mountain honey.
Francis J. Colahan, Bernardo, San Diego Co., Cal.

QUEENS.—Pure Gold, Red-clover, Caucasian, Banat.
ROSE LAWN APIARIES, College View, Lincoln, Neb.

ITALIAN QUEENS.—Golden and leather, 60c each; worth $1.00. G. W. BARNES, Box 340, Norwalk, O.

Bee-keepers' supplies, Italian queens. Send for a free catalog. ARTHUR RATTRAY, Almont, Mich.

ITALIAN BEES and queens—Red-clover strain imp'd mothers. A. W. YATES, 3 Chapman St., Hartford, Ct.

ITALIAN BEES, queens, and Root's bee supplies.
E. SCOGGIN, Carlsbad, N. M.

I club a high-grade Italian queen with GLEANINGS, new or renewal. W. T. CRAWFORD, Hineston, La.

ITALIAN BEES and queens—red-clover and golden strains. E. A. SIMMONS, Greenville, Ala.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York City.

ITALIAN bees and queens bred for honey; price list free. B. F. YANCEY & SON, Angleton, Tex.

FINEST Golden and red-clover queens, Caucasian and Carniolan. DANIEL WURTH & GRANT, Pitkin, Ark.

ITALIAN AND CAUCASIAN bees and queens of best quality; price list free. A. E. TITOFF, Ioamosa, Cal.

FOR SALE.—Golden and red-clover Italian queens.
WM. A. SHUFF, 4426 Osage Ave., Philadelphia, Pa.

GOLDEN yellow Italian queens—my specialty. Price list free. E. E. LAWRENCE, Doniphan, Mo.

ITALIAN BEES, queens, honey, and ROOT'S bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

FOR SALE.—Root's bee-supplies, wholesale and retail; factory prices; catalog free. Beeswax wanted.
W. E. TRIBBETT, Staunton, Va.

QUEENS.—Improved Red-clover Italians bred for business; June 1 to Nov. 15, untested queens, 60c; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

IMPROVED ITALIAN QUEENS now ready; nuclei and colonies about May 10, Danzenbaker or L. frames; 20 years a queen-breeder; 500 colonies to draw from. Circular and testimonials free.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

ANGEL'S GOLDEN BEAUTIES and his bright three-banded Italian Queens have but few equals and no superiors. A fine large queen of either strain for $1.00; an extra select breeder for $2.50. I have had 12 years' experience at queen-breeding. Address
SAMUEL M. ANGEL, Route 1, Evansville, Ind.

Convention Notices.

The Tennessee State Fair held last week at Nashville was a decided success in every respect, and was universally pronounced the greatest fair ever held in the South.

In the apiarian department there were some fine displays of comb and extracted honey, wax, bees, implements, etc. Mr. Leslie Martin gave a daily live-bee demonstration in a wire cage, and this feature attracted a great deal of attention, as it was something new here.

The following awards were made:

Best 10 lbs. extracted honey, 1st, J. M. Davis, Spring Hill; 2d, J. M. Buchanan, Franklin; 3d, Chip Henderson, Murfreesboro.

Display of extracted honey, J. M. Davis.

Best case of comb honey, 1st. J. M. Buchanan; 2d, E. B. Buchanan, Franklin; 3d, Ira Moore, Nashville.

Display of comb honey, 1st, J. M. Buchanan.

Display of beeswax, 1st, J. M. Buchanan; 2d, Mrs. W. M. Joseph, Nashville.

Nucleus of dark Italian bees, 1st, J. M. Davis; 2d, J. M. Buchanan; 3d, Leslie Martin, Lebanon.

Nucleus of golden Italians, 1st, J. M. Davis; 2d, Mrs. W. M Joseph.

Nucleus of Caucasians, 1st, Leslie Martin; 2d, J. M. Davis; 3d, J. M. Buchanan.

Nucleus of Carniolans, 1st, J. M. Davis.

Best display of bees, bee-products, implements, etc., 1st, J. M. Davis; 2d, J. M. Buchanan; 2d, Mrs. W. M. Joseph.

J. M. BUCHANAN,
Supt. Apiarian Dept., Tenn. State Fair.

Mr. Fred W. Muth, Cincinnati, Judge.

The following is the program of the 29th annual convention of the Colorado State Bee-keepers' Association, to be held Nov. 19—21, in the Chamber of Commerce Building, Denver:

First session, Nov. 19, 10 A.M.—Opening prayer by Rev. Dr. Coyle; President's address, W. P. Collins; Secretary's report, S. Francis; Production of Extracted Honey, by Oliver Foster; discussion.

Afternoon session, 1:30.—Practical demonstration of making and grafting queen-cell cups by John Lewis; discussion; practical demonstration of artificial swarming with live bees inside of a wire cage, by M. A. Gill; discussion.

Morning session, Nov. 20, 9:30.—Practical demonstration of treating foul brood, and prevention of swarming with the chute system, by H. Rauchfuss; discussion; The Production of Comb Honey, by L. A. Stuelant; discussion.

Afternoon session.—The Colorado Honey-producers' Association will render the following program: Address by President, W. L. Porter; Co-operation, R. C. Aikin; Grading of Comb Honey, Frank Rauchfuss; discussion and question-box.

Morning session, Nov. 21, 9:30.—Practical demonstration of grading comb honey by any who wish to enter the contest. This contest can be held the first or second day, by exchanging with some other number on the program; discussion; election of officers.

Afternoon session, 1:30.—Practical demonstration of wetting sections, cutting foundation, and fastening the same in sections, by W. L. Porter; discussion; question-box; adjournment.

A liberal premium list has been provided for the exhibition of bees, honey, and wax, held in connection with this meeting. There is a $2.00 prize for photos of apiaries or things pertaining to apiculture. The officers of the association are: W. P. Collins, President; W. L. Porter, Vice-president; S. Francis, Secretary; Mrs. Rachel Rhodes, Treasurer; member of the Executive Committee, Oliver Foster.

The annual meeting of the Michigan Bee-keepers' Association will be held at Saginaw, the first session being Wednesday evening, Dec. 18, and continuing through Thursday and Friday, the last session being on the afternoon of the 20th. Further announcement as to program and headquarters will be made later.
Redford, Mich. ELMORE M. HUNT, Sec.

The 17th annual meeting of the Illinois State Bee-keepers' Association will be held at the State House, on Tuesday and Wednesday, Nov. 19 and 20, 1907.

Among those who will be present to help make our meeting a good one will be Dr. C. C. Miller, of Marengo; C P. Dadant, of Hamilton; Geo. W. York, of the *American Bee Journal*, and N. A. Kluck, a delegate from the Northern Illinois and Southern Wisconsin Bee-keepers' Association. The regular railroad rates being but two cents per mile, they are the same as a fare and a third last year. Good beds can be procured in private families, if hotels are full, at 50 cts., and meals can be got at the restaurants from 15 cents up. JAS. A. STONE, Sec

SHOP-WORN OBSERVATION HIVES.

We have a few varnished observation hives, both one-frame with super and ten-frame, which have been in sample-rooms, and are not as fresh and bright as new goods. We offer these, while they last, at 20 per cent discount from list price.

SUNDAY SCHOOL TIMES.

There is no weekly home paper for the moral and religious nourishment of the family that will equal the *Sunday School Times*. It is especially helpful to Sunday-school teachers and others interested in Bible study. We can supply it clubbed with GLEANINGS at $1.75 for the two, the regular price of each being $1.00.

ADVANCE IN PRICE OF BUSHEL BOXES.

Because of increased cost of lumber we are obliged to mark up the price on bushel crates and boxes. Until further notice the price of all-slatted bushel boxes, 14 to crate, is $2.10 per crate; 12 to crate, $1.90; galvanized bound, 12 to crate, $2 50. A corresponding advance is made in wholesale and jobbing prices.

YELLOW-SWEET-CLOVER SEED.

We have sold the last of our stock of yellow-sweet-clover seed; and until we secure a further supply we can not fill any more orders. As we go to press we have got track of a nice lot in Oregon, which we hope to secure. If we do we will so announce, with price, in a later issue.

WHITE-SWEET-CLOVER SEED.

We have secured a pretty good stock of unhulled white-sweet-clover seed. We find in several instances a large local demand for the seed at better prices than we have been selling at, and that, in order to make it an object for those able to gather the seed to do so, we shall have to pay better prices than we have been doing in former years. Our stock of seed secured for the coming season is little more than half what we had a year ago. We are obliged, therefore, to raise our selling prices to 25 cts. per lb., postpaid; 15 cts. where shipped with other goods; $1.30 for 10 lbs.; $11 00 per 100 lbs.; hulled seed at 8 cts. per lb. extra.

The attention of our Texas readers is directed to the advertisement of Udo & Max Toepperwein, which is found on page 1459. Mr. Udo Toepperwein is favorably known to bee-keepers generally and to the trade in Texas in particular, and has recently associated with him his brother, on account of his increasing business, and they will devote themselves especially to this line from this date on.

This firm is very favorably located for the distribution of supplies throughout Texas. San Antonio has most excellent shipping facilities; and their warehouse being located directly on the siding of the S. A. & A. P., and close by the other depots, makes it possible for them to serve bee-keepers promptly and satisfactorily. The aim of this concern is to confine their efforts to Texas, and to render the most efficient service possible to bee-keepers in that State.

DR. MILLER SPLINTS.

We have often had calls for wood splints for use with foundation in brood-frames to prevent sagging, as used and recommended by Dr. C. C. Miller. We have usually made them by sawing them out, and wasted more than three-fourths of the wood in sawdust. We have hit upon a plan of slicing them, thereby saving all the wood, and cheapening the process as well. We can furnish them 8½ inches long for L. frames at 50 cts. per 1000 by mail; 40 cts. shipped with other goods. Small lots at 10 cts. per 100 postpaid. Other lengths can be furnished as well. If shorter, same price in 1000 lots. If longer, add fifty per cent up to 12 inches long.

SIMPLEX AND NO. 25 JARS AT LAST.

We have received from the factory the carload of jars which were to have been shipped last August. We are now in shape to supply promptly No. 25 jars holding 1 lb. of honey, 2 dozen to the case, at $1.10; 6 cases, $6 30; 20 cases or more at $1.00 a case.

Simplex jars holding 18 oz. of honey, 2 dozen to the case, at $1.15 per case; 6 cases, $6.60; 20 cases or more at $1.05 per case. This simplex jar is over-size for one pound of honey, but are the best we can do in this style. There seems to be a great difficulty in producing this style of jar with a glass cap which screws on, especially the cap with internal spiral thread. There is a small stock of the 1-lb. size in our Philadelphia branch; but aside from these the 18-oz. size is the only one we can furnish.

REMITTANCES FOR ORDERS AND ACCOUNT.

We are under the necessity of asking our friends and patrons when making remittances not to send checks on local banks, but to send, instead, either a bank draft on some large city bank, preferably New York or Chicago, or a postoffice or express money order. The tight money market through which numerous sections are passing is making it difficult for us to get credit at the banks for local checks, and in some cases we may be obliged to return them and ask instead for a remittance in one of the forms mentioned above. Where we make payments we almost invariably do so by New York draft. Where you can not remit by any of the methods mentioned, then send money by registered mail. The most approved methods, however, are by bank draft, postoffice or express money order.

ALFALFA HONEY, COMB AND EXTRACTED.

We have received in the last two weeks a car each of comb and extracted alfalfa honey. The extracted comes from Utah, and the comb from western Colorado. We are selling the extracted in 60-lb. cans at 10 cts. in single-can lots; 9½ cts. by the case of two cans; five cases or more at 9 cts. per lb.

The comb honey, 24 sections to the case, sells at $4.00 per case; per crate of 8 cases or more, $3.80 per case; 25 cases or over, write for prices. No. 2 honey at 30 cts. per case less. We also have some New York and Pennsylvania white comb honey at 18 to 20 cts. per lb., according to quality or grades. We are in the market to buy clover extracted honey. If any of our readers have any to offer, mail sample and write us, stating how much you have, how packed, and what you ask for it.

CARTAGE CHARGE ON ORDERS FILLED BY OUR CITY BRANCH OFFICES.

The expense of doing business in our large cities is so great that we can not continue furnishing goods at regular prices free on board cars from our city branch offices. It is a great accommodation to many custom-

ers, especially in the busy season, to be able to secure goods promptly and at lower freight rates from these distributing centers, and I am sure they will be willing to share with us the heavy expenses necessary to make this accommodation possible. Hereafter on all orders from Chicago, New York, Philadelphia, and Washington offices, shipped by freight, a cartage charge of 25 cts. will be made on orders of $3.00 or less; 35 cts. on orders of $3.00 to $5.00; 50 cts. on orders of $5.00 to $10.00; over $10 00 in value, 5 per cent of the bill, or 20 cts. per 100 lbs , if that figures less than the 5-per-cent plan. At New York city the minimum charge will be 50 cents.

These charges do not cover the cost to us, but represent a fair division of the cost.

CHANGES IN PRICES FOR 1907-8.

Up to this time we have determined on the following changes in list prices. During the past season we have worked off our surplus stock of No. 2 plain sections so that from this date forward, until further notice, the price on B grade or No. 2 plain sections will be 25 cents per 1000 higher than the rate given in our catalog.

We cut out the dozen rate on No. 30 wire on spools, and increase the 5-lb. coils to $1.00 each.

B. P. S. paint for hives is advanced to $1.75 per gallon; 90 cts. per ½ gallon; 50 cts. a quart; 30 cts. a pint.

Painted wire cloth is advanced to 2½ cts. per foot for cut pieces; 2 cts. in full-roll lots. Galvanized wire cloth, 8 mesh, is advanced to 8 cts. per sq. ft.

There has been an advance of over 30 per cent in material for bee-veils, and new prices are adopted as follows: No. 1, all silk tulle veil, 90 cts.; No. 2, cotton tulle with silk face, 60 cts.; No. 3, all cotton tulle, 50 cts.; No. 4, mosquito-bar veil, 30 cts.; bee-hat, 30 cts.; silk tulle per yd., 60 cts.; cotton tulle per yd., 25 cts.; mosquito-bar, per piece of 8 yds., 75 cts. No change in globe veil.

THE NEW EDITION OF THE A B C OF BEE CULTURE NOW READY FOR DISTRIBUTION.

The new edition of the A B C of Bee Culture has finally, after a great deal of labor, been completed. So far from being merely a work for beginners, or the A B C, it is also an X Y Z of the business, and hence equally valuable to the veterans, for it gives all the latest processes and methods of the most advanced bee-keepers, as well as those that may be used by the novice.

It very often occurs that an experienced bee-keeper has, within a year or so back, read such and such a method for producing comb honey or some one else's plan for the prevention of swarming. He has not kept a file of the journals. He can not remember in what issues those methods appear. On reading them at the time, he determined to give them a further test when the season opened up; but where, oh! where, can he find those journals containing just the articles that describe these methods? Well, the new work has given in brief some of the most important; and all he has to do is to turn to the index and find what he wants boiled down in clear language.

Then, again, it often happens that the bee-keeper hears about the Heddon method of transferring, or reads something about Alexander's method of strengthening weak colonies in the spring. Again, he sees something about the Doolittle or the J. E. Hand scheme for producing comb honey in connection with the divisible-brood-chamber hive. He is all at sea; but the new volume will tell him all about these and more.

But in a scientific way the A B C and X Y Z is far ahead of what it has ever been before. The botanical list of honey-plants has been almost entirely re-written by W. K. Morrison; the chemistry of honey, of glucose, and of nectar are all covered by the same writer.

Mechanically the new edition has been improved by the use of an almost entirely new set of engravings, the old ones being reëngraved, and the use of enameled book paper, the most expensive paper of the kind procurable. This brings out not only the letter-press but the engravings as well to a point of brilliancy and clearness that is pleasing.

But it would take quite a little volume to tell about the new features of this magnificent work, and the reader will have to see it in order to appreciate its merits. While it is nearly 100 pages larger, and all told 300 pages of new matter, the price has been increased only slightly — from $1.20 by mail to $1.50, or $1.25 if sent with other goods. Or in half morocco, $2 00, postpaid, or $1.75 with other goods. Full leather, $2.50, postpaid, or $2.25 with other goods.

EARLY-ORDER CASH DISCOUNT.

We have been obliged to cut down the early-order cash discount below that offered in former years; but it is still sufficiently liberal to pay transportation charges quite a distance, or to pay liberal interest on the money invested in supplies early, and should attract those forehanded people who know pretty well what they want for the coming season.

The following is the schedule of discounts for early cash orders for bee-keepers' supplies, subject to the conditions below:

For cash sent in	November,	deduct	4½ per cent.
" " "	December,	"	4 "
" " "	January,	"	3½ "
" " "	February,	"	3 "
" " "	March.	"	2½ "
" " "	April,	"	2 "

The discount is only for cash sent before the expiration of the months named, and is intended to apply to hives, sections, frames, foundation, extractors, smokers, shipping-cases, cartons, and other miscellaneous bee-keepers' supplies. It will not apply on the following articles exclusively; but where these form no more than about one-tenth of the whole order the early-order discount may be taken from the entire bill: Tinned wire, paint, Bingham smokers, Porter bee-escapes, glass and tin honey-packages, scales, bees and queens, bee-books and papers, labels, and other printed matter, bushel boxes, seeds, and other specialties not listed in our general catalog.

Special Notices by A. I. Root.

OFF FOR FLORIDA.

Please take notice that all communications after this date, for A. I. Root, and for him only (without any reference to our manufacturing and publishing departments here at Medina), should be addressed to A. I. Root, Bradentown, Manatee Co., Florida. In my Florida home I shall be glad to hear from you in regard to the Health Notes, the progre-s that temperance is making in your locality, high-pressure gardening, etc., providing you do not expect me to take very much time in answering, and particularly if you inclose in your letter an add essd postal card for your reply. As I grow older I find it a very great task and strain on my nerves to address a communication. I can write what I want to say to the writer very easily, compared with the amount of labor required to hunt up the name and address, decipher bad writing, and be sure that I get it right. I do not care for the postage; but I do find it a great relief to find an addressed envelope or postal card when I am expected to reply to something. I prefer the postal card, because I can usually get on a card about as much as I have time to say. I expect to be very busy in my Florida home, but I shall always have time to lend a helping hand, providing, as I said above, a postal card will contain all I am expected to say or do.

KIND WORDS.

HOW GLEANINGS SAVED $5.00.

I am very much pleased with GLEANINGS, and, while not a large apiarist, I have received much good from a perusal of its pages. I am very fond of reading Mr. Root's sermons, and his exposure of certain methods of fleecing the unwary. I was tempted to send for the formula of the "ten-cents-a-bushel" feed, but did not after reading GLEANINGS.

FRANK E. TOWNSEND.

Ashton, Iowa, Sept. 23.

Tell grandpa A. I. Root to keep up the Home papers this winter. Go after the frauds and humbugs and saloon people. He has the backing of the whole GLEANINGS family. SIMEON G. KILGORE.

London, Ohio, Sept. 24.

ABC AND XYZ of Bee Culture

By A. I. and E. R. ROOT

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THE A. I. ROOT CO.

MEDINA, :: :: OHIO

Only two years have elapsed since we brought out an edition of 15,000 copies of the well-known A B C of Bee Culture. This brought up the number to 100,000 copies, thereby surpassing in popularity all other bee-books ever printed.

The demand for these has been so great that we were compelled to undertake a new edition at once, and in doing so we took the opportunity to revise and greatly enlarge it again, though it had been generally considered quite a large book.

In doing so we brought in new blood to assist us, give new ideas, and otherwise enable us to produce as good a book as it is possible to make at a popular price. If you will carefully examine a copy you will be prepared to admit the new volume is quite an improvement on its predecessors. To keep pace with improvements it contains nearly 100 double-column pages more than the previous edition.

The new methods of queen-rearing have been carefully reviewed, and the main points incorporated in the new edition, so that the practical bee-keeper who possesses a copy will have the best ideas of the subject constantly by his side for reference.

The new methods of wax-production are treated in an exhaustive fashion; and as this subject is now of more importance than formerly, more space has been devoted to it.

The new power-driven automatic extractors are amply illustrated and described. The subject of diseases has received entirely new treatment to keep pace with the new discoveries of the last few years. The laws relating to bees have for the first time received full treatment. No other bee-book treats of this very important subject. Honey, sugar, nectar, and glucose are carefully defined in accordance with the demands of our new pure-food laws.

In accordance with the ideas of its first author, A. I. Root, the new A B C and X Y Z is *eminently practical.*

German edition (new), paper covers, $1.75; cloth-bound, $2.00. Postpaid anywhere. This is the famous A B C in the language of the Fatherland, to suit our many German friends.

French edition (new), cloth-bound, $2.00, postpaid This is another edition, translated into the beautiful language of France

PROMPT SHIPMENTS!

IF you are needing supplies at present, send us your orders. We have a large stock of **Root Company's Supplies** on hand to meet your requirements. We allow the customary cash discounts for early orders.

Send for forty-page catalog.

John Nebel & Son Sup. Co., High Hill, Mont. Co., Mo.

NOW is the Time to Order Your

BEE-SUPPLIES

AND SAVE MONEY

IT will cost you only one cent for a postal card to get our **delivered prices on Dovetailed Hives, Sections, Section-holders, Separators, Brood-frames, Foundation, Smokers, Extractors, Shipping-cases, etc.** It may mean a saving to you of many dollars. It is the natural advantage we have over others that enables us to make you the Best Price. There are no better goods than ours, and we GUARANTEE SATISFACTION or REFUND your MONEY.

We MANUFACTURE and keep in stock all standard Bee-goods, and can ship promptly.

MINNESOTA BEE-KEEPERS' SUPPLY COMPANY

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Every thing you want; all made by us in our own factories—*at lowest prices.*

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Every Thing for the Bee-keeper at Savannah, Georgia.

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They are the ROOT GOODS, which I sell here at the ROOT FACTORY PRICES and DISCOUNTS.

My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

Write for estimate with liberal discount for orders sent in now.

JOSEPH NYSEWANDER

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Gleanings in Bee Culture

Apiary of Mr. E. Bondonneau, at Gangeny, in the Department ot the Seine and Oise, France. First Prize, Class A, Foreign Competition.

The A. I. Root Co., Medina, O., U. S. A.

Entered at the Postoffice, Medina, Ohio, as Second-class Matter.

Vol. XXXV December 1, 1907 No. 23

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Do you know what that means?
Think a minute.

It means 10 per cent per annum on your investment.

It means that your goods will be there when you want them.

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Special Discount on Early Orders

I will buy your **HONEY AND BEESWAX.** I pay **Cash on Delivery;** or if you are in **need of honey,** write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted — in cans, barrel-lots, or car-lots — of **extracted** or **comb honey.** I guarantee its purity.

WANTED=Sweet Clover.

If you have **Sweet Clover,** state if yellow or white, hulled or unhulled, also quantity and lowest price.

C. H. W. WEBER

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

CINCINNATI, OHIO

Honey Markets.

GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct, to the retail merchant. When sales are made by commission merchants, the usual commission (from five to ten per cent) cartage, and freight will be deducted, and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

ST. LOUIS.—Since our last, of Nov. 9, the demand for honey has fallen off; prices, however, are kept up as heretofore. The stocks are not burdensome. We quote as follows: Fancy white comb honey, 17c; No. 1, 16; choice amber, 15 to 16. Broken or defective honey sells at considerably less, and very difficult to place. Extracted, white, in cans, 8 to 8½; amber, 7½ to 8; in barrels and half-barrels, 1c per lb. less. Beeswax, 26c for choice pure. All impure and inferior, lower.

R. HARTMANN PRODUCE CO.,
Nov. 21. St. Louis, Mo.

INDIANAPOLIS.—Demand for best grades of extracted honey is good, while the demand for comb honey is not so brisk. It is evident that consumers are learning to prefer their honey in the extracted form. Jobbers are paying the following prices, delivered here: No. 1 and fancy comb, 16 to 17, net weight. Extracted, white-clover, 9 to 10. Beeswax, 28 cash or 30 in exchange for merchandise.

WALTER S. POUDER,
Nov. 19. Indianapolis, Ind.

CHICAGO.—It may be that the money stringency has reached the honey-consumers, for there have been few sales during the past month. Prices are about same as last quoted, but would be shaded to effect a sale. The supply is larger in comb than at any time during this season; white-clover and basswood extracted are almost the only kinds that are in demand, and sell readily at 9 cts. per lb. in the 60-lb. case.

Nov. 20. R. A. BURNETT, Chicago, Ill.

CINCINNATI.—The market on honey has eased considerably, because of the stringency of the money market. Slow sales on comb honey. Colorado retails at $4.00 per case; white-clover comb honey at 17c per pound. Extracted, white sage, 9 to 9½. Amber, in barrels, 6 to 6½. Beeswax, very slow at 30c per lb.

C. H. W. WEBER,
Nov. 23. 2146 Central Ave., Cincinnati, O.

KANSAS CITY.—The supply of comb and extracted is more liberal. The demand only fair. We quote No. 1 white comb, 24 sections, per case, $3.25; No. 1 amber, $3.00; No. 2, white, $2,75. Extracted, white, per pound, 8½; amber, 7½ to 8. Beeswax, 25 to 28.

C. C. CLEMONS CO.,
Nov. 21. Kansas City, Mo.

SCHENECTADY.—No great stock on our market, and prices maintained. Fancy white is quite scarce, and sells at 16 to 18; No. 1, 15 to 16; mixed and buckwheat, 13 to 14. Extracted, light, 8 to 9½; dark, 7½ to 8.

CHAS. MACCULLOCH,
Nov. 18. Schenectady, N. Y.

ZANESVILLE.—This market is well supplied with comb honey, especially alfalfa. Practically no change in prices since last quotations; 19 to 20 cts. wholesale. There is some demand for extracted in glass retail packages; otherwise market is very quiet. Little demand for beeswax in a wholesale way. I offer 29c f. o. b. here in exchange for bee supplies.

EDMUND W. PEIRCE,
Nov. 6. 136 W. Main St., Zanesville, O.

PHILADELPHIA.—Sales of honey have been quite active in this market, and we quote: Fancy comb honey, wholesale, 17½ to 18½; No. 1 white, 16 to 17; amber, 14½. Extracted honey, water-white, 9 to 9½; amber, 8; dark, 7½. Beeswax, 30.

We are producers of honey, and do not handle on commission.

WM. A. SELSER,
Nov. 25. 10 Vine St., Philadelphia, Pa.

DENVER.—The comb-honey crop of Colorado has been good, and, so far as we know, every thing available for carload shipments has gone out of the State at satisfactory figures. Local trade will absorb the stray lots that are left. We quote our market as follows: No. 1 white, per case of 24 sections, $3.25 to $3.50; light amber and No. 2, $2.75 to $3.00. Extracted, white, 7½ to 8½; light amber, 6¾ to 7½. We pay 24 to 25c for clean yellow beeswax delivered here. Offers wanted with samples from parties having extracted honey to sell.

THE COLORADO HONEY PRODUCERS' ASSO'N,
Oct. 28. F. RAUCHFUSS, Mgr.

SAN FRANCISCO.—Honey is firm at former quotations, with offerings small, and very little coming into the market. Little is now heard of any movement in other quarters, and holdings in the country seem to be about exhausted. Light amber, extracted, 7 to 7½c; water-white, comb, 16 to 17; white comb, 15; water-white, extracted, 8 to 8½.

Nov. 20. —*Pacific Rural Press.*

WHAT HAS MUTH GOT NOW?

Genuine Orange-blossom Honey. **Genuine Black-sage Honey.** **Genuine White-clover Honey.**

(All in crates of two 60-lb. cans each)

and Fancy Comb Honey in 24-section cases, averaging 22 lbs. to the case.

You better write for prices; this honey is too good to stay long on our hands.

THE FRED W. MUTH COMPANY,

51 WALNUT STREET. The Busy Bee Men. **CINCINNATI, OHIO.**

NEW YORK.—We are having a good demand for strictly fancy white comb honey. Receipts have been quite heavy and numerous of late, owing principally to the fact that most of the bee-keepers were late in shipping. We quote fancy white at 16 to 17; No. 1, 14 to 15; No. 2 and amber, 13; buckwheat, 12 to 13. The demand for extracted continues good, and we have as yet experienced no scarcity, having enough to supply our wants and more. Prices are firm. We quote California white sage at 9 to 9½; light amber, 8 to 8½; amber, 7 to 7½; extracted buckwheat, 6½ to 7. Nothing is coming along to amount to any thing from the South, and therefore it is hardly worth while to make quotations. What little is coming sells at from 65 to 80 cts. per gallon, according to quality. Beeswax quiet at 29 to 30.

HILDRETH & SEGELKEN,
Nov. 25. 265-7 Greenwich St., 82-6 Murray St.

DETROIT.—Honey continues to be scarce, and prices are much the same. There seems to be no Michigan extracted, and prices quoted are for the California extracted. The feeling seems to be among commission men that the bee-keepers are holding for a high price, and will have to let it go later cheaper. No. 1 and A No. 1 white comb honey, 20c; No. 2, 15 to 18. Extracted, 8 to 8½. Beeswax, 27 to 29.

M. H. HUNT & SON,
Nov. 11. Redford, Mich.

BUFFALO.—The demand for honey is slow. Not very much good honey is arriving. Prices are held firm for all first quality. There ought to be a better demand soon, for fruit is pretty well gone, and Thanksgiving near at hand, so we look for a good demand. No. 1, fancy white clover, comb, 17 to 18; No. 2, 12 to 14; No. 1, buckwheat, 11 to 12½; No. 2, 10 to 11. White clover, extracted, 8 to 9; amber, 7 to 8; dark, 6½ to 7. Beeswax, 30 to 32. W. C. TOWNSEND,
Nov. 11. Buffalo, N. Y.

BOSTON.—Our market on honey is very strong, ranging from 16 to 18c for No. 1, with, comparatively speaking, light supplies, and a good demand. Extracted honey, also very light supply, brings 8c.

BLAKE, SCOTT & LEE CO.,
Nov. 9. Boston, Mass.

LIVERPOOL.—Honey rather lower, and prices are as follows: California extracted, 8c; Chilian and Peruvian, 3½ to 6; Jamaican, 4¼ to 5¼. Beeswax, African, from Sierra Leone, 28¼; American, none; West Indian, 31 to 33; Chilian, 28 to 33. TAYLOR & CO.,
Oct. 25. 7 Tithebarn St.

ANTWERP.—Beeswax, Zanzibar (in pots) 32c; Zanzibar (dirty), 27c: Mozambique (chunks), 32; Morocco, 32; Portugal (in pots) 32½; Benguella, 32; Abyssinia (not refined) 27c. E. BONDONNEAU.

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HERE IS YOUR CHANCE

to get a large discount until January 1, 1908: 10 per cent discount on all bee-hives, and a Corneil smoker or A B C book for cash orders for $20.00, or a Clark smoker for $10.00 orders. Write for catalog at once.

Ten years in bee-hive making.

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FOR HIS

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Liberal Discount to the Trade.

Extracted Honey Wanted

We are always in the market.

If you have any to sell, mail small average sample to

NATIONAL BISCUIT COMPANY

Purchasing Department,

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WE WILL BUY AND SELL

HONEY

of the different grades and kinds.

If you have any to dispose of, or if you intend to buy, correspond with us.

We are always in the market for WAX at highest market prices.

HILDRETH & SEGELKEN,

265-267 Greenwich St. 82-86 Murray St.

NEW YORK.

I WILL BUY YOUR

HONEY

for cash. Send sample, and mention quality, style of package, and price.

ONE CAR OF ALFALFA HONEY WANTED.

M.V.FACEY, Preston, Fillmore Co., Minn.

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$1 per year. When paid in advance: 2 years, $1.50. 3 years, $2.00. 5 years, $3.00.

Devoted to Bees, Honey, and Home Interests.

Published by
THE A. I. ROOT CO., Medina, Ohio

J. T. CALVERT, Business Manager

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CHANGE OF ADDRESS. When a change of address is ordered, both the new and the old address must be given. The notice should be sent two weeks before the change is to take effect.

DISCONTINUANCES.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

HOW TO REMIT. Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of The A. I. Root Company, Medina, Ohio. Currency should be sent by Registered Letter.

AGENTS. Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

Foreign Subscription Agents.

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

PARIS, FRANCE. E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid, 7½ fr.*

GOODNA, QUEENSLAND. H. L. JONES. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 6/.*

DUNEDIN, NEW ZEALAND. ALLIANCE BOX CO., 24 Castle St. *Per year, postpaid, 6/.*

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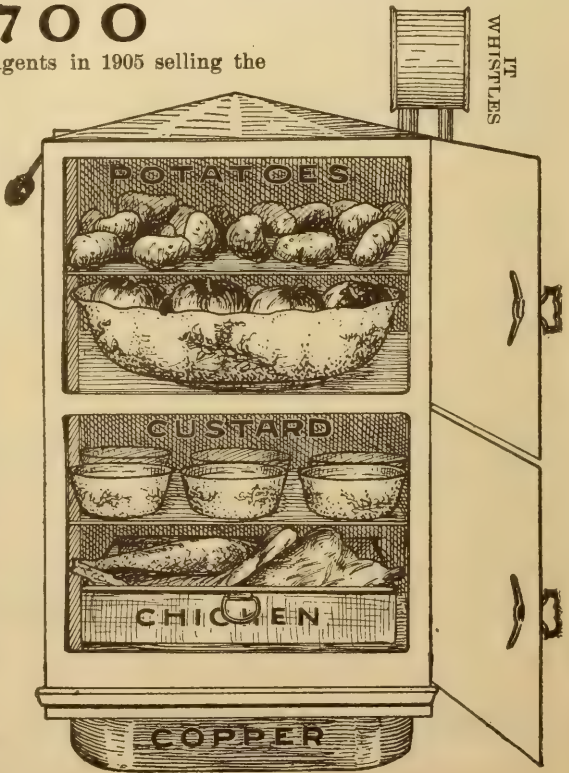

We have many agents making $5 to $10 daily. Write us and we will give you names of agents near by who are making at least $5 daily. We can easily prove that the "O-HI-O" is the best money-maker you ever heard of, and will make you more money than any thing you ever sold or are now selling. *Write us at once and we will prove it.*

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Handsomely illustrated catalog free.

"O-HI-O" COOKER CO.
908 Jefferson Av., Toledo, O.

Gleanings in Bee Culture

Combination and Club Offers.

Last season, without intending to show any partiality, a premium list was issued in the interest of subscription work. A wide choice of books and papers on bee-keeping, poultry-raising, fruit culture, and kindred subjects was open to any one who could devote a little leisure time in securing GLEANINGS subscriptions, either new or renewals.

ONE RESTRICTION—that a renewal for ones self did not entitle the sender to a premium—caused an occasional protest.

Fair to Every one

During the season 1907–8, both old and new subscribers may secure a year's subscription to GLEANINGS IN BEE CULTURE, and choice of any of the following books, papers, or articles, by sending a small additional amount to subscription price, as specified under terms of the offer which meets his needs. We feel certain that these offers will be appreciated by all, especially by any who may have felt that the list last season was too restrictive.

Offer No. 1 B.—A B C OF BEE CULTURE (1907 edition), postpaid, and GLEANINGS one year, for $2.25. This edition of A B C will be ready to mail about November 1.

Offer No. 2 B.—HOW TO KEEP BEES, postpaid, and GLEANINGS one year, for $1 50. A handbook for those who keep bees for happiness and honey, and, incidentally, for money. It serves as an introduction to more extended manuals, such as the A B C of Bee Culture.

Offer No. 3 B.—FORTY YEARS AMONG THE BEES, by Dr. C. C. Miller, and a year's subscription to GLEANINGS, $1.75, postpaid.

Offer No 4 B.—STANDARD ROOT SMOKER, postpaid, and GLEANINGS one year, $1.85. One of the best smokers made, both in principle and construction.

Offer No. 5 B.—WHAT TO DO AND HOW TO BE HAPPY WHILE DOING IT. by A. I. Root. This book postpaid, with GLEANINGS one year, $1.35.

Offer No. 6 B.—A copy of MINK-TRAPPING, postpaid. and GLEANINGS one year, $1.30. The methods published are those of experienced trappers from all parts of the country.

Offer No. 7 B.—A copy of FOX-TRAPPING, postpaid, and GLEANINGS one year, $1.30. A book of instructions telling how to trap, snare, poison, and shoot. A valuable book for trappers.

Offer No. 8 B.—BEE-GLOVES. One pair of cloth bee-gloves, with or without fingers, with GLEANINGS one year, $1.35, postpaid.

Offer No. 9 B.—One FOUNTAIN PEN, postpaid, with GLEANINGS one year, $1.50. Price of pen alone is $1.00; not equal to pens sold at $2.50 and up, but as good a pen as we can find for $1.00.

Offer No. 10 B.—A year's subscription to GLEANINGS and THE AMERICAN BOY, $1.65.

Offer No. 11 B.—DEADFALLS AND SNARES. (Just the book for trappers, hunters, woodsmen, and the country boy who wants to know the different ways of capturing fur bearing animals of all kinds). This book, postpaid, with a year's subscription to GLEANINGS, $1.30.

Canadian postage on each of the above offers, 30 cts. per year additional.
Foreign postage on each of the above offers, 60 cts. per year additional.

THE A. I. ROOT COMPANY, MEDINA, OHIO.

Gleanings in Bee Culture

E. R. ROOT, Editor
A. I. ROOT, Editor Home Department
H. H. ROOT, Ass't Editor

Department Editors—DR. C. C. MILLER, J. A. GREEN, PROF. A. J. COOK, J. E. CRANE, LOUIS H. SCHOLL, G. M. DOOLITTLE, R. F. HOLTERMANN, "STENOG," W. K MORRISON.

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This is the time of year when the farmer should give a little extra thought to his stock, and make sure they are properly and warmly housed. It's an investment to do so. The nights are sharp and a bad draft may mean the loss of a good many dollars' worth of live stock. When it costs so little to put a barn or building in good shape, it's a mistake to neglect looking out for this. A few rolls of paroid roofing will make a snug warm shelter out of almost any kind of building. Not only is it used for roofs, but the sides as well.

Some ideas and suggestions along these lines are found in a little book entitled "Practical Farm Buildings," which gives valuable advice to any one planning to build or repair. The publishers, F W. Bird & Son, of East Walpole, Mass., will be pleased to send a copy to any one interested in these subjects upon receipt of four cents in stamps to pay for postage.

RURAL SCHOOL AGRICULTURE, BY CHARLES W. DAVIS.

The above is the title of a new book, on agriculture, for use in common schools, by the Professor of Agriculture in the Agricultural College of North Georgia. It is a very difficult matter to reduce the teachings of science to language which the ordinary boy or girl can understand; but the author of the book before us has succeeded in doing so in a very happy manner. He has selected two prominent American crops—corn and cotton—for the major portion of his experiments, and in this he is wise, as it is easy to get such material almost anywhere.

The book is in no sense a southern one exclusively, but will be found very useful almost anywhere in agricultural countries. We imagine it would prove very useful in South Africa, the West Indies, and Australia, where the English language is in common use. It is certainly well arranged to suit most schools in this country. Books of this nature should have far more recognition than they have had heretofore. By teaching agriculture in our country schools the children will learn to respect the farmer's calling as a noble occupation. In many cases the children are led to believe they must go to the city to achieve greatness, and that farming is something of an inferior trade when compared with other trades and professions.

There are 143 exercises or experiments in all, beginning with very simple ones up to those more complex. There is a very nice glossary, which is so very necessary in this case, as the pupils have to learn a set of words which they probably never heard before. Formulas of various sorts are also given, and, in addition, directions for judging various products of the farm. Milk is one of the subjects to be judged by means of a score card.

The typography is excellent there being plenty of space between lines and words, so that the reading of the subject-matter is easy. The illustrations are plain and practical, as they ought to be in a schoolbook. Altogether the book is a credit to the author and his publishers, the Orange Judd Co It contains 300 pages, and is cloth-bound, at the price of $1.00, postpaid. We can supply it from this office if desired.

HARDY TREES.

Any person who may be on the outlook for hardy trees can hardly fail to be interested in the advertisement of the Gardner Nursery Co., of Osage, Iowa, whose advertisement appears on page 1519 of this issue. Situated where they are right in the blizzard belt they can hardly fail to produce a vegorous cold-resisting class of trees. This firm has studied the matter of blizzard-resisting trees for a number of years, and doubtless have accumulated a great fund of experience which must, of necessity, be valuable to their customers. A great deal of money has been lost by farmers in the blizzard belt in experimenting with trees which had been recommended as hardy by men who did not understand the extremely trying winter conditions of our northwestern States. This could have been avoided if the purchasers of these trees had communicated with the foregoing concern which has experimented for years till they have found just what will succeed.

Gleanings Magazine Clubbing Offers

In the list below we have arranged to furnish our readers with GLEANINGS and certain magazines, and other periodicals, at prices far below the cost of the same papers if ordered separately.

McClure's Magazine. We do not expect to be able to supply this magazine after Feb. 1, 1908, at the prices below. It is important therefore that your order be sent before that time.

Order Early. Publishers are greatly crowded with orders in December, so your order will get much better attention if you send it in this month.

Other Periodicals. In our December 1st issue we expect to give some additional clubs, but still we urge your immediate consideration of those below, and your orders for GLEANINGS renewal in connection with some club herewith. However, if you do not find here what you want, we will quote you by letter on receipt of your list.

Gleanings	1 yr.	$1 00	
Suburban Life	"	3 00	
McClure's*	"	1 50	
		$5 50	$3 35

*Or Harper's Bazar, Success, Cosmopolitan, American, The World To-day, American Boy, Woman's Home Companion.

Gleanings	1 yr.	$1 00	
Suburban Life	"	3 00	
McClure's*	"	1 50	
The World To-day*	"	1 50	
		$7 00	$4 00

*Or Good Housekeeping, Woman's Home Companion, or any magazine in offer No. 1.

Gleanings	1 yr.	$1 00	
Suburban Life	"	3 00	
Review of Reviews*	"	3 00	
American Magazine	"	1 00	
		$8 00	$4 70

*Or Outing, Reader Magazine, Independent.

Gleanings	1 yr.	$1 00	
Suburban Life	"	3 00	
Review of Reviews*	"	3 00	
McClure's	"	1 50	
		$8 50	$5 05

*Or Bookman, Yachting, or any magazine in offer No. 3.

Gleanings	1 yr.	$1 00	
McClure's	"	1 50	
Woman's Home Companion	"	1 00	
		$3 50	$2 65

Gleanings	1 yr.	$1 00	
McClure's	"	1 50	
Woman's Home Companion	"	1 00	
Review of Reviews	"	3 00	
		$6 50	$3 65

Gleanings	1 yr.	$1 00	
Delineator	"	1 00	
McClure's	"	1 50	
World's Work	"	3 00	
		$6 50	$3 65

Gleanings	1 yr.	$1 00	
McClure's	"	1 50	
Good Housekeeping	"	1 00	
		$3 50	$2 65

Gleanings	1 yr.	$1 00	
St. Nicholas (new)	"	3 00	
Review of Reviews	"	3 00	
		$7 00	$4 05

Gleanings	1 yr.	$1 00	
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McClure's	"	1 50	
Woman's Home Companion	"	1 00	
		$6 50	$4 00

Gleanings	1 yr.	$1 00	
McClure's	"	1 50	
World To-day	"	1 50	
		$4 00	$2 65

Gleanings	1 yr.	$1 00	
McClure's	"	1 50	
		$2 50	$1 70

Gleanings	1 yr.	$1 00	
Good Housekeeping	"	1 00	
		$2 00	$1 70

Gleanings	1 yr.	$1 00	
American Magazine	"	1 00	
		$2 00	$1 70

Gleanings	1 yr.	$1 00	
Review of Reviews	"	3 00	
Rural New-Yorker	"	1 00	
Woman's Home Companion	"	1 00	
		$6 00	$4 00

Gleanings	1 yr.	$1 00	
Review of Reviews	"	3 00	
Sunday School Times	"	1 00	
		$5 00	$3 25

Gleanings	1 yr.	$1 00	
Sunday School Times	"	1 00	
		$2 00	$1 80

Gleanings	1 yr.	$1 00	
Rural New-Yorker	"	1 00	
		$2 00	$1 90

Gleanings	1 yr.	$1 00	
Farm Journal	5 yrs.	1 00	
Garden Magazine	1 yr.	1 00	
		$3 00	$2 20

Gleanings	1 yr.	$1 00	
Sunday School Times	"	1 00	
McClure's	"	1 50	
		$3 50	$2 50

Gleanings	1 yr.	$1 00	
Sunday School Times	"	1 00	
Rural New-Yorker	"	1 00	
		$3 00	$2 75

Send all orders to *The* A. I. Root Co., Medina, Ohio

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Our Advertising Rates.

Twenty cents per agate line, flat.
Fourteen lines to inch.

SPACE RATES (To be used in one issue)

One-fourth page $11.00
One-half page 21.00
One page..... 40.00

Preferred position, inside pages, 30 per cent additional.
Preferred position, inside cover pages 50 per cent additional.
Outside cover page, double price.
Reading notices, 50 per cent additional.
Cash-in-advance discount, 5 per cent.
Cash discount, if paid in 10 days, 2 per cent.
Bills payable monthly.
No medical or objectionable advertising accepted.

THE "SHELTERTOP" BUGGY.

A famous man once said there was nothing new under the sun; but had he lived in these latter days it is certain he would have been compelled to alter his dictum. We are very certain he never saw or heard of some of our twentieth-century inventions which do so much to improve the material welfare of mankind. One of the most valuable of these inventions is the Sheltertop buggy, which is the first of its kind to exclude totally the weather, and yet it affords ample facilities for seeing the road ahead or alongside. It also affords ample ventilation, in spite of the fact that not a drop of rain enters. But this is not all by any means; for by a few movements of the hand while still seated in the vehicle the top may be collapsed out of sight so that it becomes a fair-weather buggy. This looks to us like a good thing, and we intend to have it advertised in GLEANINGS at an early date. Many persons have suffered severely for the want of an invention of this kind. This is particuiorly true of the women folks, who frequently suffer from cold and exposure in the winter, fall, and spring months. If you wish to know more about this buggy, write the makers, Fouts & Hunter, 333 S. Third St., Terre Haute, Ind.

THE YOUTH'S COMPANION CALENDAR FOR 1908.

The publishers of the *Youth's Companion* will, as always at this season, present to every subscriber whose subscription ($1.75) is paid for 1908 a beautiful calendar for the new year. Four paintings by artists of distinction are reproduced in the four panels of the calendar by a process of color-printing which has been recently been brought to remarkable excellence. The first of the panels is an inspiring sea scene, full of the beauty of the wide ocean and sky, and the joyous rush of the homeward-bound ship. The second is a fine cattle piece. The third pictures an old mill at Zaandam—typically Dutch. The fourth panel depicts a "Girl with Roses"—a charming face, exquisite in color and expression. All the pictures are worthy of preservation long after 1908 has passed into the good old times.

CYPHER'S INCUBATORS.

The reputation of the Cyphers incubators is world-wide, and therefore it would be useless to attempt to enlarge on their merits, being so well known to poultry-men all over the country. There are some, however, who are beginners in poultry culture, and who do not know who is who in the poultry world. To those we would suggest the propriety of sending to the Cyphers Incubator Co., Buffalo, N. Y., for a copy of their great catalog of poultry appliances and incubators. The Cyphers Co. has always been famous for the handsome catalogs issued by it. The business of this company has wide ramifications, and, in consequence, it has agencies in New York, Boston, Chicago, Kansas City, Oakland, Cal., and London, England.

THE OPINION OF A FACTORY SUPERINTENDENT.

It is often noticed by ourselves and our discriminating advertising friends that GLEANINGS is held in peculiar esteem by thousands of men and women all over the country. A well-known advertising man who places many of the largest accounts in the country, in speaking of some exceptional results secured by a patron of our advertising columns, said he accounted for these results in many cases coming to his notice by the unbounded confidence of the subscribers in our senior editor, and the bond of sympathy between him and our subscribers.

Mr. Hess, whose letter appears below, is only one of the many of this class:

Cleveland, O. Aug. 13th, 1907

The A. I. Root Co.,
Medina, Ohio.

Dear Sirs:

I have received notice that my subscription to GLEANINGS has expired. Enclosed please find check for $1.00 for which continue the paper. I am not a bee man in any sense of the word, but instead am a manufacturing superintendent, but interested in bees, bee people, and things pertaining thereto, simply because I like the whole proposition. I am, however, deeply interested in poultry stock and am planning to have a thorough bred poultry plant in operation in the near future. It will be an up to date affair when I get it in operation and you and your people will likely hear more of it from me through GLEANINGS.

I like A. I. Root's make up so much that I want to keep in touch with all he says and does. What he writes in the July 1st number appeals to me strongly. In fact, there is a strong chord of sympathy between A. I. and myself. He makes me laugh sometimes, at his unique manner of confessing his short comings and at others I feel so deeply the force of his words, that I am touched. So send the paper along to the same address, until address is changed by request, as it may be in the near future. I almost feel like passing a word of cheer along to the old brother, by saying he reminds me of what I read of John the Baptist, in "The Prince of the House of David". I was much amused at the outcome of the "Owl and Bat" proposition the rural friend purposed upon handy old Brother A. I. I saw his finish before he had talked long into the matter.

Long live A. I. Root! Long live Gleanings!

With best wishes

Wm P Hess

Because of the freedom of our columns from objectionable advertising, those advertisers who are represented therein enjoy the patronage of the select class comprising GLEANINGS' family.

For particulars regarding rates, circulation, or any question relating to advertising, address

ADVERTISING DEPARTMENT GLEANINGS IN BEE CULTURE, MEDINA, OHIO.

Our Clubbing Offers!

Gleanings in Bee Culture 1 year. . $1.00

The Hunter-Trader-Trapper 1 year 1.00

Total . . .$2.00

BOTH FOR

$1.50.

THE WHOLE FAMILY GROUP—

The Delineator,
McClure's Magazine,
World's Work,
Gleanings in Bee Culture,

COMBINED PRICE,

$3.75.

Canadian postage, $1.90 extra per year.
Foreign postage, $3.88 extra per year.

The Garden Magazine (two years),
The Farm Journal (two years),
Garden and Farm Almanac (one copy),
Gleanings in Bee Culture (one year),

CLUB RATE,

$2.65.

Canadian postage, $1.30 extra.

The American Boy

A Profusely Illustrated Monthly for BOYS.

Without Question the Most Entertaining and Practical Magazine in the World for Young Americans.

COVERS IN COLORS.
36 Pages, size of Ladies' Home Journal.

Serial and Short Stories by Stratemeyer, Tomlinson, Trowbridge, Munroe, Shute, and others, the best writers for boys in the world.

Departments relating to all Boy Hobbies, edited by experts.

It preaches the religion of "DO," and not that of "DON'T."

Is doing more for the Uplift and Encouragement of Boys than any other agency.

Approved by parents and educators. Boys (250,000 of them) everywhere enthusiastic for it.

The subscription price of The American Boy is $1.00 per year.

The American Boy (1 yr.) . . $1.00
Gleanings in Bee Culture (1 yr.) 1.00
Total $2.00

BOTH FOR **$1.65**

Address
The A. I. Root Co., Medina, O.

. . . . . Address all orders to . . . . . .

THE A. I. ROOT COMPANY, :: :: :: MEDINA, OHIO.

Gleanings in Bee Culture
PREMIUM OFFERS

CONDITIONS

The following offers are self-explanatory in most cases. Their purpose is to induce both present nd prospective subscribers to interest *others* in GLEANINGS IN BEE CULTURE.

Please Observe Carefully the Following General Rules

1. Trial subscriptions are offered only for uniform time of six months, and must in each case be a new name—that is, the name of some one who has not been a subscriber to GLEANINGS during the preceding year. One sending in a trial subscription for himself is *not* entitled to a premium.

2. Any one, whether a subscriber or not, may take advantage of the offers given on this page by complying with given conditions, except that no one is entitled to a premium for his own renewal unless he sends two or more subscriptions besides his own. It then counts the same as the name of any other renewal he may send.

NOTE.—We have, however, provided a list of CLUBBING OFFERS and COMBINATIONS, including GLEANINGS, which we are very glad to extend to our old subscribers. In those offers a renewal for oneself may be sent; and by making payment of additional postage required, a book on bee-keeping, subscription to some other paper, or something in the line of bee-keepers' supplies, may be secured for an amount only slightly in excess of the regular subscription price of GLEANINGS. (For more detailed information see page 1357.)

3. Please note that our premiums are divided into three classes as follows: For six months' trial subscriptions (new only); for new yearly subscriptions; for yearly renewals (for some one else).

4. Premiums should be claimed when orders are sent. Please order your premium as numbered and lettered, and also specify the article or articles desired.

5. All former premium offers are canceled at this date.

For New Six Months' Trial Subscriptions

SEE Rule 1 given above. As many premiums may be claimed as you send subscriptions. A subscription to one of the papers will apply to either new or renewal subscription to that paper.

Premium 1C. For one trial subscription we will advance your own subscription three months.

Premium 2C. One year's subscription to Farm News and a copy of Prof. Holden's Corn Book, postpaid.

Premium 3C. Two years' subscription to the Farm Journal (Philadelphia).

Premium 4C. One year's subscription to Farm and Fireside.

Premium 5C. One copy of "Child Training," an excellent little book by one who is herself a lover of children, and whose life work has been teaching in primary grades.

(The next five premiums are books in the Swarthmore Library.)

Premium 6C. One copy of "Increase." The first of the series. Any one desiring to enlarge his apiary should learn the Swarthmore way.

Premium 7C. One copy of "Baby Nuclei." The using of little frames and a handful of bees for mating queens has created a stir in the queen-rearing business. From this booklet you get your information direct.

Premium 8C. One copy of "Commercial Queen-rearing." A complete description of the Swarthmore method of queen-rearing in regard to cell-getting.

Premium 9C. One copy of "Simplified Queen-rearing." It tells the honey-producer how to rear queens by the simplest method ever published. Good queens for little money and little trouble, giving an effective and economical plan for the bee-keeper who works for profit.

Premium 10C. One copy of "Forcing the Breeding-queen to Lay in Artificial Cell Cups." This little book is fully explained by its title; and, though it may be considered a small book by some, it contains important information of great value to a queen-breeder, which can not be obtained elsewhere. A queen-breeder must have it. It says the last word on this great subject of queens.

For New Yearly Subscriptions

ANY one of the following premiums may be selected for each new yearly subscription sent to us with $1.00. As many premiums may be claimed as you send subscriptions. If a subscription to one of the papers is selected, it will apply to either new or renewal subscriptions to that paper.

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"Once upon a time," begins a sort of fable that used to be in our school-books.

The gist of it is, that a farmer went to a great attorney in the city and paid him a good price for a bit of advice—an "opinion," the farmer called it.

Mr. Wiseman, the lawyer, merely said, "Don't put off till to-morrow what you can do to-day." Then he took the countryman's cash, and said good by.

The farmer went home, and that afternoon put up a field of hay that he had planned to attend to the next day. "*And the next day it rained,*" and as he saw his neighbor's hay ruined in the field, and some of it going down the "crick," he made up his mind that he would remember the lawyer's advice to the end of his days—which he did—and became wealthy.

The funny thing about that fable is that there was ever any need for it at all.

It looks as though all men would see at a glance, that "putting off" is poor policy.

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If you are one of those who are not ordering needed supplies now because it can be "put off" till to-morrow or next week or next month, just learn a lesson from your own bees—get busy TO-DAY.

Order what you need in the way of supplies NOW. There's no advantage in waiting till the last minute.

To help interest you in promptness I offer a discount on orders received before January 1.

I am prepared to take care of your beeswax at highest market price, cash or trade. Beekeepers have been liberal in buying supplies, and in turn it is always one of my pleasures to pay promptly the highest market prices for honey and beeswax. Notice how this man expresses himself about my methods:

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GLEANINGS IN BEE CULTURE

Published by The A. I. Root Company, Medina, Ohio

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A. I. ROOT, EDITOR OF HOME DEPARTMENT

Vol. XXXV. DECEMBER 1, 1907. No. 23

STRAY STRAWS
by Dr. C. C. MILLER

J. J. HURLEY, the new editor of *Canadian Bee Journal*, says in that journal, page 296, "Ontario bee-keepers ought to be proud of the fact that they have among them a man of such world-wide distinction as Mr. McEvoy, of Woodburn. Right you are, friend Hurley; and what a good fellow Mac is besides!

REFERRING to what is said, p. 1428, about higher price for pure seed, I may say that, years ago, I sowed a number of pounds of sweet-clover seed which had weed seed in it. It is putting it very mildly to say that, if I had it to do over again, I would cheerfully pay $5.00 a pound for pure seed rather than to have the trouble I have had with weeds introduced.

HOW LONG does it take a colony to discov- the loss of a queen? That's a question to which I think I have never seen any definite answer. Of course, circumstances will vary the answer. C. P. Dadant says, *American Bee Journal*, 716, that he "has often noticed it within the hour, though it sometimes takes longer." That gives us something definite for one end of the answer, "often within the hour." Now, how much longer does it ever take? [Dadant is about right. It is our opinion that it will seldom take longer than an hour, if it does that much, for bees to discover their queenless condition.—ED.]

L. B. SMITH says, *American Bee Journal*, 723, that he has no trouble in keeping a young queen and two or more *old* queens in the same hive; but with *young* queens it is a failure. [If he means without perforated zinc, we would agree with him; but when the metal is used, the plural-scheme plan can be worked clear up to and through the breeding season, and up to the close of the honey harvest. After that time one of the queens will probably disappear — the one least able to perform the arduous functions of a mother. —ED.]

THAT A QUEEN caged near the entrance at the bottom of the hive interferes less with the working of the bees than to have her caged elsewhere (Doolittle, 1433), is, I think, entirely new. Looks good too. [In early spring or toward fall, caging near the entrance would be likely to do some injury to the queen, for the reason that she would be left "high and dry" — that is, isolated from the cluster, where she will become chilled. While she will, of course, recover, she will be likely to sustain permanent injury. But this is not saying we do not believe that Mr. Doolittle may not be right on the general proposition as to the effect on the bees.—ED.]

ADVICE about ventilating bee-cellars, page 1430, is good, only I'm not so sure about one item: "During a very warm spell the outside atmosphere may be very much warmer than that of the cellar. The ventilator should then be used only at night." When warmer outside than in, you may be pretty sure the inside temperature is above 45° — warm enough so bees are using up oxygen pretty fast, and *confined* air is so bad that it may be better to keep ventilation going all day, because warmer fresh air is better than colder foul air. If convenient to have ice in the cellar to keep down below 45°, then it may do to close ventilation. [This question hinges largely on locality. In the quotation referred to we had in mind a temperature outdoors of between 65 and 70, as we often have in mid-winter, when the temperature in the cellar, without opening up, would be somewhere about 50. In that case we would still think that night ventilation would be better than ventilation during every one of the 24 hours. —ED.]

"I FAIL TO SEE any advantage in feeding syrup as thin as equal parts of water and sugar, even for early feeding for winter stores," says J. L. Beyer, *Canadian Bee Journal*, 300. Friend Beyer, don't you know that the little chemists make changes upon the sugar syrup fed to them so as to make it fit for winter

food? And do you think they can change your "two pounds of sugar to one of water" as easily as they can syrup as thin as nectar? Besides, the "2 to 1" sometimes granulates in the combs unless acid is added (sometimes it does then), and are you sure that you can add the acid quite as well as the bees can? [If Mr. Beyer will test this matter thoroughly and watch carefully he will see that the two-to-one syrup will probably granulate in the combs, just as Dr. Miller says, while the one-to-one product will remain liquid so long as the bees require it; and, what is more, it it has been inverted, chemically speaking — that is, digested. Do not understand us to say that such product will be honey. It will have some of the characteristics of honey, but it will be very quickly detected by the chemist, as it should be.—ED.]

IN THE DUAL PLAN with virgins, Mr. Editor, p. 1448, if "the second queen should not be caged more than two days prior to the removal of the first one," and said second queen emerges from her cell a week prior to that time, what are you going to do with her in the meantime? Seems to me that, if you limit the time of her imprisonment to two days, you cut out the chief advantage of the plan. I've been caging them much longer, and never discovered the harm. What is the harm? [You ask what is the harm. A virgin long caged in a nucleus or colony is too often unfavorably received; and, even though she may be accepted, she may be minus a wing or a leg, and otherwise give evidence of having been through a struggle. The result is, she is not and will not be what she would have been had she been kindly received at the start. The case you suppose is quite possible; but where queens are reared in large numbers, one can, with a perfect system, establish a proportion so that the second queen, with favorable weather, shall not be caged more than two days prior to the removal of the first one. Where only a few queens are reared, such proportion could not be so easily maintained.—ED.]

"THE INTELLIGENT and up-to-date orchardist does not now spray (because he knows better) during the time the trees are in bloom," p. 1421. Beg pardon, Prof. Surface; but "in this locality" he does—at least he is intelligent and up-to-date in all other respects. [With due apology to Prof. Surface, we should state that the quotation is not the exact wording used by him, but our summing-up of his statement on the point as we heard him deliver it at the convention. Since that time we have seen a copy of the paper, and we find his exact wording is as follows: "In general, no fruit-grower who knows how and when to spray ever sprays any thing while the blossoms are open." Admitting that he does spray while the trees are in bloom in your locality, doctor, we would still insist that he is not intelligent and up to date. This may be due largely to the fact that one manufacturer of spraying-outfits in your State, who, either because of ignorance or because he has a grudge against bee-keepers, has sent out thousands of pamphlets with his spraying-outfits, advising every one to spray while the trees are in bloom, notwithstanding the experiment stations everywhere, as well as scientific men in general, protest that such practice is wrong in theory as well as in practice, damaging to the bee-keeper and hurtful to the delicate blossoms.—ED.]

J. E. HAND is quite right in saying, page 1436, that I would not wish to go on record as saying that bees in Illinois are as likely to store their surplus below the brood-apartment as at the sides and above it; and I am sorry that any one should so understand me on p. 948. Undoubtedly their general preference is to store above the brood; but the exceptions I have met certainly do not warrant the statement that they never store below it. If Mr. Hand has never had any experience of this kind I cheerfully accept his word for it; but that does not change the fact that it occurs elsewhere. He says his "statement has reference to bees in a normal state unrestricted by the hand of man." I am not sure just how far that "unrestricted" is meant to apply. I suppose we all do a good deal of restricting—certainly I should say Mr. Hand does. But let me give illustrations of cases that have come under my notice. One year I put under colonies in ten-frame hives hive-bodies of empty combs for the bees to take care of. To my surprise, at that time, the bees did not leave them empty, as Mr. Hand says, but stored honey in them. For a number of years I've used bottom-boards 2 inches deep, with a false bottom, during harvest time, about 1¼ inches deep. A good many times the bees have built comb in the space at the bottom of the hives, filled and sealed it, and I'm not sure they ever had brood in it. They were no more restricted than they always are, having abundance of room in the supers. Neither did the bees "quickly remove" this honey, and combs were found unemptied when the false bottoms were taken out in October. With these new facts before you, friend Hand, I think you will hardly want to go on record as saying that bees *never* store honey below the brood.

EDITOR HUTCHINSON endorses the idea that official documents of the National ought to contain no electioneering, *Review*, 301. Right. In the same paragraph he seems to endorse the idea that on Oct. 1 "the General Manager, and one other disinterested member, should count the votes" for nominations of candidates. Wrong. The General Manager is not a disinterested member, and sending the votes to him gives him an undue advantage. Neither is it fair to send the votes to any officer about to go out of office. Mr. France is *the* man for Manager, but he ought not to be placed in such an unpleasant position. And while I am about it I may say I doubt the wisdom of the rule which says the two persons receiving the highest number of votes for a certain office should be the only candidates for that office. Let that prelim-

inary vote be considered an informal ballot, publish the results, and then let every one vote as he likes. [We indorse all that Dr. Miller has said. The Association should avoid every appearance of evil. And right in this connection we desire to go on record as believing that no representative of a bee-supply factory, nor any of its agents, should be directors, nor hold any other office in the Association. While this very class of people has undoubtedly helped to build up the organization to its present strength and efficiency, we believe the time has now come when their services are no longer needed. We advocated this principle some six or seven years ago, and in conformity therewith refused to serve as director, though twice elected on two different occasions. We are sending a marked copy of this journal to each member of the Board of Directors, urging that they lay the matter before the members for their consideration; and we would suggest that, a year hence, the matter in the form of an amendment to the constitution be submitted for vote of the members at the next annual election. In bringing this up we do not wish to imply that any supply man as an officer of the National has abused his privilege; quite to the contrary; but the principle is wrong, and the organization should steer clear of any *appearance* of an "ax to grind." We do not believe it is necessary nor wise to bar out editors or publishers of bee-papers if they are not otherwise connected with the supply business.—ED.]

LET ME GIVE YOU a statement from an editorial in the *Chicago Record-Herald*, which is no prohibition paper, but a leading daily well patronized by liquor advertisements. Here is the statement, which is as good a summing-up of the present situation as I have seen:

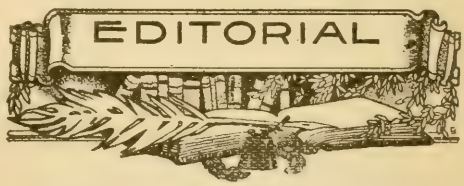
A list of the States that are "dry" or partly "dry" would be practically a list of all the States in the Union. So rapidly has the movement been spreading of late that it would be difficult to keep up with the facts were it not for the prohibition leaders, who provide ever revised tables of the status. When Oklahoma enters the Union and the Georgia law takes effect there will be five prohibition States. In Tennessee there are no saloons outside of four municipalities. In Kentucky, only four counties are wholly "wet," and only 22 out of 119 have any saloons at all. In South Carolina most of the State is dry, and elsewhere the county-dispensary system prevails. In Alabama there are 27 dry counties. In Ohio, 1140 out of 1376 townships and 60 per cent of the municipalities are "dry." And so it goes.

[Similar statements, only more extended, have appeared in different papers throughout the country. Verily it is evident that the great newspaper world is beginning to wake up to the fact. The *Saturday Evening Post*, a magazine that probably has as wide a circulation as any weekly in the United States, contains an article in its issue for Nov. 9 entitled "The Battle of the Bottle." Some very interesting facts and statistics are given, and then follows a deadly parallel showing the difference between dry and wet territory as to the amount of crime committed. We quote two paragraphs which are right in line with those taken from the Chicago *Record-Herald:*

Beyond this you fear that prohibition will lessen your labor. *It will.* It will surely diminish the number of convicts now employed in your mines. That enormous force of convicts who are working for you in the mines serve as a permanent strike-breaking nucleus to hold the labor unions in check. A convict can't strike, he can't quit, can't get away. Convicts help to fix the wages of free labor. The convicts from liquor counties are twice as numerous as those from dry counties. These very convicts have recently given out a statement showing a startling number whose crimes were caused by whisky.

Compare prohibition Maine with Alabama. Maine last year killed two persons by murder. In Alabama, with twice the population of Maine, during the last four years there have been 1381 cases *come to actual trial;* 328 were not convicted; 78 were sentenced to death; 330 convicted in the first degree; 205 in the second degree; 440 of manslaughter. In 1906, 1132 of Alabama's convicts were in prison for murder, assault with intent to kill, and assault with weapons. Such men form part of the labor in the mines. Alabama has 2600 convicts; Maine has 186, white. Prohibition will *undoubtedly* decrease this class of labor.

And yet, strange as it may seem, there are many people in Maine, and some good ones too, who think prohibition in their State is not a success. Because they find an occasional blind tiger or an occasional drunken man in the streets of their cities they conclude the great principle of State-wide prohibition is a failure. They might just as well argue that, because there are murders, the law against murder should be repealed.—ED.]



ON account of the crowded condition of our space in this issue our Harrisburg National Convention Report is omitted from this number. We hope to resume it in our next issue.

W. L. COGGSHALL, of Groton, N. Y., who possibly owns as many or more bees than any other bee-man in the United States, writes that he expects to spend two months at 680 North Madison Ave., Pasadena, California, probably for his health. Pasadena is right in the heart of some of the best bee country of Southern California, and we are sure there are many bee-keepers in that vicinity who will be glad to meet their distinguished fellow-craftsman from New York.

WE have been favored with a copy of a very nice paper-bound book of 140 pages on the subject of bee-keeping in Spain by modern methods. The anthor is Señor M. Pons Fabreques, editor of the Spanish bee-journal *La Apicultura Espanola.* The name of the book, "Nueva Cartilla del Apicultor," indicates its mission, and the writer is evidently well grounded in the modern methods of keeping bees, for the hives, etc., which he recommends and illustrates are up to

date. He particularly shows how to make comb foundation, both on presses and mills. The book is well printed and illustrated on good paper, and is altogether creditable, both to the author and publisher. It is published in Barcelona. W. K. M.

THE two great bee-keepers' associations of Germany and Austria-Hungaria have decided to amalgamate, sinking all differences which may have existed between them for the past ten years. The combined membership of the two societies is 100,000, which will, in all likelihood, be very largely augmented by the increased prestige. The name of the society will be *Der Deutsche Imkerbund* (the German Bee-keepers' Society). GLEANINGS wishes the new federation long life and prosperity.

There isn't room for two national bee-keepers' associations in one country, and the German-speaking people are wise in recombining. The next meeting will take place at Buckawina, in Austria. W. K. M.

KEEPING COMB HONEY DURING THE WINTER MONTHS.

PRODUCERS should take pains to inform retailers over and over again that they must not store their comb honey down cellar nor in a refrigerator, but that it should be kept in a dry warm room *at an even temperature.* And in this connection it is well to remark that a temperature varying from 70 down to freezing will cause honey to granulate much quicker than a continued freezing temperature. But we should not argue from that that comb honey should be kept in a cool place—better by far that it be kept at a uniform temperature as near that of a living-room as possible.

Comb honey will stand a little freezing, but not very much of it. If it is to be sent by freight, if possible shipment should be deferred while it is below freezing. That is one reason why all comb honey should be moved to points of local consumption before cold weather comes on.

THE WANING OF THE COMB-HONEY LIES.

WE wonder if any of our readers have noticed that there has been but little said about manufactured comb honey in the papers of late. We have seen only one item, and that is to the effect that an artificial syrup has been made which, it is thought, would analyze the same as honey. But the chemists are able to detect this product without fail. Of course, it does not taste like honey, does not look like it, and lacks the delicate aroma of the product direct from the flowers.

But how about the disappearance of the comb-honey lies? It is because, in our opinion, the national pure-food law has gone into effect, and the purveyors of these erstwhile canards know that they can no longer jam them into a gullible public, because the national pure-food law would not allow this so-called manufactured product to be offered for sale. The best answer that we can give to show that there is no such thing is that Uncle Sam would not allow it to be sold, and that is reason enough.

A NEW PLAN OF PUTTING UP COMB HONEY IN SECTIONS.

ELSEWHERE in this issue we publish a very valuable contribution from H. A. Sackett, of a plan for putting up comb honey for retail in transparant paper so that not only the comb shall be protected but that the honey shall show as well. The plan involves but very little expense, and we feel sure it will be the means of securing a considerably increased price on honey put up in that manner. It retains to a great extent the advantage of glass for sections without its expense.

During winter evenings a bee-keeper and his family can prepare a large part of his comb honey in this way; and if he can add a cent or two per pound by so doing, he will be well repaid. A very neat, pretty design on the outside of the transparent paper will also help to enhance very greatly the appearance of the package.

It is to be regretted that the photos come very far short of showing the beauty of the package. Why, a dark or a travel-stained comb looks much better behind the haze of the beautiful transparency than it does uncovered. Try and see for yourself.

THE HONEY MARKET; HONEY FOR MANUFACTURING PURPOSES GROWING SCARCER, AND WHY.

THE late stringency in the money market has had a tendency to depress prices on nearly all commodities, including honey. Then, too, the approach of the holidays has had its effect. During Thanksgiving and Christmas the delicacies seem to be cranberry sauce, mince pie, and turkey, while honey which has been on the table for months back seems to be relegated, for the time being, to the background. But this year there has been such a great scarcity, that it is our opinion the market will recover itself, and that we shall not see this year the usual slump in prices after Jan. 1st. It is true that there is quite a little Colorado honey left in the eastern markets. This, we believe, to a great extent will be gone by the beginning of next year.

As indicative of the scarcity of honey for manufacturing purposes it appears that the National Biscuit Co. is advertising for honey—something it had never done before—in fact, it did not have to. See our advertising pages. So, taking it all in all, especially since the national pure-food law has gone into effect, we expect to see a firm market all of next season on all grades of honey for both comb and extracted. Even should there be a good year there will be no adulterated honeys to depress the market on pure goods as formerly. Never again do we expect to see honey go back to its old level.

GETTING IN THE FACTS ON SUGAR.

THE United States Department of Agriculture has finally decided to conduct an exhaustive inquiry into the present methods of manufacturing sugar and molasses, and a staff of experts will proceed soon to the sugar-plantation of Messrs. Holloway & Holloway, in the neighborhood of Plaquemine, La , where a course of experiments will be conducted with the view of settling certain mooted questions that are now discussed in connection with the national pure-food law.

At first Dr. Wiley intended to direct these experiments under his own personal superintendence; but Secretary Wilson has decided he can not be spared from Washington just at present. Professors E. M. Chace, A. H. Bryan, and C. E. Dodge, of the government pure-food staff, will conduct the experiments, which will be of the most complete kind.

The investigation will center around the presence of sulphites in sugar and molasses, which, advanced pure-food advocates claim, are injurious to the human system; whereas the sugar-men hold these are not injurious in small quantities, probably because it is convenient for them to use sulphuric acid or sulphur in refining their products.

A great deal hinges on the results of this inquiry.

The sugar-makers claim their methods are above criticism; but Dr. Wiley differs with them, and he is known as a sugar-expert. Already there has been a considerable change, and phosphoric acid is again coming into use, though it is dearer. Much of the molasses formerly sold quite freely is now being converted into stock foods, rum, or alcohol. Cane syrup is now being sold without the addition of glucose, and almost all the makers have decided to stop adulterating with glucose.

The results of this inquiry will prove of very great importance to bee-keepers; for should the findings of this committee be directly against sulphites, glucose syrup will have to submit to scientific regulation which will rob it of its power to depress the price of all syrups, honey included.

It is to be hoped Dr. Wiley will be able to "make good" on this matter; at least bee-keepers hope he will succeed in making out his case. W. K. M.

THE ADULTERATED-FOOD MANUFACTURERS BEING FORCED TO QUIT BUSINESS.

WE are informed by a traveling man, one who is in position to know what he is talking about, that one very large concern that has been doing an extensive business in putting up adulterated food preparations, such as cheap jellies and syrup, has been compelled, owing to the action of the new national pure-food law, to close its doors. So long as it could sell its bogus goods under some honest name, and with no law to stop it, it could do a thriving business; but the new law, that absolutely puts a stop to misbranding, has made it necessary for this firm to suspend. Nor is it by any means an isolated case. Dozens of these concerns that formerly did a thriving business in putting up bogus food stuffs are now compelled to shut up shop.

The question may be asked, "Why could not these same people go into the business of selling honest goods?" Simply for the reason that the consumers who have been paying a fair price for genuine maple syrup and genuine fruit jellies will continue to go to the concerns of whom they have always bought. If these other fellows attempt to put up pure goods, and sell them at a living profit, packers that have always done an honest business would have such a lead that the others would get no show, and consequently one or the other of them will have to quit business.

Henceforth and for ever it is apparent that, when a jar is labeled "Pure Fruit Jelly," it will be a genuine article, or that somebody will be running a tremendous risk; and no one, apparently, cares to take that risk. The same thing is going to be true of syrups and honey, and, in fact, it is so already, and since last October the full force of the law has been in effect. It will be a sorry day for the concern or company that attempts to misbrand any food or medicine.

Of course, it will be true that there will be on the market gelatine jellies, adulterated syrups, and honey; but the label in every case will have to show, in plain type, every ingredient.

THE FEARFUL DESTRUCTION OF OUR FORESTS, AND THE ATTITUDE OF PRESIDENT ROOSEVELT ON THE SUBJECT.

IN the various speeches of President Roosevelt in his trip southward, at different places he has referred to the awful waste of our resources in a way that should command the attention of the entire country. In his Memphis speech he said, "We are face to face with the great fact that the whole future of the nation is practically at stake in the momentous decision that is forced upon us. Shall we continue the waste and destruction of our natural resources, or shall we conserve them?" Then he goes on to speak of the destruction of our forests and of the washing-away of valuable soil as a result of this leveling-down of the timber.

Accompanying President Roosevelt on this trip was Chief Forester Pinchot, a man who has given this subject a large amount of attention and thought. Indorsing the President he says, "The United States has already crossed the verge of a timber famine so severe that its blighting effects will be felt in every household in the land." So severe is this famine that he estimates that our supply of lumber at the present rate will be exhausted in about thirty-three years.

It appears that our forests, in addition to furnishing material that we may say is indispensable, has, until late years, prevented to a great extent the washings of the mountain-sides that at present carry away valuable soil, and these unrestrained floods rush into

the valleys, bringing destruction and carrying away the fertility of the soil to an extent that is becoming to be alarming in some sections.

At present it is estimated that only about twenty per cent of forest lands are under the control of the government. The rest of it belongs to private capital that looks not to future gains but to immediate returns, no matter what the cost and hardship that may be entailed upon future generations.

But no timber in the world has been cut more ruthlessly than that which is used in hive and section making; namely, white pine and basswood. At the present time hive-makers have to depend upon the odds and ends that they can find in the markets that are too short or too knotty to be used for building purposes; but by cutting around the knots they are enabled to make a fairly good hive; but the time is not far distant when even these odds and ends will be gone.

Not many years hence the supply-manufacturer will have to depend upon some other material of poorer quality, and yet which will doubtless cost even more than the present stock.

The President's trip southward, accompanied as he has been with Chief Forrester Pinchot, may have some effect in waking the public up to the importance of legislation that will protect future generations from the waste that is now going on, on private lands. The duty, first of all, on lumber should be removed, and then some restrictions placed on cutting trees which in a few years would furnish treble the amount they now do.

In Germany, for example, there are forest reserves from which it is allowable to cut only trees that have reached their best growth for lumber purposes. All the younger ones are carefully nurtured. Such a policy is being begun in the United States; but, unfortunately, it will be too late to prevent hardship on the future generation.

The great railroads are beginning to see the importance of setting out trees for their future supply of ties, for nothing in all the world is equal to wood for the purpose.

EXPERT TESTIMONY ON SWEET CLOVER AS A VALUABLE FORAGE-PLANT ON THE FARM.

EVERY bee-keeper in the central tier of States should carefully make note of the fact that John M. Jamison, of Ohio, one of the ablest and best-known farmers in America, is strongly in favor of sweet clover as a forage-plant. He grows some himself on his fine farm in Western Ohio, and wishes he had planted more of it this year. See what he says about it in the *Rural New-Yorker* for Oct. 26. Mr. Jamison is a well-known lecturer on practical farming, more particularly on dairy husbandry; and, moreover, he farms on quite a large scale himself.

Mr. Joseph E. Wing, a great authority on alfalfa culture, now advocates growing sweet clover and alfalfa together. He is a large grower on his farms in Ohio and Alabama, and knows what he is talking about. He says if alfalfa seed has sweet clover mixed with it there is no need of removing it. On the contrary, its presence will prove to be beneficial.

Dr. Thorne, director of the Ohio Experiment Station, at Wooster, has been a pronounced advocate of sweet clover for years, and still sticks to his opinion.

The views of these men carry weight; so if the people in your section are disposed to outlaw sweet clover, call their attention to this statement. W. K. M.

WHAT SWEET CLOVER DOES WITH POOR LAND.

THE following clinching argument in favor of sweet clover as a soil-renovator appeared in the *Oklahoma Farm Journal*. It completely knocks the bottom out of the assertion that sweet clover is a weed, and proves it is the greatest soil-improver we have in this country to-day:

I can not understand why sweet clover should be more detrimental to orchards in Oklahoma than in Kansas. I would have to be shown to believe it. A few years after I came to Kansas I planted an orchard on the poorest kind of Kansas gumbo land, not fit for cultivation. I mulched young trees heavily for three or four years, also sowed it to white sweet clover, partly because lands would yield no returns for cultivating, and partly because an orchard should not be cropped with any thing not a legume, and mainly for bees to work on clover. The orchard grew finely, and produced the finest of fruit on coming into bearing. The sweet clover mastered every thing and grew immensely. It had full possession eight or ten years, when I sold out, eight years ago. Last fall I was there. About half the orchard had been in peach-trees mostly, and the new comer had cleared up half the orchard where peaches had grown, and was growing great crops of corn on that old gumbo land, beating his best bottom land, he said. I was amazed at the sight. He asked me what caused such corn to grow on that land. He said the plow would go right down to the beam in that soil—and he never had manured it. I knew in a moment it was the sweet clover. And there you are. The apple-trees remaining were extra large, and growing magnificent fruit.

I am 73, and too old to plant another orchard. If I had known what I know now, what sweet clover would do to gumbo land, I could have bought 1000 acres of such land at seven or eight dollars per acre, and made it worth seventy-five dollars per acre for growing corn and alfalfa.

Knowledge came too late in my case, but I know nobody will believe such a story without the experience. It is true all the same. And you need not doubt it would do the same trick in Oklahoma or elsewhere. I am not writing for publication. It is nothing to me. I know what my eyes have seen. I only regret that I did not know it sooner. I have a good warm feeling for you and your paper, which is doing good work.

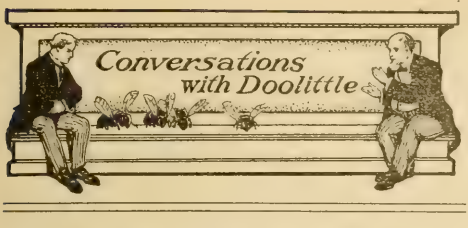
Morris Co., Kan. D. P. NORTON.

Comments of editor *Farm Journal:*

Unquestionably sweet clover is a great renovating crop because of its ability to grow on soils poorly adapted to plant growth, because it gets down into the subsoil, and because, when it goes down on the land, it adds to the supply of available plant food.

The trouble with it in orchards here is this: Both trees and sweet clover can't grow on the same piece of land this far south and west. Alfalfa does not grow so vigorously as sweet clover, and we have killed excellent orchards, experimentally, by growing alfalfa in them. It's a question of moisture. This year, only the orchards that have had clean cultivation matured good peaches, and are holding their apples to maturity. We must give orchards clean cultivation until July 1; then we may plant cow peas as a winter cover crop and for its renovating value.

A very few of our best farmers use alfalfa as a soil-builder on tough uplands, and report improvement of soil conditions similar to the experience which you relate with sweet clover.



WHY CELLS WERE NOT STARTED.

"I have been following the Doolittle plan for preventing swarming by caging the queen on a frame in the hive, and liberating her after ten days, when the queen-cells were to be cut. I was going to requeen with these cells; but upon looking through the hive there was not a sign of a queen-cell to be found. Will you please tell me why? And if there is any other good way to requeen when working on this plan, will you please tell me about it? When I caged the queen there were eggs and brood in all stages; but at the end of the ten days there were no eggs nor larvæ, the brood being all capped over, the most of the cells not containing brood having more or less honey in them."

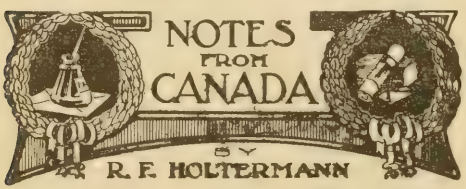
The above was written by J. Victor Huddle, West Jefferson, Ohio, during the swarming season of 1907.

I might answer the above by simply writing the word "location." But Mr. Huddle might feel that I was not giving him all the light he wished, if I did so. Some feel disposed to "poke fun" at having many of the ills of apiculture laid to location, while others feel that location has very much, if not all, to do with the disagreement among beekeepers in regard to the workings of the different plans put forth in our literature which pertains to the honey-bee. My belief is that both sides are partly right. I know that location does play a very important part in many of our experiments and plans; and I also know that very many, in trying the different plans given to the public, experiment so loosely and carelessly that the plans would not work with them as they did with the promoters, even were they in the very same location, and tried the plans at the very same time and in the same apiary. And this is not said as casting any reflection on our correspondent, either. With these few words on location I will give my views on "why queen-cells were not started." The place in the brood-chamber used for caging the queen has much to do with the starting of queen-cells, according to my experience. If she is caged near or at the top of the frames, many more queen-cells will be started than where she is caged in the center of the brood-nest or near the bottom of the same. During the later years, when working on this caging-of-the-queen plan to prevent swarming I always caged the queen at the bottom of the brood-nest, slipping the cage containing her just above the bottom-bar to one of the central frames, wherever I could find a place where the comb was not attached to this bottom-bar, and during some years not a single queen-cell would be started; and, after one of these years, I told a bee-keeping friend that, if he would so cage his queens when working on this plan, there would be no need of opening hives at the end of the ten days to look the frames all over, for it would be safe to conclude that there would be no cells to destroy—just liberate the queen, and that is all there is of it. We were both so pleased with the saving of the work and annoyance which always attends the shaking of the bees off from all the brood-combs in a hive and hunting up the queen-cells, often in some of the most out-of-the-way places, that we swung our hats in the air and concluded we had made a great discovery which the bee-keeping world had never dreamed of. But with the next year a changed condition existed, right in the very same old location, and in every colony where a queen was so caged, from two to twenty queen-cells were started, and we agreed that we were glad we had not shouted "*eureka*" over the matter so that it might have been heard beyond our own ears. Nevertheless, from years of experience I have found that the rule holds good, that, under all the varying circumstances which come to any locality, many more queen-cells are likely to be started where the queen is left caged at the top of the brood-nest than where she is left near or at the bottom; and if we wish still more cells started she should be caged in the surplus apartment of the hive. The reason for this seems to be that, with the queen caged below or on the brood, the bees do not consider themselves as queenless to the extent they do where she is away from the place they are accustomed to have her when she has her liberty; and so they neglect, under certain conditions, to make any provision for her replacement till the brood gets too large to be fed, and turned over into a fully mature queen. In the above our correspondent and the readers of GLEANINGS have the best answer I am able to give regarding why cells were not started.

And now as to any other good way for getting cells for requeening when working on this plan for the preventing of swarming: I have found that, after any queen has been caged, no matter in what part of the hive she may be placed in, if a frame having a bar of prepared queen-cell cups is given two days later, the bees will go on and perfect those cups into large queen-cells, which, when ripe, will give as nearly perfect queens as can be reared outside of the swarming impulse, or by the plan given in "Scientific Queen-rearing." In fact, under most circumstances, as good queens can be reared in this way as can be reared under any conditions, for this caging is done at a time of year when the bees can rear queens to the very best advantage; and if the queen is caged on the brood, or near the bottom of the same, the bees work at the queen-cells with the same leisure and perfection that they do under the best swarming impulse ever attainable, which has been nature's plan of handing down to us during all of the past centuries the honey-bee of the present; for the direct effort of

man had very little to do with the quality of our bees and queens prior to half a century ago.

It will be noted that Mr. Huddle states that he found most of the cells not occupied with brood, having honey in them when he went to look for queen-cells and liberate the queen. He does not tell us of his success in comb honey from this colony; but with me, where I have found these conditions when liberating the queen, it has always meant a great rush of honey into the sections, if the season held out only from three days to two weeks after the queen began to lay again. There seems to be an incentive in just these conditions which gives section honey beyond almost any thing else, as this unsealed honey is removed from the cells, through the eagerness of the bees to give the queen room for her rapid accumulation of eggs, while this removed honey, together with the nectar coming in from the fields, is rushed into the sections at a rate rarely ever seen under any other conditions; so that we soon have supers filled with the very whitest honey, and that capped to perfection, right out to the very wood of the section all around.



EARLY SETTING-IN OF BEES.

This year I expect to place my bees into winter quarters by the 12th of November. "Early to bed, early to rise," I believe results, other conditions being right, in better-wintered colonies. I have fed, this autumn, sugar syrup to every colony, even if it had plenty of stores. Pollen-clogged combs are not good; pollen-clogged bees are still worse. My intention is that the bees shall have ready access to sugar-syrup stores during all the early part of the winter. In the future the microscope may help us to determine as to the suitability of certain stores for winter.

SPREAD OF FOUL BROOD.

Under "Who Spreads Foul Brood?" the *British Bee Journal*, page 233, Progressive writes: "My experience shows that the big people at the hall and the gentry generally are the worst sinners; and why? Simply because they do not realize that they are doing any one any harm. Their gardeners, as a rule, are either too busy to attend to bees, know nothing about them, or are afraid of them." We have a parallel in the many who keep bees in this country, but who rarely look into a brood-chamber. One or two colonies may form a connecting link to spread the disease over a wide area.

WHITE ITALIAN CLOVER.

W. K. Morrison, p. 1385, Gleanings, introduces to the attention of bee-keepers a new clover. The illustration on page 1384 looks tempting. In our vicinity our bees general ly have plenty of clover, but the weather and other conditions are not always favorable. I also find that, even with plenty of clover in blossom, generally the result of frequent rains prolonging bloom in old clover, or bringing on bloom on alsike sown the previous spring, clover rarely continues to yield much. There may be one or more reasons for this.

On page 389, *British Bee Journal*, a correspondent is answered as follows: "No. 2 (last season's honey) has a good portion of honey-dew in it; fermentation has started; but, though unsuitable for table use, it may be utilized for bee-food if, after thinning down a little with hot water, it is boiled for a minute or two, and the scum removed before using." Boiling may have a beneficial effect upon honey-dew. I have never tried it. If I once had honey-dew outside of the hive I would keep it there; and if I had any in the hive for winter stores I would lie awake at night thinking about it. From observation and various reports there is more honey-dew in Canadian hives this season than will be good for the bees.

IRASCIBILITY.

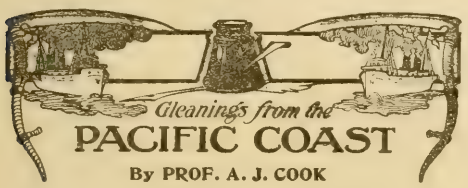
Under the above heading, p. 371, the same journal, M. M. Banff states, "The season of the year, the nature of the flow, the amount of interference they are subjected to, as well as climatic conditions, all go to explain the uncertain temper of bees at times. Race also counts considerably, and the blending of certain races almost invariably produces cross bees." Let me add one very important factor—the distance individual hives are set apart in a large apiary. If hives are set only several feet apart when there are many hives, and there is a heavy flow of honey when bees are with all their strength and energy intent on gathering honey, the flying bees, each aiming for the entrance of a hive, cross one another in their lines of flight. Many are killed outright by striking one another, others only slightly injured; and the latter, not realizing how they are injured, are on the attack, and also give off the poison odor, which arouses the angry passions of other bees. I do not allow my bees to stand any closer than necessity demands—at least not until I have the colonies three steps apart in the row, and the rows four steps apart.

BEEWARE—THE IDES OF.

At college an old March friend, Julius Cæsar, taught me that the Ides of March was a very precarious time for an emperor. It has been left to my old and esteemed friend J. L. Byers, in the *American Bee Journal*, to divulge to the apiarian fraternity that March is also a critical time for a queen. Of course our good friend may have discovered that

there are times in March—yes, oftentimes in March—when to expose suddenly a queen to the atmosphere may result in her catching cold, or in a rheumatic condition when the bees believe the massage treatment may cure or kill, yet I have yet to learn from results (for we mark the date) that there is not weather in March when hives may be opened and the queen clipped. When honey is not coming in, care must be taken, and experience is necessary in opening hives, be it March or any other time. It is a matter of condition, not time.

By the way, our good friend Byers does not deny the gentle imputation that he does not scrape the propolis from hives, frames, queen-excluders, etc., every year. Since we have the subject up, does any one who scrapes these every season have much trouble with propolis? I doubt it.



ENEMIES OF BEES.

It is strange how much strife and contention there is in the world. As we go down into the realms of lower life it is not only "an eye for an eye and a tooth for a tooth," but we see the whole creation warring each on the other, and this through necessity, as the very principle of food-getting demands that one should die that another may live. I have wondered if, in the plan of "One too wise to err and too good to be unkind," this was to gender a spirit of strife and hate, bred in the very bone, as it were—a temper of mind as fixed as it is ugly, that the potency of love might be revealed. We know that, in the highest reaches of creation, love has done just this. If love is the greatest thing in the world, and its conquest of hate and revenge the greatest of triumphs, then was not any thing justified that brought it the largest opportunity?

BEES IN THE FIGHT.

Bees are no exception to this rule of fight or die They have a great multitude of enemies which range all through the animal kingdom, many of which are very interesting, and some of them are formidable enemies of our pets of the hive. The most to be dreaded are of the plant kingdom, and nearly every branch of animals has a representative among the great army that essay to make the life of our bees miserable and their fate uncertain.

MICRO-ORGANISMS.

The lowest of all the list of bee-enemies, and at the same time the most harmful, are the *Bacteria*, the two species of bacilli which produce the American and European foul brood. We now know that all rot or decomposition is the result of bacterial attack. All vegetable and animal decomposition is simply the result of an attack of micro-organisms. In this case the bacteria attack dead organisms; but it is not unfrequently true that related species attack living organisms, and with fatal effect, as seen in typhoid and diptheria. The bacilli of foul brook attack larvæ of the bees in much the same way, and with fully as fatal results. These bacilli reproduce by fission, or simple division, and also by spores, and so multiply with enormous rapidity; and it is this which makes them able to victimize the largest and most vigorous of animals. The spores are more tenacious of life than are the bacilli, and it is this which will permit boiling without death, if very brief, while the bacilli will not endure a heat considerably below boiling without being killed. Fortunately, through a sort of starvation and quarantine process combined we have a fairly easy, safe, and sure way to meet and down these enemies of bees. As this is well known, I will not attempt a description, except to urge all to remember that these bacilli increase so rapidly that the least inoculation will soon bring disaster, and so we can not be too careful in all our work with colonies that have foul brood. In case the bees are not gathering I would always work under a bee-tent, and keep a large oil-cloth beneath, so no honey could possibly be taken by bees from other hives not diseased. In fact, such caution is not out of order at any time.

The molds that we often see in the hives when they get too damp, and the unpleasant stench that comes with disaster in wintering, are also the result of related forms that belong to the lowest realms of vegetable life. It is not improbable that the latter do their part in the frightful mortality that often attends disastrous wintering in the more severe winters of parts of the North and East of our country. It is more than probable that the drier atmosphere, that is thought to be conducive to greater safety, comes from the fact that these lower plants often must have moisture to live and thrive, and in its absence they are not present to put in their deadly work.

INSECT ENEMIES OF BEES.

There are numerous insects that prey upon our pets of the hive. The bee-moth, the wee bee-moth, the bee-louse, the wasps and ants, the cow-killer, the mantis, the robber-flies, the stinging-bug, and the darning-needles, or dragon-flies, are all sinners of this kind.

THE OLD BEE-MOTH.

This enemy was known, I dare say, before America was discovered, and so, like our bees, came from Europe. It does not kill the bees, but works in the wax and feeds on the pollen, and by its webs is as fatal to the welfare of the bees as though it ate them. The scientific name is suggestive of the work of this pest—*Galleria mellonella*. Its webbed galleries and its disturbance of the bee are well worth suggesting in the name. It seems

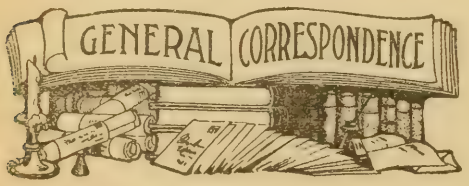
probable that the moth does not need to enter the hive, as it is likely that, if the eggs are laid near, the wee larva, or caterpillar, will, as soon as it is hatched, betake itself to the combs, and then commence its work of ruination. We know that strong colonies are little likely to be injured by this bee enemy. He, then, who observes the golden rule of bee-keepers, and keeps all his colonies strong, will have little need to complain of this bee-moth. Bee-keeping is now very generally carried on by those who study and think, and so the bee-moth has little place in our work, as no good bee-keeper has any fear of these insects. It is the indifferent, ignorant, heedless bee-keeper who has reason to complain of *Galleria mellonella*.

THE WEE BEE-MOTH.

The little moth known to science as *Ephestia interpunctella* often does mischief in the same way as does its larger congener. It spreads a web of silk over the combs, and lives on the pollen in the larval stage. I have known it to be quite a mischief-maker, but think it too rare an insect to cause any serious annoyance. Like the old bee-moth, it will be little feared by any bee-keeper worthy the name.

THE BEE-LOUSE.

This little parasite, while quite an annoyance in parts of Europe, has never gained much of a foothold in America. It is not a true louse, as it belongs to the *Diptera*, or two-winged-fly order. It is quite closely related to the sheep-tick, and, though it is not fatal to bees, it is a great annoyance to queens, and we may well be glad that it has failed to become acclimated in our American apiaries.



THE PLURAL-QUEEN SYSTEM.

All Queens but One Disappear at the End of the Season.

BY E. W. ALEXANDER.

[It is said that confession is good for the soul; and we might add that the right kind of confession does not lower one's dignity nor diminish the confidence of his friends. Mr. Alexander has explained some very interesting and difficult manipulations in the management of bees. He has given us a number of valuable tricks of the trade. If every thing he had told us about always worked out just right, and all his plans had spelled *success* and never *failure*, we might lose confidence in him. While he has never been boastful, yet when he frankly confesses that he did not make the plural scheme work at the close of the season, and even goes so far as to say he is "up against a rock," our confidence in his teachings is increased, because we know that *when* he fails he will frankly tell us so. This article, we feel sure, will be read with more than ordinary interest; for very often the recounting of our failures is more helpful than the telling of our successes.—ED.]

Mr. Root:—On page 1369, Nov. 1, you wish to know if we can work two or more queens in a hive at this time of the year. In reply I will say I have just been examining some colonies that contained several queens during the summer, but can now find only one queen in each. This is the same as our experience was one year ago with two colonies. Here we appear to be up against a rock, and it is hard to understand why it is that queens will live in harmony together from the first of May, as some we have had do, until about Oct. 20, and then sting each other. I can account for it only in this way: After the queen has stopped laying about a month she becomes small and more active, like a virgin; then, realizing that she can handle herself much easier than during the summer, when full of eggs, she is ready to grab another queen in mortal combat as soon as she meets one. If this is the case, as our experience seems to prove, then we shall be obliged to separate these queens with queen-excluders near the close of the season. I don't think the worker-bees have any thing to do with stinging these queens after they have been safely introduced. Here is a very important part of this method that we shall have to work out in the future. We are now past all trouble during the spring and summer season along this line, but it may take a long time to perfect some way of keeping them all at liberty in one colony during the winter months. Of those who are trying to winter queens in this way I hope some one will be able to give us a successful report in the spring.

Delanson, N. Y., Nov. 5.

[In our issue for Sept. 1, p. 1137, wherein Mr. Alexander gave his method for introducing two or more queens to a colony, and making them live together like a happy family, without the use of perforated zinc, it will be remembered that we expressed our doubts as to whether this felicity would continue after the honey-flow had stopped, and conditions were approaching the usual preparations on the part of the bees for winter. "For," we said, "we would suppose that, after the honey-flow had stopped, and there was a strong disposition on the part of the bees to rob, one or more of the queens would disappear until only one was left." We now raise the question whether it is practicable to practice this dual or plural queen system, even with the use of perforated zinc, after prosperity has begun to wane. It is *then*, according to our experience, that there seems to be a strong disposition on the part of the colony, or the queens themselves, to have only one mother in the hive. Mr. Alexander's theory, that when the queens have stopped egg-laying, and therefore they are more active, may explain why the queens are belligerent enough to fight to a finish. But we are of the opinion that the *bees* themselves take a hand in the matter, on the principle that economy and retrenchment are the order of the day.—ED]

A BEE-PROOF VEIL AND SHIRT.

BY D. H. COGGSHALL.

Gentlemen:—With your permission I will give you a description of the bee-veil I use for working with my bees. I find it bee-proof, and there is no chance for bees to get near your neck to sting you. I can work all day during the buckwheat season, and not a bee gets inside of the veil. From gingham an overshirt is made that is even with the shoulders, and the sleeves are large enough to come to the knuckles, where a piece of rubber cord is put in to hold it around the hand. An opening is cut for the thumb. Rubber cord is also used around the waist and hat.

The veil proper is made of bobinet, which can be found at millinery stores or supply houses. It is cotton goods, and very strong. This is attached to the top of the overshirt, and it is large enough to pass freely over the brim of the hat

For the vision part of it I take a piece of wire cloth (black), about nine or ten inches square, and hem the edges with a strip of oilcloth so that the ends of the wire will not stick through; then cut out an opening in the bobinet so it will come just to the brim of the hat. I make it loose enough so it can be easily put on and off when I want to drink, as the picture shows.

To keep the blouse up on the shoulders I use a piece of rubber tape attached to each shoulder of the dress. The wrist and hand parts are made of factory cloth, and coated with paraffine, which fills the cloth and prevents stinging. I find but little use for gloves with this rig.

THE COGGSHALL VEIL WHEN NOT IN USE, BUT READY FOR EMERGENCY.

THE COGGSHALL BEE-VEIL AND SUIT.

These photographs are through the kindness of Harry E. Hill while visiting him at Fort Pierce, Florida, March 20, 1907.

West Groton, N. Y.

[A bee-veil to be really serviceable should be one that will permit of ready access to the face, that can be easily removed so as to allow an unobstructed vision in looking for eggs and at other times; and, when the weather is very hot and bees gentle, to give freer circulation around the face. This veil complies with these conditions very nicely, but differs in the veils used by the majority of people in that, for the purpose of removing, it drops down off from the head, resting on the shoulders rather than raising up off

CENTURY PLANT GROWING IN OAKLAND, CALIFORNIA.

from the shoulders and resting on the hat. The general protection to the arms and sleeves is very good.—ED.]

THE CENTURY PLANT IN CALIFORNIA.

BY W. A. PRYAL.

Dear Mr. Root:—The century plant shown in the engraving is growing upon what was a portion of our homestead, now our next nearest neighbor's. It has been in blossom a month and will probably continue that much longer before it is "all in." The bees just "swarm" upon it during the forenoon. It is the tallest century plant I ever saw—a fact which speaks well for the location I was raised in. In a day or two I am going to get some of the blossoms to photograph, as I have already arranged with a boy to climb the "bean-stalk" to get the flowers.

San Francisco, Cal.

WATER FOR BEES.

How to Prevent Drowning.

BY DR. C. C. MILLER.

I wonder what proportion of bee-keepers pay any attention to the matter of seeing that their bees have any chance for water except as they may find it for themselves. Certainly water must at times be of the utmost importance, considering the number of bees that risk (and also the number that actually lose) their lives in obtaining water.

There is probably no time when it is more important to provide drink for the bees than in the spring. When a bee starts out in a chilly wind, makes a long journey, and loads up with ice-cold water, one might naturally expect that its chances for return to the hive alive and cheerful would not be the best.

Any sort of provision in a regular place will greatly help by saving the long journey and sometimes fruitless search. Additional help will be given if the place is sheltered and sunny. In addition to this, if the water be warm and provision be made against drowning, any reasonable bee ought to be satisfied.

Some claim that the reason why bees frequent cess-pools and other filthy places for drink is because of the warmth of the water found there. In Germany some keep the water warm by a lamp somewhat after the fashion of a poultry-brooder. That is troublesome, yet it might pay. But if water is kept in a sheltered, sunny place, there will be no little gain in the matter of heat.

It has just occurred to me that a solar wax-extractor (which is never used to melt wax in early spring) might be utilized to keep water warm for the bees. The sun would certainly warm the water; then let there be a leak in such a way that the bees would get it before it had a chance to cool.

In many places bees can look out for themselves without making any long journey by visiting watering-places of horses and cattle, also pumps, and these may be the watering-places and pumps of neighbors. Bees in such places are a great annoyance, sometimes starting hard feelings between neighbors. Generally, too, many bees are drowned in such places. To avoid this annoyance and loss it is well worth while to have a special place where the bees may find water all summer long.

But such a place should be provided *before* the bees have formed the habit of visiting a

pump or horse-trough. That habit once formed, the bees will not pay the slightest attention to a new place. They may, however, be enticed away to a new place, if it be only a few feet, or even a few rods distant. Cover up the pump or horse-trough with horse-blankets or something else, so the bees can get no water, and set a vessel of water close as possible. Next day move it just a little away, and each day thereafter move it a little more. After getting a little distance away, you can move it five or ten feet each day. Keep the old place covered up for a few days, and afterward keep water *constantly* at the new place, and there should be no more trouble.

What arrangement shall we have to provide the water? Any pail or tub would do, if bees wouldn't drown. A vessel working on the atmospheric-pressure principle is good—that is, a glass jar turned upside down on a board with little channels so the water will come down as fast as used out. But it needs such frequent attention that there is danger of neglect; and, besides, one doesn't want to give time to such things unnecessarily in the busy season. Whatever is used should hold a goodly supply of water; and then if one aims to fill it up when half emptied, there is not much danger that it will be often entirely dry.

I have used with a good deal of satisfaction a six-gallon stone crock with a small armful

DR. MILLER'S TUB FOR WATERING BEES; CORK CHIPS ARE USED TO PREVENT DROWNING.

of firewood put into it endwise, and water then thrown in. All the better to have the wood partly decayed.

But the best thing I have ever tried is a tub, or half-barrel, with cork-chips or cork dust thrown on the water. You can get such material from any grocer who gets foreign or California grapes, cork chips being used for packing. Put in all the cork chips you can without getting in so many that the bees can not reach the water. The bees are just as safe walking over it as on the ground; so far as I can see it's perfect, and I don't know how long it will last. The tub you see in the illustration was snapped Sept. 17, and had been in use all summer with the same cork chips. It was filled with water whenever it was convenient, or whenever I thought of it; and if that was not for days no harm was done. Of course, a smaller vessel would work too.

Marengo, Ill.

TRANSPARENT PAPER WRAPPERS FOR SECTIONS OF COMB HONEY.

Preventing Leakage and Keeping the Honey Clean.

BY H. A. SACKETT.

Mr. Root:—I am sending you, under separate cover, a sample of the package in which we are sending out our honey this year. I do not know if such a package has ever been used before. Being a printer, and having bees as a hobby, this package occurred to me one day, and I have found it a very good one, and write you, sending sample, so if you think well of it you can publish the same for others to use, it being much cheaper than glass. I should like to hear from you as to it, and want you to be frank.

East Orange, N. J.

[We were so much interested in this that we wrote Mr. Sackett for further particulars. Complying he sends the following:]

I procured some transparent paper from a New York house, which I thought would answer the purpose, and which is used by the druggist for wrapping up bottles to keep the labels clean. I had the design made, and printed up quite a few for trial, and the results were so favorable that I wrapped my sections this year, and was surprised that they stood shipping, did not leak out at all, and, after being well wet with honey, seemed to be in good condition. I have had numerous people state that they thought it was better than glass. Every section sent out had my name on, which not only showed where the goods came from but was a good advertisement for myself; whereas if I had used glass no one would know my goods; and where you sell to the local trade it means a great deal to the producer, and will bring him many sales. I trust that some of your readers will try this method, and let us know what results are obtained.

H. A. SACKETT.

[A photograph was taken of the empty section with its transparent wrapper as sent us by Mr. Sackett, and the result is shown in Fig. 1. If the sections had been filled, the surface of the comb would have shown as in the other illustrations. The paper on the other side was printed with Mr. Sackett's name and address.

Since this matter has been brought to our attention, we have done some experimenting along the same line, and have found that ordinary butter-wrappers are very satisfactory

for this purpose, although they are not quite large enough for the $4\frac{1}{4}\times4\frac{1}{4}$ square sections. With a little trimming they answer very well for the 4×5 sections; and so if any one wishes to put up a few sections for trial, butter-papers may be successfully used. If the paper is white, the effect is perhaps better, although the ordinary straw-colored paper makes a pleasing appearance.

Fig. 2 shows the process of wrapping the sections, and also two sections that are finished. Mucilage or glue must be used to keep the paper in place, and also to prevent any leakage should the comb become cracked or broken.

It is possible that the time required to wrap each section would make a rather expensive package; but an experienced person ought to be able to wrap them very quickly if every motion is made to count to the best advantage.

It can not be denied that a section of honey thus wrapped will be absolutely clean, as flies and dust will be kept away; and the

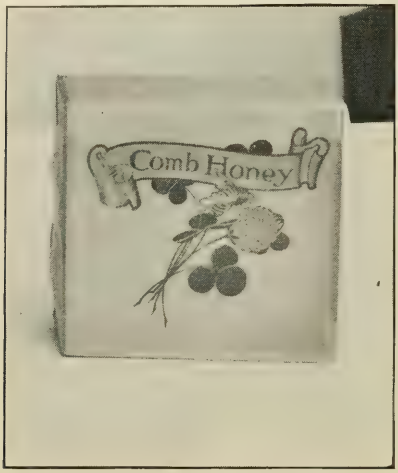


FIG. 1.—A TRANSPARENT WRAPPER FOR COMB-HONEY SECTIONS.

This wrapper was put on an empty section. If the section had been filled, the surface of the comb would have shown very plainly as in Figs. 2 and 3.

FIG. 3.—THE WRAPPER PREVENTS ALMOST ALL LEAKAGE.

This comb was purposely broken for experiment, and about an inch of liquid honey ran to the bottom as shown. After two weeks a large drop had oozed through the paper, which might have been prevented if a better grade of paper had been used.

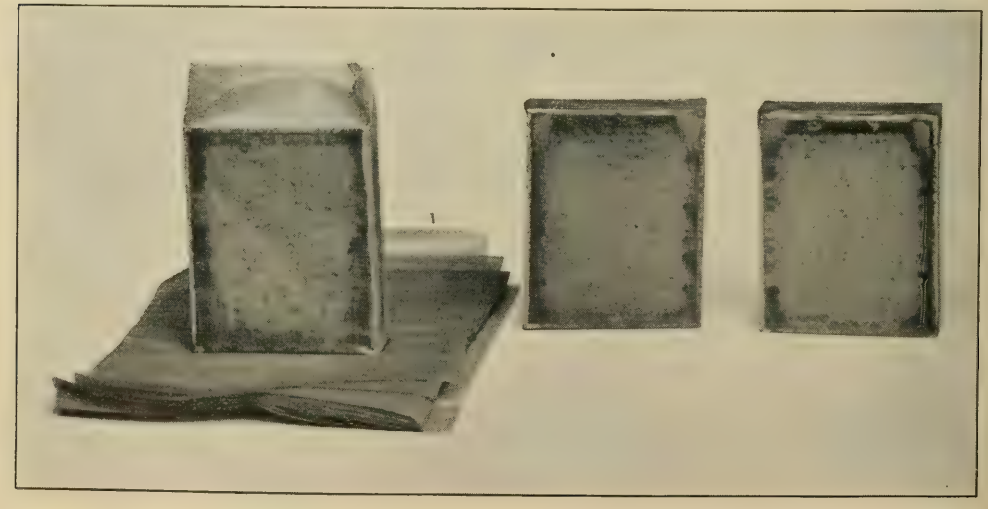


FIG. 2.—HOW THE SECTIONS ARE WRAPPED.

Mucilage is used at the top and bottom to keep the paper from unfolding, and also to prevent any leak should the comb become broken. The two sections at the right show how plainly the comb can be seen through the paper.

greatest emphasis should not be placed upon the cheapness of the package, but upon its effectiveness and practicability. Furthermore, the wrappers permit a saving in several ways. For instance, it is possible that all scraping of sections could be done away with, and it should take no longer to put on the wrapper than to scrape off the propolis. Darker grades of basswood sections could be used, thus cutting off another expense that might nearly pay for the papers and for the printing. Finally, the chances are that the drip cleats and papers could be left out of the shipping-cases. If corrugated paper be used in place of the cleats, there would be very little breakage. Viewed from all standpoints, therefore, the wrapper ought to make an inexpensive package for comb honey.

Fig. 3 shows a wrapped section that was purposely tumbled about until the comb was broken so that the liquid honey ran out. Although there was at least an inch of liquid honey at the bottom, there was no leakage until it had stood for about two weeks, when a good-sized drop was found that had oozed through the paper. Possibly a better grade of paper would have prevented this. The butter-wrappers seemed to have been made of a so-called onion-skin paper, which showed no evidence of having been waxed, although the name indicated that wax had been used.

If experiments are made, a *good* paper should be obtained and an appropriate design printed on one or both sides. In doing this, care should be taken to select a color that will blend with the color of the paper and with that of the honey. An unfortunate selection of colors would mean almost sure failure in effect.

All in all, we believe this is one of the best ideas that have been advanced in many a month. We hope many will try it and report.—ED.]

HIVE-LIFTERS AND HIVE-CARRIERS.

BY JOHN BAILEY.

I am sending to you by this mail photos of part of my apiary and of my honey exhibit at the Agricultural Fair held at Bracebridge.

In the photo of the apiary you will notice the hive-lifter in operation; also the small wagon used like a cart (the back wheel serving as legs) which can be pushed backward or forward with ease without raising the handles. This wagon has room for five supers without crowding, one resting between horns in front; also a hive-carrier to which I wish especially to draw your attention. You will notice in the photo the hive resting on the handles; and on close observation it will explain itself. The carrier is simply run with the projecting ends straddle of the hive under the cleats. The handles are raised as shown, and the hive carried with ease to the place where required. I find this of great convenience in the swarming season; for while the swarm is in the air, and your clipped queen in a cage, you can rapidly and easily carry away the old hive and replace it with a new one without any awkward or heavy lifting. If you take notice of the first

APIARY OF JOHN BAILEY, ONTARIO, CANADA.
This view shows Mr. Bailey's hive-lifter, swarm-catcher, and hive-carts.

GEIGER'S METHOD OF PACKING HIVES IN BUCKWHEAT CHAFF.

hive on the right under the smoker you will notice a pair of glasses, which is an excellent protection from robbers.

Bracebridge, Ont., Sept. 30.

[The hive-lifter shown is very similar to Mr. Hand's device illustrated in the Aug. 1 issue for this year, although a windlass is substituted for the self-locking tackle. Both plans are good; and those who believe that hive-lifters are unnecessary should try one and see the advantages.

For a swarm-catcher, a wire-cloth box is usually found to be more satisfactory than a wooden one, for the reason that it is then necessary to shake only a part of the bees into it. If the queen is shaken into the box with the bees, the cover may be put on and the pole propped up near the former clustering-place. In a few minutes practically all the rest of the bees will cluster on the outside, when the swarm may be carried away and hived.

It would seem as though the hive-carts as shown would be very convenient. The scheme of picking up the hives is the same as that used by H. R. Boardman and illustrated in the old edition of the A B C of Bee Culture. Mr. L. E. Mercer, of California, makes use of the same general plan of a cart or barrow, only he goes still further and uses wheels from old bicycles, with the pneumatic tires and all. The one here shown is very simple and can be made by any mechanic at a small expense.—ED.]

COLONIES PACKED IN BUCKWHEAT CHAFF.

BY JOHN P. GEIGER.

The engraving shows my five colonies packed in buckwheat chaff for the winter.

I have kept down swarming by requeening and removing queen-cells. One, however, has swarmed and succeeded in defeating me by escaping to quarters unknown. Now, after hiving a swarm I always put a frame of brood in the hive, and this induces the bees to stay. As I am away from home during the day I can not give them proper attention; but they have yielded honey at the rate of 35 lbs. per colony, selling at 20 cents a pound.

Orwigsburg, Pa.

[Some seasons the cutting-out of queen-cells for the purpose of restraining swarming is very unsatisfactory. You will do well not to rely on this too much.

Although you do not say so, any good dry packing material besides buckwheat chaff would do equally well. Your general ar-

rangement is very good. Of course, it is important that there should be a good roof over the whole.—ED.]

SIZE AND SHAPE OF SECTIONS.

Can we by Reducing the Thickness of them Successfully Dispense with Separators or Fences?

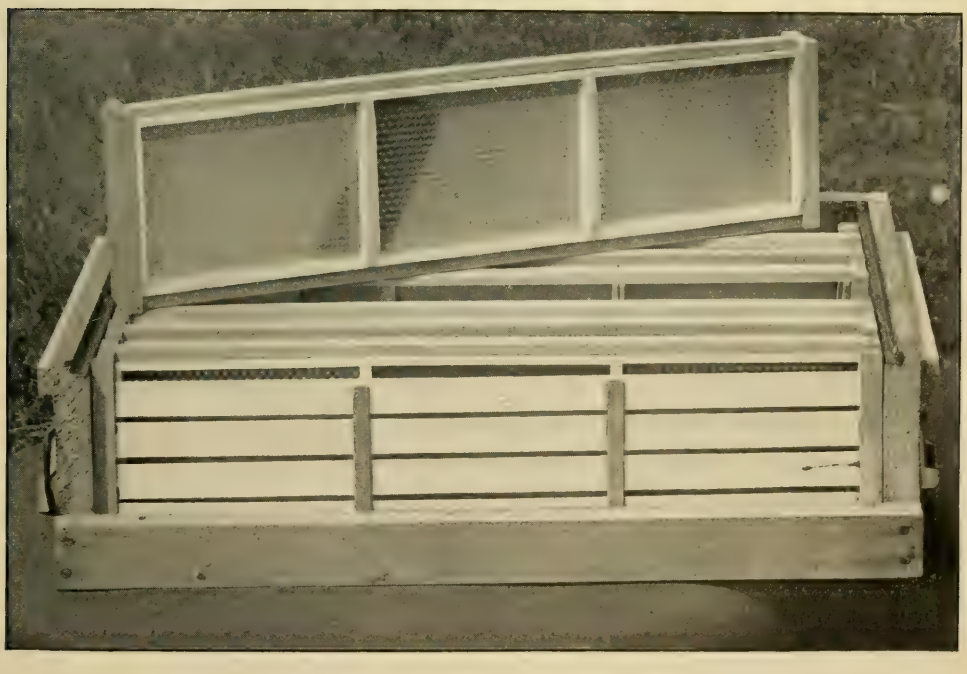
BY J. E. HAND.

Mr. Editor:—We have had the pleasure of a short visit from Mr. W. K. Morrison, of tropical fame; and of the many interesting subjects relating to bee culture that were up for discussion before that convention of two, and the one that remained with us the longest after Mr. Morrison's departure, and is with us yet, is the non-use of separators in the production of comb honey. Mr. Morrison is, perhaps, better posted regarding bee-keeping over a wider range of tropical countries than any other bee-keeper in the United States. He was able to solve the problem of the successful production of comb honey in the tropics by the use of shallow brood-chambers, where it was considered next to impossible to produce comb honey on account of the peculiarity of the honey-flow and the climatic conditions which caused the bees to fill the brood-chambers solid full of honey, completely crowding out the queen and thus causing the colony to dwindle to a mere handful of bees, and, of course, the shallow frame would entirely overcome this obstacle, even as it is destined to overcome every other obstacle to the successful production of comb honey.

Mr. Morrison also assured us that he was able to produce sections of honey with perfectly straight and even combs without the use of separators by using full sheets of foundation in thin sections. When the 4¼ square section was first introduced, this particular size and shape was not adopted because of any advantage over any other shape or form, but simply because eight sections of this size would just fill the Langstroth frame, making two tiers of four sections each. It was found that, in order to have these sections weigh very nearly one pound when filled with honey, it was necessary to make them two inches thick. It was also found that it was not practical to produce honey in these thick sections without separators, as such sections, when filled with honey, would be so badly bulged and uneven that it would be impossible to crate them, and they were used in this way for several years.

Finally it became a noticeable fact that, in using the double-tier wide frames, the lower tier of sections would become soiled and discolored by travel-stain before the sections in the upper tier would be finished. This, together with other advantages to be gained by tiering up supers, led to the discarding of the double-tier frame in favor of the single-tier section-super.

About this time there seemed to be a demand for a light-weight section to sell by the piece, and this resulted in the introduction



J. E. HAND'S SUPER FOR HIS SYSTEM OF PRODUCING COMB HONEY WITHOUT SEPARATORS.

of the seven-to-the-foot section, as it was called, the same becoming quite popular. It was claimed that honey could be produced in these sections without the use of separators; and, although only $\frac{1}{4}$ inch thinner than the two-inch section, yet honey that was produced in these sections, without separators, could be crated very well; it is true that there would be an occasional section that could not be crated, and it required considerable time to match the fat sides with the lean ones.

Some went still further and used a section still thinner; and, although it was a noticeable fact that, with every decrease in the thickness of the section, the necessity for the use of separators was correspondingly lessened. Such thin sections were not considered practical, from the fact that they were too light in weight, the bee-keeping public choosing to pursue the phantom of the one-pound section that really never did and perhaps never will exist, in preference to producing a thin section of honey to sell by the piece that could have been produced without the use of separators, and for ever do away with the weighing of sections. For these reasons the demand seemed to settle down to the $4\frac{1}{4}\times1\frac{7}{8}$ section to be used with separators.

At the present time there seems to be a demand for a section that is thinner and of larger comb surface, that will weigh, when filled with honey, about the same as the $4\frac{1}{4}$ thick section. The advantages claimed for such a section are that it presents a larger surface, and, therefore, appeals to the eye as well as to the pocketbook of the prospective purchaser; in short, it is a better seller because it looks bigger in comparison with the square thick section. Admitting that this is true, if there were no $4\frac{1}{4}$ square sections with which to make the comparison the difference would not be noticed, therefore the argument that appeals the strongest to the producer of honey in favor of the thin section of greater comb surface, is the fact as stated by Mr. Morrison, that, if they are thin enough, no separators will be required to produce honey with combs perfectly straight and even. I consider this the best argument in favor of the thin section that has yet appeared.

The question that arises at this time is, "Are separators a hindrance to the bees?" While it is claimed upon seemingly good authority that as many pounds of honey can be produced with separators as without them, and while this may be true to a certain extent during a long continuous honey-flow, yet there is, during a short sharp honey-flow, a noticeable hesitancy on the part of the bees to build comb between separators. I believe that bee-keepers, as a rule, have come to accept the use of separators as a kind of necessary evil that we are obliged to tolerate in order to have our combs built straight and even. Separators are an expensive luxury in more ways than one. In the first place, they cost money, and not only take up valuable room in the super, and valuable time to handle them, but they are a positive hindrance to the rapid building of comb by breaking the cluster up into thin slices, for it is a noticeable fact that bees will build combs more readily when they can cluster in a compact body; and the larger the cluster the faster will the comb grow. It is claimed for the fence separator a better filling of the sections as the result of free passage for the bees through the fences between the slots, and also that the woven-wire separators afford a still better means of passage for the bees, and therefore that sections of honey built between these separators will be still better filled than will those that are built between the fences. Admitting that this is true, which we can not deny, yet does not this have a tendency to prove that, without any separators at all, the sections would be still better filled? Even admitting, for the sake of argument, that just as many pounds of honey can be produced with separators as without them, if straight and even combs of honey can be secured without them, what excuse have we to offer for their use? The proof of the pudding is in the eating; and we are interested enough in this matter to give it a thorough trial the coming season; and we have decided upon the $4\frac{1}{4}\times5\frac{5}{8}\times1\frac{7}{8}$ section, because three sections of this size will just fill one of our brood-frames.

This illustration, which appeared originally in the *Strand Magazine*, shows five swarms of *Apis Indica* hanging on a store front in Kandy, Ceylon. This seems to be a favorite spot for swarms, as they come regularly. The swarms shown had hung for two months when the photo was secured.

The accompanying illustration will show our non-separator super which takes the $4\frac{1}{4}$ square section as well as the $4\frac{1}{4}\times5\frac{5}{8}$, and it will also take our brood-frames and extracting-frames. This will greatly simplify our utensils for honey-production, since every brood-chamber is also a section-super as well as an extracting-super, and our brood-frames and extracting-frames are also section-frames.

The illustration also shows a brood-frame

holding three sections $4\frac{1}{4}\times5\frac{1}{8}\times1\frac{7}{8}$, and also a frame holding 4 sections $4\frac{1}{4}$ square filled with foundation by our improved method which holds the foundation always in the center of the section, regardless of whether the hive is level or not, and at the same time insures a perfect section of honey firmly fastened to the wood on four sides, and practically free from pop-holes in the corners. This method of perfectly filling the sections with foundation will greatly aid the building of straight combs without the use of separators.

There are two fences on each outside of the sections, affording a double clustering-space next to the sides of the super. This insures a better filling of the outside sections.

Birmingham, Ohio.

[The section which Mr. Hand proposes was used several years ago by the late J. B. Hains, of Bedford, Ohio, who seemed to have arrived at the same conclusions. But a tall section lying on its side will have one edge of the comb better filled than the other — that is, the section, when out of the hive, is stood on end.

Mr. Morrison has been claiming for some time back that, if the combs were thin enough, separators would not be needed. It must be admitted that there is something in his argument, because all brood-combs (which have no separators) built off from full or half sheets of foundation, are of an even thickness if spaced no wider than $1\frac{7}{8}$ inches from center to center.—Ed.]

FEEDING DRONES TO YOUNG CHICKENS.

BY FRANKLIN G. FOX.

Chickens do not seem to have naturally any liking for bees or drones. You can dump a quart of dead drones from a trap among a flock of fowls, and unless they have been taught to like them they will simply gather around you out of curiosity and view the remains of Sir Drone without sampling his quality. As many apiarists also keep poultry, and all are aware that a chick, to do its best in rapid growth, needs some sort of animal food, either in the form of worms, insects, or prepared beef scrap, it would be a material saving to have the chick educated to eat drones.

This subject had been on my mind for several years; and two years ago, while carrying some drone comb from my bee-yard, which contained drones in all stages, the thought came to me, "Why not give the larvæ to the chicks?" No sooner thought of than tried; so to the brooder-house I went, where there were about a hundred chicks a few weeks old, mothered by a brooder. At first I picked a few larvæ out with a toothpick, and soon one chick grew bold enough to sample it. Then he came back for more. Soon the others took the hint, and I could no longer pick them out fast enough. When the larvæ were all gone I pared the heads and cappings off the comb that had drones nearly ready to emerge. At first they were rather afraid of the large dark fellows; but finding they tasted the same they soon pulled every drone out of his cradle and devoured him.

The following day I took a trap filled with drones to the brooder-house, and, seating myself on the floor, I began to open the trap. Of course the chicks were expecting a treat, and crowded around me quite curiously Then I pinched a few drones and offered them to the chicks. In less time than it takes to tell it they "caught on," and such a screaming of delight I never heard among chicks before. Why, they climbed all over me in their eagerness to get the drones, and every drone that had his head through the perforated zinc lost it in a twinkle. I just slid back the trap-lid and the chicks caught, killed, and devoured the drones as fast as they could crawl out. They also ate the dead drones with as much relish. Not knowing what the result might be of this new feed, no more drones were given for several days; but as no bad effects were developed, the feed was continued. You should have seen how the chicks thrived on the diet.

As the poultry can not range my apiary I do not know whether they would have been more effective drone-catchers than my traps or not. These same chicks, when they were put on free range, did not appear to molest the honey-bees as they gathered nectar from the blossoms through which the poultry ranged.

The secret is this: Teach your little chicks to like the taste of drones by first feeding them in the larval form, then gradually lead the chicks on till they eat the drones that are fully developed. After this you can feed them alive or dead as you prefer. However, I believe the former method is more humane.

Erwinna, Pa.

[As I have been somewhat in the chicken business, the above article was turned over to me for my opinion of it. It should have been used some time ago, but it was mislaid. It will come in all right, however, for another season.

Huber suggested, when he handed me the article, that, although this plan of feeding animal food for growing chickens may be all right, he thought it was a very *expensive* diet. No doubt that is true; but whenever there are drones or drone brood in your hive it is much better to give the chickens the benefit of it than to throw it away as is often done. In transferring from old box hives I have often seen great quantities of drone brood thrown out to rot and smell bad; and I have already discovered that they make excellent chicken feed. Now, then, do not be in haste to permit useless drones to be reared in your apiary; but if you do, utilize them for chickens before the drones are large enough to fly. This reminds me of what an old deacon said to one of his boys when he found they had been disobeying orders by fishing on Sunday and then throwing away the fish, as they feared

his wrath if they brought them home. He called them up and laid down the law thus: "Boys, I want you to remember that it is contrary to my orders to go fishing on Sunday *under any circumstances.*" He added, however, but without quite so much emphasis, "But if you *should* go fishing, and catch any fish, by all means bring them home." The latter part of the order would rather indicate that the old deacon, as well as the boys, was fond of fish.—A. I. R.]

BEGINNINGS AND FAILINGS IN BEE-KEEPING.

Failure Due to Not Being Posted; a Hint to the Would-be Inventors of Hives and Appliances; the Importance of Good Queens.

BY C. W. DAYTON.

The home-made utensils and the methods for doing the work the majority of bee-keepers use fall behind in perfection to what has been attained in extractors, engines, foundation and fasteners, smokers, knives, etc., during the last few years.

I might mention, for example, a bee-keeper who uses for a capping-box a five-gallon tin can after having the top removed with a can-opener. He has handled the product of 75 to 200 colonies thus for a number of seasons. It was from his five-gallon can that I obtained the idea of metal to scrape the knife on. I saw that his knife worked better than my own scraped on wood. Another man uses a hive for an uncapping-box, and lets the liquid honey drain out the entrance into any handy receptacle. Another merely spreads the cappings out on boards and permits the bees to sip them dry, while another wheels the extractor through the apiary and stops beside the hives to extract, letting the caps fall into the extractor until the honey and cappings begin to interfere with the baskets, when it is emptied out into a barrel.

There was some favorable appearance somewhere in each of these affairs which led to their adoption; but they should be comprised in a specially devised capping-box.

Now you may say that these specimens do not represent the majority of bee-men. But I belive they represent far more than the majority. It is often estimated that not more than one bee-keeper in ten takes a bee-paper. Ten years ago I knew of twelve bee-men in a certain locality, each having above 50 colonies of bees, and yet not one took a bee-paper, and to-day I know where each one is, and they have not one hive of bees all together. If I should set an apiary there now, there would be no competition except a dairyman who has kept about 50 colonies for 15 or more years, and he has been a reader of the bee-papers. Nearly all of the twelve I mention sought to make bee-keeping a specialty, and I doubt that more than two of them ever had their names on the subscription-list of any bee-paper. Had they read the papers they would have known how capping-boxes ought to be made, and their advantages and drawbacks, wastes, etc., and "taken time by the forelock" and prepared the box as it ought to be, and had it in waiting when the honey season arrived. If they do not get the books and papers, and read and study upon such things, how are they to know? Can we expect an ignorant man to invent a whole outfit out of his own head in one year? They take to papers more readily than books; but that does them but little good, since they learn in such small pieces, and they do not know how nor where to attach them together, and they can not sort out and arrange what is in the books, because there is so much of it together that it would require experience from end to end of the actual work in order to do it.

A half-hour or less snatched from the noon hour, or while resting a work-team, or a thousand and one other nicks of time which occur to every worker, will suffice to make one master of any trade or profession there is going if followed out for a reasonable length of time. Time, that commodity so many complain of having too much of, is the principal element, as it enables the digestion of his reading to go on night and day. The one who would become a good bee-keeper would make a good almost any thing, as it depends upon the perseverance and obstacle-climbing which train the nerves and strengthen the sinews to any attainment. There is no *real* short way except by chance.

The twelve bee-men failed because a part of their management was left to chance. They could "drive" a good bargain in buying bees or supplies; they could move bees safely from one place to another, or prepare honey-receptacles in the requisite order, and they possessed abundant strength to harvest the crop; but all these did not bring success. In good seasons they divided the colonies to make increase, allowing the divided colonies to rear their queens from brood. Then when a poor season followed, these brood queens were preserved instead of taking time to replace them with new queens from choice stock, thus retaining the poor queens until the second season. Let the season be never so good, and this class of queens seldom build a colony up to good working strength; and if they are helped by taking brood from the best colonies the brood is no better than wasted, while it pulls the good colonies down to the level of the poor. In a poor year, colonies having such queens are not worth feeding. I simply let them starve out unless I am able to change their queen. The advantage of specially reared queens can not be appreciated nor realized unless the good and poor are seen working side by side.

I stated that the cause of their failure in business was the failure to rear queens. If they had studied the books and papers they would have found more stress laid upon the rearing of queens than upon any other part of the management; and as they read or studied they would have become impressed that

queen-rearing was paramount to every other operation.

Another reason for their failure was that they did not start right. That is quite evident. They made no calculations on starting until they felt the need of money. Some people never think to plant a garden until they need the vegetables on their table or they see some neighbor's table provided with vegetables. By that time it is too late to plant, and before another year their enthusiasm dies out.

The first move in making a start in any business is to go to some one who is known to have been successful, and learn *how he learns*—not to grasp and bring away what has taken him years to accumulate. We are sure to come away empty-handed. His success will be found to be a long routine of cares and attentions, so small, indeed, that the beginner is almost sure to overlook or ignore them. The advice that he receives is the "same old story" that he has heard all his life—"study." But he has almost forgotten how to study, or has acquired an idea that study is merely a fad for old fogies.

It is my belief that the darker bees of Italian and other strains will store more honey, and in better shape, in the combs in a good flow than the yellow bees; but the dark-colored bees will starve to death in a time of scarcity while the yellow ones are getting a fair living, thus better enabling the apiarist to rear queens and improve stock during poor seasons, and have young vigorous queens on hand when a good season finally arrives.

Chatsworth, Cal.

HOW SWARMS CHOOSE A LOCATION.

A Few Incidents to Prove that Scouts are Sent out after the Bees are Clustered.

BY G. C. GREINER.

If I am not mistaken, it is the general opinion of all experienced bee-keepers that young swarms, before leaving the old premises, send out scouts in search of a suitable place to start housekeeping again. I have always kept a number of decoy hives scattered in and near my apiary to catch stray swarms. The result has been quite gratifying. Almost every year I have had one or two such swarms take up their abode in one of these hives, and occasionally one of my own swarms would hive itself in one of them. My experience during the last twenty-five years or more has established the "scout" theory—a settled question in my mind; but not until this past season did I have the opportunity to make observation along this line that may be accepted as positive proof.

The condition of my apiary during the fore part of the season was something like this: After a heavy winter loss, which, by the way, made itself conspicuous after the 25th of March, when all my bees, with very few exceptions, brought pollen freely, a large share of my outfit consisted of depopulated hives scattered all through the apiary. As soon as any colonies were discovered missing, their hives and combs were thoroughly cleaned, combs containing honey of any amount sorted out, and the hives with the empty combs left on the old stands. The entrances of all these hives were left open full width, and in walking through the yard a very few bees could be noticed going very quietly in and out of some of these hives at any time. In the forenoon of June 10th I noticed at one of the hive an uncommon commotion. A dozen or two of bees were running in and out of the entrance in a seemingly greatly excited state of mind. Some were on the sides and back trying every joint to find an entrance, and the whole affair had the appearance of a very severe case of robbing. At first I mistrusted that some of my bees had found overlooked honey that caused them to make this display, but found, on opening the hive, that that was not the case. Instead I noticed another dozen or two running up and down the combs in the same excited condition. I also noticed, what afterward proved to be conclusive evidence, that all the bees were a very fair type of Italians, not one black one among them.

As I was quite interested in their queer behavior I watched them all the afternoon and forenoon of the next day, without seeing any change on their part. About two o'clock, while looking at them again, I heard in a southerly direction, where, at a distance of half a mile, an elm grove is located, a faint rumbling noise, and at the same time a few flying bees made their appearance. The rumbling as well as the bees increased at a rapid rate, and in less time than it takes to write it I was surrounded by a swarm of bees. After circling around for a few minutes they began to thicken over the hives of the previous excitement, and soon this one and the adjoining ones were covered with bees. As they began to enter, their preference seemed to be centered on that particular hive. The few that had entered the others soon left again and joined the multitude, where, almost instantly, house-cleaning was made the order of the day. The swarm proved to be of the same type as the bees that had been to work at the hive before they arrived—purely marked Italians.

A few days later, June 16, just the same incident took place, with the exception that the scouts were black bees, and that the swarm came the same day that I had noticed them investigating another hive. They arrived at about the same hour, between two and three o'clock. The swarm as well as the scouts tallied with one another. They were all of black German blood.

It may begin to look like a big story when I say that, two days later, a third swarm adopted another one of my hives for its home under similar circumstances. Nevertheless, this was the case, and I have to stretch it still further. A fourth one came to me the 23d, and still another the 7th of July, making all in all five swarms that availed themselves of my hospitality during this season

The facts which I have gathered in connection with this subject would indicate that, as a rule, bees cluster before they send out scouts; or, if scouts are sent out before they swarm, they cluster before they leave for their new home. Although some of my own bees took possession of an empty hive directly before clustering, my observations during this campaign seem to oppose our accepting it as a rule. All five swarms arrived here in the afternoon between two and three o'clock, after they had plenty of time after swarming to cluster, send out scouts, and wait for their return before leaving, while all my own young swarms issued in the forenoon. The latter all clustered in the usual way, waiting for me to provide homes when they all had the same chance to help themselves to any of my empty hives as the stray swarms. If scouts had been in search of a home before swarming, why did my swarms, or some of them at least, not hive themselves?

This would show that sending out scouts is a matter of compulsion. If bees are neglected by their master, and left hanging in a tree indefinitely, they have no alternative but to provide a home of their own. Then is the time when they make use of the scouting gang; and as soon as they have found a suitable place, and have communicated the news to the clustering swarm, away they go, and no common means will stop them.

Sometimes I had swarms leave for parts unknown after clustering, when I was a little too slow in getting ready to hive them. In such a case scouts might have been out before swarming, or else they ran across something suitable in short order; but the swarm clusters before leaving, just the same.

As an exception it may stated, and I had a little experience in that direction too, that young swarms "light right out" without stopping to cluster. Then, of course, it may be accepted as a probability that scouts had been successful in finding and preparing a home before the swarm issued.

There is still another case in this connection that might be mentioned. Once in a great while a swarm, after being hived in the customary way, and remaining seemingly contented for a day or two, will unceremoniously leave for other quarters. If their scouts had been sent out when the swarm first clustered, they would have been on an exploring expedition a long time—too long to make it seem probable. Besides, tracing the swarm to its new location, which may be some distance from the old clustering-place, might cause them some trouble. I am rather inclined to think that, during their brief stay in their new home, they became discontented for one reason or another; and, to gratify their notion, scouts had secured a place more to their liking. That they knew where they were going when leaving, would be an acceptable conclusion from the fact that I have followed them directly to a hollow tree.

The number of bees that are detailed for scout duty by the swarm, I have found to range from fifty to seventy-five, with every one of my first three swarms. If other gangs are employed at the same time in different places, the above numbers would be increased accordingly. I can not give particulars in regard to the other two, as I was not present when they made their display, but found them in proper working order at night.

La Salle, N. Y.

[You have raised a rather interesting question, and given us some data that help to throw light on it. It seems to have been tacitly implied that the bees cluster before going away from the vicinity of the old home with a view of sending out scouts; but so far as we can recall, no definite data have been brought to bear on the proposition. We shall be glad to hear from others; and while it may have no practical bearing at first sight, it might lead to some important results.—Ed.]

FEEDING FOR WINTER STORES.

How Much Syrup is Consumed by the Bees During the Process? an Interesting and Suggestive Experiment.

BY O. S. REXFORD.

Friday evening, Oct. 4, I set a colony of bees on scales, weighed them carefully, and then fed them 8 lbs. of granulaled sugar dissolved in 7 lbs. of water. I fed in a Miller feeder. The feed was all taken in 24 hours The shrinkage in weight went on rapidly for about two days, and then slowly for several days till finally, Oct. 13, hive and bees weighed only 4 lbs. more than before I fed.

There was a young queen in the hive, but brood-rearing had stopped several days before, and there was no brood except what had advanced beyond the feeding stage. I looked over the frames yesterday, but saw no eggs or young brood.

If this were the only experiment I had ever made I should not consider it important enough to publish; but I have made many in the last 15 or 18 years, and always with similar results, all seeming to show that bees do consume a large per cent of sugar as honey fed them for winter use, or to store in sections—in this trial, 60 per cent—when I know that, if not fed, one pound would have been sufficient for the whole month of October.

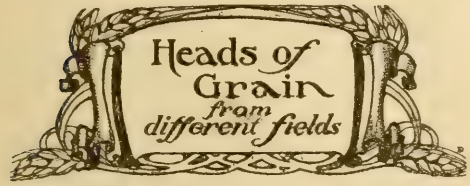
Just here I am reminded of some experiments made by bee-keepers of note. These experiments given in Gleanings, by Adrian Getaz, page 532, 1905, seem to show that in feeding back for winter stores, or any other purpose, we must allow for a consumption of about 1½ lbs. per day during the time they are kept active storing and sealing; and if a small amount only is fed, say 5 to 10 lbs., probably 60 per cent or more will be consumed.

This is rather discouraging to those of us who have colonies needing 8 or 10 lbs. more winter stores.

Winsted, Ct.

[There have been numerous reports showing that, in feeding back, a large part of the

stores are actually consumed by the bees. It appears that, during a period of plenty, bees will consume more than at other times; and it is possible that, in feeding bees in the fall, there is considerable loss; but we hardly think it is as large as your figures show, as there must have been other conditions to account for so great a waste. We should be glad to get reports from those who have conducted experiments along this line.—ED.]



COLONIES WINTERED OUT OF DOORS WITH THE ENTRANCES ENTIRELY CLOSED.

I have noted with interest what J. E. Hand and others have said about the effect of moisture, small entrances, and ventilation upon colonies wintered upon the summer stands.

I wintered two colonies outdoors with entrances ¼×⅜. The brood-nest was smaller than in an eight frame Dovetailed hive, and was especially prepared to keep out cold. The covers and bottom-boards were double and packed. These colonies came through the winter in perfect condition.

Wishing to test the matter still further, last winter I entirely closed the entrance to two colonies in the same quarters and kept them closed except when weather moderated to a point above freezing in the shade, which happened once in about three weeks. These colonies were all right through the winter, and in the spring swarmed two weeks before my other colonies that were wintered in ordinary ways. Even with the entrances closed there was no injurious moisture at any time last winter or the winter before, and I question whether there ever would be if the hives were packed so that no moisture could condense on the cover, and little or none on the sides and ends. O. S. REXFORD.

Umsted, Conn., Sept. 20.

[It is important to have the entrances to outdoor-wintered colonies contracted down to a small space; but ¼×⅜ is too small unless it be kept clear, for dead bees would accumulate, closing it entirely. While you were successful in wintering two colonies with entrances entirely closed, we would advise you not to repeat the experiment again on too large a scale. Reports have shown that an entirely closed entrance is pretty sure to result in the death of the colony. There are exceptions, of course. Better leave the entrance ¼ to 3 or 4 inches, and then put a sort of storm-door up against it, or a lean-to board, *a la* Doolittle, to shut out the light, and at the same time keep th r from blowing directly into the entrance. This should be especially used in the case of all hives with the entrances facing the north, or toward any direction where there is likely to be a strong, cold, piercing wind.—ED.]

THE CHAPMAN HONEY-PLANT OF TWENTY YEARS AGO.

Dear Sir:—I have just been reading GLEANINGS of 1886, and find many references to the Chapman honey-plant. Can you spare space in GLEANINGS to tell us about it now? Was it a success? Does Mr. C. raise it now? Did many bee-men take it up? Did it succeed in Ohio? Does it have to be cut back in order to bloom the third year? I have raised it for several years in my flower-garden, but mine rarely bloom the third year. W. S.

Springville, N. Y., July 1.

[Friend S., the Chapman honey-plant, like many other plants that bear honey in large quantities, was a success—that is, to this extent: If we could afford to raise any honey-plant for honey alone this would probably be one of the best; but it would take as much land, labor, and manure to raise an acre of the Chapman plant as it would to raise an acre of corn; and the corn, especially at the present price, would be worth much more money. A good many bee-men raise small patches of the Chapman plant, and, so far as I know, it succeeds everywhere. I do not think it would be profitable more than two years. It might yield some the third year as you suggest. In endeavoring to improve a honey locality by growing plants we shall have to confine our labors to plants like buckwheat, rape, and the clovers, that have a market value aside from honey—A. I. R.]

BEE-TREE HUNTING GREAT SPORT.

When I read the article in the March 1st issue, page 322, by Mr. John R. Lockard, entitled "Bee-tree Hunting," it made me want to write to GLEANINGS. Though I have fished and hunted and had all other kinds of sport, yet to me there is no pleasure more interesting than bee-hunting. There is something in it which induces me to try again and again, although I do not have success the first time. When one can get away from work, with a bee-box under his arm, he ought to feel thankful then, if at no other time, that he is alive and can enjoy life and its pleasures. M. L. MITCHELL.

Granby, Quebec.

TWO QUEENS IN ONE HIVE.

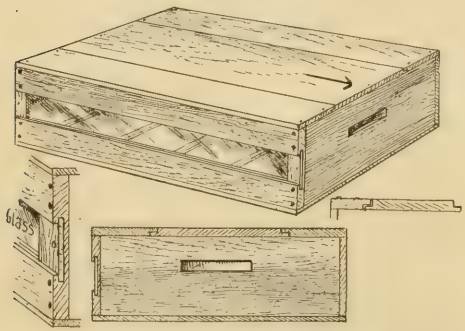
Dr. C. C. Miller should not be too enthusiastic about his two queens in one hive, nor so sure that laying queens will not fight. I have known a good many instances where there were two thrifty young queens in the hive with excluder between the two stories; and although every thing went well for a while until the hive became well filled with brood, or until the honey-flow ceased, one of the queens would then be missing. It is not

true that queens will not fight after being fertilized. I have tried many times putting from two to six in a cage; and in nearly every instance where the queens were thrifty and vigorous they would fight until there was but one living. When queens are heavy with eggs they usually do not quarrel immediately after being caged; but they won't be so friendly after being caged for some time. I would no more risk sending two queens in one cage, or keeping them together, than to keep two fully matured male hogs in the same pen; yet there are quite a few cases on record where they behaved very nicely.

Deer Plain, Ill. F. X. ARNOLD.

SHIPPING-CASES WITH SLIDING COVERS.

In handling shipping-cases of sections for sale I find the cover as at present made very unsatisfactory, slipping out of place unless nailed after selling every single section; and for my own personal use I took two pieces



and nailed on the front and back, each having a ship-lap as shown. Then the middle piece is shiplapped, and slides to and fro, forming a tight cover that holds in place however much the case is moved about.

Although I do not use a wedge in my cases, I found some difficulty in removing the first section, but overcame that by putting a thick piece of cartridge paper around one section, with the ends upward long enough to catch hold of, and lift the section out. Directions could be printed on this paper. The difficulty might be overcome by letting the cover run from front to back instead of from end to end. Then the wedge could be removed easily; but the piece of paper for lifting out the first section, I think, should still be used. H. FITZ HART.

Wetumpka, Ala., April 1.

[Your suggestion regarding the construction of the cover of the shipping-case is a most excellent one, and the supply-manufacturers are urged to adopt the idea. It certainly would be a great convenience to the retailer, wholesaler, and producer. The other idea of using a paper pull to remove the first section is also excellent. It might be well to get up a special "pull" with suitable printed matter on it, and make it an article of general sale.—ED.]

SWARMING EASILY PREVENTED IN COLONIES RUN FOR EXTRACTED HONEY.

As my home is in the country and I am engaged in the city, I have to be away all day; so the plan I have adopted is to try to prevent swarming by putting on queen-excluders, and put on another hive with full combs just like the brood-chamber; and when that one gets nearly full I raise that up and put another underneath. When I get two or three about full I try to get home in the middle of the day and put on some Porter escapes, and after supper they are ready to come off with scarcely a bee in them.

After the honey has been extracted, the frames are put back in the hive-body and taken to the stand whence they came, and, carefully taking off the escape, I stand the hive on top.

When I commenced to keep a few bees my only object was to have a little honey for my family; but as they do not need it all I have no trouble in disposing of all surplus at a good price. FRANK WANSTALL.

White Plains, N. Y.

BEES WORKING ON ALFALFA IN INDIANA.

I believe it is generally understood that bees do not work on alfalfa east of the Mississippi; but last week I saw them on a field of alfalfa, as nearly as I could estimate, about ten bees per square rod. Bees were working on sweet clover, alsike, and white clover the same day. The weather had been so wet that the farmer could not cut this alfalfa, and he said it should have been cut ten days before. GEORGE S. DEMUTH.

Peru, Ind.

[It has been stated that bees do not work on alfalfa east of the Mississippi; and while this is generally true we have had one report from Pennsylvania, and one from another of the Eastern States, showing that there are times when the bees may be found on the plant; but the instances of this kind are comparatively rare. Alfalfa generally does not seem to yield honey unless it grows in the arid or semi-arid regions. Where the ground is irrigated it does the best. In portions of Nebraska, where there is enough of moisture to make the plant grow, some nectar is yielded, but in the East, where there are frequent rains, the alfalfa seldom yields any honey. The roots of the plant seem to require a good soaking, and then a dry spell to yield nectar.—ED.]

GLASS QUEEN-CELL-FORMING STICKS.

The other day I could not find my cell-forming stick. In looking about for something to make one of, my eyes rested on a glass stopper of about the right size. I put it to use, and now I want no more sticks in mine. I can make a third more cell-cups, and make them better with the glass. The cell cups slip off much easier.

Mangas, Cuba. C. F. HOCHSTEIN.

OUR HOMES

by A. I. ROOT

Righteousness exalteth a nation; but sin is a reproach to any people.—PROV. 14:34.

I have several times expressed my admiration for Hon. J. Frank Hanly, Governor of Indiana. I heard him speak first at the National Anti-saloon League convention at Indianapolis, and a year later at Columbus, O., and also at our Chautauqua convention at Chippewa Lake, in our own county. I think I remarked to a friend after hearing his first speech that I should like to see Mr. Hanly elected to the presidency of the United States; and every time I have heard him since then I have felt more impressed that he was just the man we want for our chief magistrate. When I expressed my views to Dr. Howard Russell he said he had faith to believe the time *would* come when the people would elect such a man as President of this country. There is a large class of people—yes, Christian people and ministers of the gospel—who think it is not best to come right out into the open, even in regard to the liquor-traffic; but, may the Lord be praised, we are just lately finding governors who do not hesitate to speak their convictions right out, without fearing that they may lose the votes of the liquor party. And may the Lord be praised again, that these men do not seem to be losing any votes—at least not on the whole. The men who have broken away, and who have come out fearlessly for their convictions of right and wrong, seem to be just now the particular favorites of the people.

Now, I have not been able to gather from the papers that have been sent me that anybody else feels very strongly just as I do about Governor Hanly. Very likely our great politicians would smile at my suggestions if they deign to notice me at all. Our political giants, or at least those who thought themselves giants a while ago, are beginning to recognize that there are Davids in the camp; and who knows but God may, in his infinite wisdom, see fit to make use of the little pebble that I have thrown out in the way of a suggestion, even as he blessed the young shepherd David when he took a pebble out of the brook, and with the simple shepherd's sling (I might almost say a boy's plaything) brought down the great giant who was defying God's army? These political giants of whom I have been speaking laughed, and indulged in great glee over the matter when the Anti-saloon League was started; but now see what havoc it is making throughout our land. If you do not know Governor Hanly you can get a glimpse of the man by reading a portion of one of his speeches to a body of ministers in Chicago. I wish our space would permit me to give the whole of that great talk; but I will clip only a part of it from an issue of the *Home Herald*. See if you do not think as I do after you have read it.

The domain to be fought for is this republic—its manhood, its womanhood, its childhood, its institutions, its institutions founded with tears and sacrifice; institutions loved by the fathers and revered by the sons; institutions for which men have died, fondly dreaming they were dying to perpetuate them to the last generation; but the trophy to be struggled for is the stainless flag, the banner of the free.

The foe is the organized liquor-traffic of America. It is an enemy worth while. It has great wealth. It is resourceful. It touches the financial interests of many men. It is desperate. It observes no law, human or divine. It violates legislative enactments. The rules of civilized warfare are to it a meaningless jingle of idle words. Its banner is a black flag. It is an outlaw. Its god is mammon. It has no religion but the greed of gain—no love, no pity. It debauches the best citizenship of town and country. For money it spoils the finest of womanhood. It invades the family circle, overturns the house, and breaks asunder the dearest ties that Heaven ever made. The Christian church of America must meet it or run away. But it will not run away. It must stay and it must fight, and it *will* stay; it *will* stay, and it will fight, not *one* but a *hundred* battles. Hear me! If it fights it will need men—men of moral fiber, of sound judgment, and of inflexible purpose—men whom the lust of office will not kill—men who have honor—men who will not lie. The church *can* win, but it must collect and organize its forces, and bring to bear every influence it possesses; and these must be wisely directed—patience must be exercised. The church must be persistent. The field is too wide and too well defended to be captured by a single charge. It can be won only a little at a time. There are citadels that can not be carried by storm at all; and because these strongholds can not be taken by assault, the church must not refuse to take and hold every point of vantage it may acquire. Every inch of ground is worth while in this contest. Territory won must be garrisoned and held. The church must educate. It must create and keep alive public sentiment. It must lay bare the economic waste and weakness of the traffic—its harm to the public, its injury to industry and enterprise; its awful strain on every vital force of the nation, while the ultimate extinction of the traffic must be the goal toward which it struggles. It must not refuse to regulate and restrict and control; for every restriction, every successful effort for control, means added strength and new adherents. As for myself, I have seen so much of its economic waste, so much of broken-down manhood, so much heartache of the child, and the ruin that the traffic entails upon the home and commonwealth, that I am prepared to strike it anywhere and everywhere when an opportunity presents, in public or in private life. For three years I have witnessed an unending procession of women, mothers, daughters, and wives, coming with broken hearts and in tears to the executive chamber to plead for clemency for loved ones who have transgressed the law, and whose liberty the State has taken away. I have read hundreds of criminal records in my hotel, in my home, in the executive office, and in railway trains; and in eighty-five per cent of the cases the cause can be traced to the excessive use of intoxicating liquors. I was opposed to the traffic before I took the oath of office; but after three years of close observation of the fruits of the traffic I am prepared to state that all I have, all I am, is ready for the task that lies before me. I am prepared to give unqualified approval to any measure looking to the further restriction of the traffic, which I believe to be within constitutional limitations. It was this feeling that impelled me last week, in a public address in Indiana, to pledge my influence and whatever ability I may have to secure an enactment of a remonstrance law that will make the city and the county the unit of remonstrance. It was this that impelled me to say in an address at Columbus, Ohio, not long ago, that whatever influence and ability I could spare to them would be given in their contest in Ohio for a county local-option law, and it is that which impels me *here* and *now* to make the same promise to you. The principles involved in the right of remonstrance by the voters of a township and city ward are entirely sound. The principle is in keeping with the spirit and genius of our institutions. This, we know, is the people's government—"a government by the people, of the people, and for the people."

And there is no more certain right of a free people

than this, that they have a right to drive this evil from their midst, and say for themselves whether they will continue to bear this waste and submit to the injury to society and public interests and tolerate the increase of crime. That, I undertake to say, is fundamentally right in a free government. In this contest let us not base our campaign for restrictive or prohibitive measures upon thoughtless fanaticism, but upon the duty of the strong to forego their own personal liberty in this regard as they daily forego it in their lines of conduct for the protection of the weak, and, indirectly, for the protection of society and themselves from the countless crimes of drunkenness. It is sometimes said that personal liberty is involved; but it is no more involved than it is when you say to a man in a populous city that he may not drive his vehicle twenty-five miles an hour on a public street; no more than when you say to a man in a populous city, "You must keep your back yard clean for sanitary reasons;" no more than it is when you say to men every day that they may not do this or that because it affects the public welfare. My liberty ends everywhere and any time it touches the welfare and liberty of others. There are people in this country who are unable to distinguish between liberty and license. License is not liberty at its very best. It is the liberty of the assassin, the liberty of a land where might makes right—where he takes and holds who can. Our fathers died to find no such liberty as that. They wanted to establish liberty, but it was found in having its limitations in the welfare of others. So, if the church can organize and unite its membership, and can inspire it with a common and harmonious purpose, and give it practical and sane leadership, the days will be too few in which to number its victories. And in this connection I want to say that the sanest, wisest, most practical leadership the temperance sentiment has in America to-day is the Anti-saloon League. It appeals to every man who believes in the truth involved, without regard to his church or party. A question as broad as this requires a leadership broad enough to appeal to all men everywhere. There is much in present conditions throughout the country to justify confidence and to inspire to renewed effort. The past two years have witnessed a marvelous change in public sentiment—a change so great and so general as to amount to the moral uprising of the Christian people. You know the sublimest thing among men is the moral uprising of a great nation. There is nothing else so inspiring, so majestic, so potential in its effect upon the destiny of the human race as the moral uprising of a mighty nation. A movement seems to be in progress, nation-wide. The wave of sentiment which marks its progress will probably recede; but I pray God it will never again reach the level of old age. Four States—Maine, Kansas, South Dakota, and Georgia—now have prohibition; and Oklahoma, the new star that has crept into this field out yonder, will be more effulgent in its glory because it, too, reflects the sentiment of a State without legalized liquor-traffic. The governors of both Kansas and Maine, who are enforcing the inhibition clause in the constitution, have been reëlected. They have made substantial progress. Ninety-two counties in Kentucky, out of 119, inhibit the traffic. In Tennessee it is permitted in only three cities—Chattanooga, Memphis, and Nashville. Illinois now promises much for the coming year; and it is up to the leaders of the Christian church of Illinois to make good the promise. In Indiana, 723 townships out of a total of 1116 have excluded it. There are in Indiana but 393 townships in which it is permitted; 1,300,000 people in Indiana now live in inhibited territory; and we have, through the amendment made two years ago to the remonstrance law, prevented the establishment of more than 900 saloons—enough, allowing 20 feet to each room, to line a street four miles long. When you think of that you begin to measure the power for good this law has been to the people in Indiana. The temperance cause will first be won in rural districts. Then the traffic intrenched in the cities will make its last desperate stand. And we must look to the church with its immense power and influence, its immeasurable potentialities, for aid in this last great battle in the cities of America.

What do you think of the following, which comes from the Washington *Herald*? Is it not about right?

NO TAX COSTS THE STATE LIKE LIQUOR TAX.

In its astounding growth of prohibition sentiment, the South is in harmony with the most progressive thought of the age, which has come to recognize that there is no money which flows into the coffers of the state so expensive as that which comes from liquor licenses.

"THE BEST MEDICINE IN THE WORLD."

A few weeks ago I received the following letter:

Mr. A. I. Root:—Inclosed you will find the program of a horticultural meeting soon to be held in our apple-orchard, which I believe you would find interesting to attend.

After reading the above I glanced at the top and noticed the letter-head:

H. W. SCHMITKONS,
PRODUCER OF
FRUITS AND HONEY.

"Fruits and honey" make a very good combination; and as I considered that the writer of the letter was probably an old subscriber of GLEANINGS I glanced over the program inclosed; and as it is rather brief I give you here a copy of it:

FIELD MEETING

THURSDAY, OCT. 3, 1907, AT THE ORCHARD OF H. W. SCHMITKONS, NORTH AMHERST, OHIO.

The world of to-day is asking for men and theories that "make good" and those which do not soon lose their prestige. The Horticultural Press, the Experiment Station, and the State Horticultural Society have for years been urging orchardists to spray, and we now invite you to attend a Field Meeting at the orchard of Mr. H. W. Schmitkons, at North Amherst, Ohio, and examine for yourself the results of the spraying done there this season by Mr. Schmitkons in coöperation with the Ohio Experiment Station.

Come and meet with us and hear apple culture discussed, and see the object lessons afforded by this orchard.

A large tent has been secured in which to hold the meeting in case the day should be stormy.

PROGRAM.

TEN A. M.

Cultivation and cover crops - W. W. Farnsworth
Pruning the orchard - - - - F. H. Ballou
Feeding the orchard - - - W. J. Green

ONE P. M.

Address - - - - - Hon. R. B. Lersch
Spraying address and demonstration
H. A. Gossard and A. D. Selby
Harvesting, packing, storing, and marketing the apple - - - - - U. T. Cox

An opportunity will be given for questions and discussions.

U. T. Cox, President Ohio State Horticultural Society.
W. W. Farnsworth, Sec'y Ohio State Horticultural Society, and Chief of Horticultural Division, State Board of Agriculture.

Of course I was on hand at the appointed time; but I did not notice any thing particular in the way of fruit until we reached what is called a sand ridge (about four miles from Lake Erie) that rises slightly above the low land surrounding. On that ridge we began to see apple-trees in great abundance; and as we neared our destination we found the trees

loaded with beautiful apples, many of the limbs being propped up.

Let me stop long enough to explain why I was deeply interested. Right close to our home here in Medina we have about 50 apple-trees; but during the past season we have several times gone to the grocery and bought apples to make pies—yes, even though we had to pay *60 cents a peck* for them. We did get a few apples later on, perhaps five bushels all told from our 50 trees; but they were so precious that we picked up all the windfalls, and cut out the rotten spots and bruised places in order that nothing in the *shape* of an apple need be wasted.

When I reached this Schmitkons home we found a good-sized tent right in the midst of a very pretty apple-orchard, or, rather, two orchards. The larger one had 20 acres and the smaller one 8 acres; and every tree, so far as I observed in all those 28 acres, was loaded, and the limbs were bending down with beautiful apples, mostly Baldwins. The spraying was commenced by Mr. Schmitkons in 1896. His work finally attracted the attention of the Ohio Experiment Station to such an extent that they have kept a man there during the past season to help and observe.

Under one of the trees near the tent we saw a heap of 20 bushels of apples that had just been picked from that tree, and there were many other trees that did equally well, although none of the trees were very large, such as we often see in an old orchard. If the trees should average 10 bushels (and it was estimated that they would do that), there were about 10,000 bushels, at least, of beautiful apples on those 28 acres.

Now to let you know exactly what that means in such a season as the past here in Northern Ohio, permit me to say that, just a few days ago, I saw some Maiden's Blush apples in one of the Cleveland fruitstores marked $1.25 per half bushel—$2.50 a *bushel* for fall apples and not first-class ones at that!

The spraying-apparatus used was there in the orchard, and set at work to let the great crowd see all about how it was done.

All the apples were picked from several of the trees, the wormy ones put in one pile, and those entirely free from worms in another pile; and the same thing was done with trees sprayed and with others not sprayed. I can not recall the figures now; but on one tree that had been thoroughly sprayed for the last nine years in the above approved manner there were only 27 wormy apples. On another tree near by, containing about the same amount of fruit, where no spraying had been done during the past season, there were over *900* wormy apples. It is true the spraying had injured the appearance of some of the Baldwins by making them look a little like russet apples. In order to be sure that this russet appearance was the result of spraying I asked the speaker if there were no russets in other orchards in that neighborhood that had not been sprayed at all. He laughed while he explained that the orchards in that neighborhood, where no spraying had been done, bore scarcely enough fruit of any kind to show whether they were russets or not.

I can not take space here to tell you all the points that were brought out; but it was very evident that the man who chooses a fair location for growing apples, who keeps posted, and avails himself of the teachings of our experts, can be pretty sure of having a good crop of apples every year, and particularly so when apples are worth more per bushel than they ordinarily bring per barrel, as is the case this year.

As one of the speakers was absent, our good friend W. I. Chamberlain, of the *Ohio Farmer*, was asked to talk. I hardly need say that Prof Chamberlain is not only an expert authority, but he is a successful grower, and rarely fails to have a big crop of nice apples. Friend Schmitkons was ahead of him, however, this season. Prof. Chamberlain's first point was one that interested me particularly. He said, "If this were my orchard I would pick all of these apples inside of a week, even if it cost me $500 to do it." Then he gave his reasons for picking Baldwin apples as early as the first week in October. Last year a terrible storm and blizzard ruined a crop of his apples—something like 5000 bushels—in his own orchard in Hudson, O. Of course, the apples that were knocked off and dropped on the grass were picked up and sorted, and sold at a reduced price; but his advice to some of us who had had some sad experience was to pick the apples as soon as they were fairly colored up. Some growers recommend picking the best-colored ones first, and the remainder at a later date. I know by my own experience that many beautiful apples are reduced to the price of windfalls unless picked early.

Oh, yes! Do some of you feel like suggesting that I made a blunder in my heading? Well, all the above is just a preface to what I have been wanting to say for some time past. You may be aware that for several years I have been testing medicines—not only those that are left on our doorsteps but those that are advertised to perform such "great wonders." By the way, I have a drawerful of new remedies that I have been proposing to test whenever I should happen to have an attack of this, that, or the other malady. I think it has been some time, however, since I have gone to that drawer. First, I have been so well that I have had no occasion to handle them. Second, I have come to the conclusion that God never intended we should get relief from our pains and aches by taking drugs. When you have an earache or toothache coming, or stomachache, instead of going for a bottle or some pills, just say, "Lord, help me to learn the lesson that this pain is intended to teach me." Well, I *have* found some medicines that cured. There is a headache powder, for instance, that cures my headache, or even toothache, in only four or five minutes without fail. But I have stopped using it It disturbed my digestion, and got things out of shape in some other ways. It is like the strong coffee I talked

about; and I have decided—at least for myself—that it is not what God intended we should use when we have aches and pains.

For many years I had a notion that fruit was bad for me; and it would be bad for me now if I kept taking a bite between meals and at all hours of the day. But I have made a wonderful discovery, and one that I thank God for almost daily in the line of fruit-eating. Years ago my good friend Dr. Salisbury (of the lean-meat diet) remarked that some people found it beneficial to eat a nice ripe apple just before going to bed, as that would cause a movement of the bowels early in the morning, and thus obviate the necessity of pills or physic. Two or three years ago I found out that an apple some time during the evening assisted rather than hindered digestion during the night; and later on I found that two or three apples taken at the same time, if they were ripe and mellow, did not do a bit of harm, but, on the contrary, they help me to sleep. Now, I think one explanation to this is that by degrees I got into a fixed habit of taking all my fruit during the day, say between seven and eight in the evening; and sometimes Mrs. Root and the children would say I would surely get sick, especially when I was very apple-hungry or we had some extra nice apples. But they now all give up and say that the plan is certainly all right *for me*, and conducive to the excellent health I now enjoy. Our good friends at Battle Creek, Mich., insisted some time ago that *anybody* could eat fruit without any after-inconvenience providing he made a whole meal of fruit and nothing else; and with me the last meal of the day is entirely fruit—usually apples; and I enjoy my fruit meal so much that it is a positive fact that I look forward to the time in the evening when I can enjoy my plate of apples as I look over my exchanges.

And let me say once more in closing, that, after an experience of over sixty years in testing different remedies, I have settled down to the conclusion that "the best medicine in the world" for me is nice ripe apples. May God be praised for having given his beloved children this delicious and wholesome fruit in such great plenty.

Now, to enjoy fully this precious gift you must grow the apples on your own trees. Have trees that ripen in succession—Yellow Transparent, perhaps, for the first; then Red Astrakhan; then Maiden's Blush; and I greatly enjoy having a tree of the old-fashioned Rambo and Golden Pippin; and, later on, the Gravenstein, and so on.

At the time of my last visit to the cabin in the woods I found a beautiful and thrifty Yellow Transparent tree just beginning to bear, that had five great beautiful apples all in a cluster. The largest one in the lot had spoiled because I did not get around to pluck it; but the other four were not only the handsomest apples I ever saw, but they were to my taste delicious, and I do not know but I shall have to call them the *most* delicious fruit God ever gave to mankind.

Now, to enjoy fully this great gift you will need to watch the apples from the time they blossom until they are fully ripe, and at their best; and do not forget to *thank God* while you enjoy the apples grown around your own home on your own trees.

Heigh-ho! Here comes some backing to what I have just been saying to you, from a very unexpected source. I clip the following from the *Rural New-Yorker:*

> It seems that John D. Rockefeller is an active member of the Apple Consumers' League. That explains several things which have often bothered us. We have often wondered how Mr. Rockefeller could keep his health so vigorously, carry his great wealth without breaking down with it, and endure with such composure the savage assaults made upon him by the newspapers! It is now all made clear—he is a thirty-third-degree apple-eater. His five apples a day have brought him a large measure of health and philosophy. Further, we commend Mr. Rockefeller's example in giving apples away. Instead of handing out a cigar or offering a drink, why not say, "*Have an apple*"?

The concluding suggestion meets my most hearty approval. For years I have been pained to notice the fashion of giving out cigars, or, worse still, treating the crowd when a baby comes into the family, or somebody gets married, or something of that sort. Yes, I have known men who did not use cigars themselves at all, and who were opposed to the use of tobacco, feel that it was incumbent on them to treat to the cigars, just because a baby had come into their home. May God forbid that this fashion should go any further. The present wave against intemperance will probably result in doing away with treating to drinks on such an occasion. And now, friends, does not the idea strike you favorably of starting a fashion of having a young father, or, if you choose, a bridegroom, fill his pockets or a basket or a *barrel*, with choice apples, and then let a nice apple take the place of the cigar when congratulations are in order? Mr. Rockefeller has certainly done some good in this world of ours if the credit belongs to him for encouraging the fashion of giving away apples instead of tobacco or strong drink.

WYOMING AND IDAHO FOR BEES.

THE Wyoming *Stockgrower and Farmer*, published at Cody, contains, in its issue for October 17, a very interesting letter from Mr. W. W. Turner, a local bee-keeper who has been very successful in his bee-keeping operations, and other reports sent to this office go to prove Wyoming is an extra-good country for bee-keeping. Large irrigation projects are being pushed ahead, which, of course, will be for the benefit of bee-keepers. No doubt Wyoming will soon be a worthy rival of Colorado as a honey State. Idaho, too, is making rapid progress, chiefly on account of the enormous area of land being placed under irrigation. Near Twin Falls, 920,000 acres will shortly be under irrigation, and great developments are going on elsewhere over the State. Idaho is very well supplied with rivers fed by perpetual snows, so that the opportunities for irrigation are great. W. K. M.

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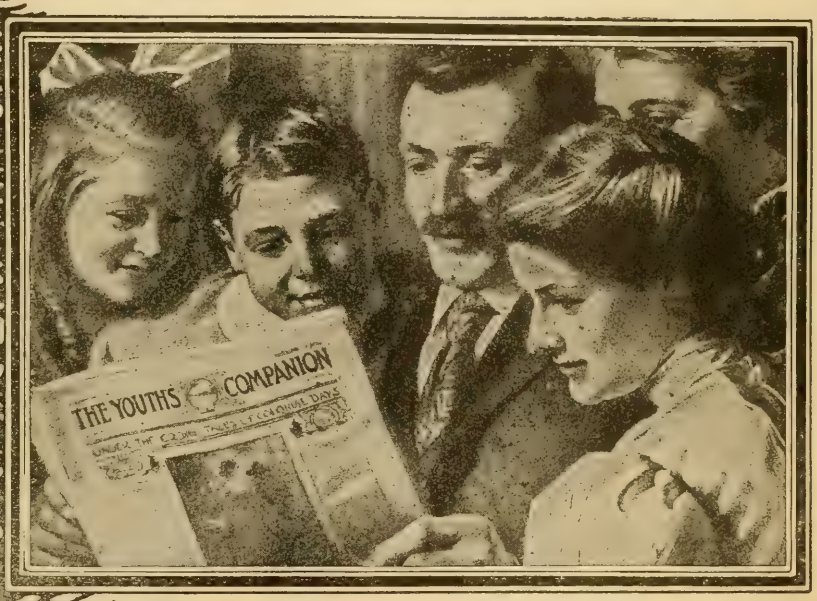

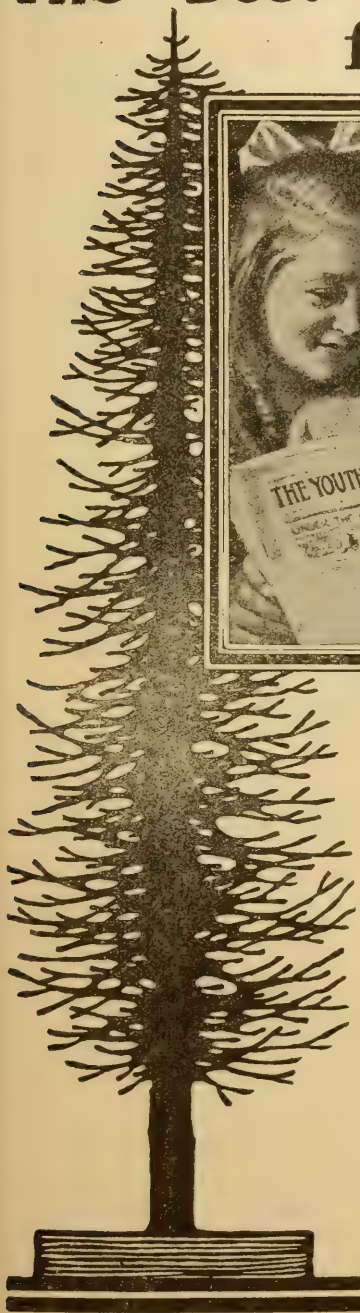

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GIFT 1. All the issues of the paper for the remaining weeks of 1907, including the Beautiful Holiday Numbers.

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TRY THE DANZ.
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The Danzenbaker hives I got last season have given splendid satisfaction; in fact, I have kept my bees outside this winter, which is seldom attempted in Manitoba, and up to date they have come through in splendid shape. I think the hive did it.
Yours truly, LAURENCE C. CLARKE.
Morden, Man., March 5, 1907.

Send for catalog. Best shipping facilities in the State.

Frank W. Prothero
Dubois, : : : Pennsylvania

Northwestern Bee-keepers!

We are headquarters for the ROOT supplies for the States of Montana, Minnesota, the Dakotas, and Western Wisconsin.

You can save freight by ordering from this branch. A complete line of bee-keepers' supplies always in stock.

Secure a catalog at once.

BEES and QUEENS.—Your orders will be attended to.

The A. I. Root Company
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We sell at factory prices.
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WHY, HE HAS A LOT OF SUPPLIES HE WANTS TO LET YOU HAVE WITHIN THE NEXT SIXTY DAYS AT A DISCOUNT, TO MAKE ROOM FOR THE NEXT SEASON'S GOODS. JUST SEND A LIST OF WHAT YOU WANT AND GET ESTIMATE. IF YOU HAVEN'T HIS FORTY-PAGE ILLUSTRATED CATALOG, SEND FOR IT AT ONCE

CASH OR SUPPLIES FOR BEESWAX AT ALL TIMES

GEORGE E. HILTON
FREMONT, :: :: MICHIGAN

TO THE

BEE-KEEPERS OF CANADA.

WE are pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we do not offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

E. GRAINGER & COMPANY,
Deer Park,
Toronto, Ontario, Canada.

CANADIAN AGENTS FOR
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

BINGHAM BEE-SMOKER AND KNIFE.

What catalogs say:

The A. I. Root Co., Medina, Ohio: "The cone fits inside the cap so the liquid creosote runs down inside of the smoker."

Chas. Dadant & Son, Hamilton, Ill.: "This is the smoker we recommend above all others, and it has given universal satisfaction."

G. B. Lewis Co., Watertown, Wis.: "We have sold these for a good many years, and never a complaint. They include all improvements."

Marshfield Mfg. Co., Marshfield, Wis.: "The original direct-draft Bingham Smoker is the best smoker made."

The Bingham Smokers and Honey-knives have been the standard in America and every European country 29 yrs. There is no *smoker* so *old*, so *new*, so *perfect*. Accept thanks for 30 yrs. liberal patronage.

BINGHAM SMOKERS. Name.	Size of barrel.	Price of 1	Price of 3	Postage.
Smoke Engine	4-inch	$1 25	$3 45	25
Doctor	3½ "	85	2 40	25
Conqueror	3 "	75	1 95	25
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Three larger sizes in heavy copper at 50c ea. extra.

Bingham Uncapping-knife, 70c; postage 10c.

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Northeastern and New England
BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine

MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

1884 1907

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FOR YOU

Twenty-two successful years manufacturing bee-supplies and raising Italian bees and queens. . . . . Root's Goods in Stock.

J. M. Jenkins
Wetumpka, : : Alabama

TEXAS ANNOUNCEMENTS

New Contract. It was with a great deal of pleasure that we announced in the last issue of GLEANINGS that we were again able to offer Root's Goods to our Texas bee-keeping friends by reason of a new and favorable contract we had lately concluded with the manufacturers of this well-known line.

Quality of Goods. Our experience covering the sale of bee-keepers' supplies, covering the past ten years, and the use of these goods in our own apiaries, have convinced us that it is more profitable and satisfactory, all things considered, to use a high-grade standard line, like the Root stock, than to attempt a little saving by local-made and other inferior lines. The testimony of Mr. Bamberger, an Illinois bee-keeper who accidentally came across some of these goods, is interesting. See what he says:

ELIAS BAMBERGER,
MANUFACTURER OF
SASH, DOORS, BLINDS,
CONTRACTORS AND BUILDERS' SUPPLIES.
INCLUDING ALL KINDS OF WINDOW GLASS.
COR EXCHANGE AND ADAMS STS.

Freeport, Ill., June 11, 1907.

The A. I. Root Co., Medina, Ohio.

Gentlemen:-I received five of your AE52S-10 hives yesterday, and find that I can not make my own hives and supplies as cheap as yours and use the same quality of lumber. You can see by the head of this letter that if any one can make hives cheaper than your prices I ought to be able to do it, but, using the same quality of lumber, I can not.

Yours very truly, John H. Bamberger.

On June 19th permission was asked to use his letter, and the following was his reply:

Gentlemen:- Freeport, Ill., June 20, 1907.

Your favor of the 19th inst. at hand, and note what you say about using my statement about your bee-hives as to the quality of material and the workmanship and the price. In reply will say that you may use it, as it was certainly voluntary, and, as I have had no dealings with you before, you would not have received that order if I had not seen your goods at the I. C. freight-house in this city. We have had inquiries in the past for bee-hives, and always said, why not buy from the large manufacturers? The reply was, we can get them cheaper.

And they get #1 common lumber and have us cut it up for them, and very seldom are the hives the same size as some one else wants. The cost may be less, but what a bunch of knots!

The bee-keepers differ in opinion of quality and cost of bee-supplies in about the same way that the whole population differ as to cheap clothing, good material and factory-made, and good material and custom-made clothing. Any thing goes with some people, just so it is cheap; others want good goods, and know that it is cheaper in the long run. I aim to be one of the latter kind. Yours, John H. Bamberger.

Prices. The prices at which we can furnish these goods at present remain practically the same as during the past year, and present orders may be sent from the past season's catalog. There are likely to be a few advances, and it is important that your orders come in early. Write us for prices on large quantities or for detailed estimates on any order you may be about to place.

Weed-process Foundation. We call your attention to the facilities we offer for working up your wax into comb foundation of any grade, as we have renewed our contract for the outfit of Weed-process machinery for another term of years, and shall be in better condition than ever before to quote you favorable prices on this product; or for working up your wax, if you prefer to have it handled that way.

Agents Wanted. We want to secure a live hustling representative in every county in Texas where we are not now represented. We prefer a bee-keeper centrally located, and one able to pay cash down for the goods he will order and carry in stock. To those who mean business we offer good inducements.

Beeswax Advanced. We are in the market for beeswax at all times. We are now paying 25c cash, or 28c in trade, for pure average beeswax delivered at San Antonio.

Udo & Max Toepperwein
1322 South Flores St. San Antonio, Texas

SEND FOR OUR FREE STOVE BOOK

If you want a stove or range of any kind for any purpose, let us send

"A Kalamazoo Direct to You"

TRADE-MARK REGISTERED

at actual factory prices. You save from $5 to $40, because you keep in your pocket all the dealers' jobbers' and middlemen's profits. You run no risk, because we pay the freight and sell you on

360 Days Approval

You not only save money but you get a stove or range of exceptionally high quality. Made of the best pig iron and steel of the highest grade, by the most skilled workmen, in one of the most modern and best equipped stove factories in the world. Every Kalamazoo is carefully inspected and we **know** it is right. If not, you get your money back without a quibble. You cannot get a better, no matter how much extra you pay. Why not save all the dealers' profits? Is it not reasonable to suppose that you can save money by buying direct from our factory?

Send Postal For Catalogue No. 416. Compare Kalamazoo Quality and Kalamazoo Prices with others—and save your money. Our line is complete, embracing stoves and ranges of all kinds for all domestic purposes,—for the home, school, church, halls, lodge rooms, etc. Hotel ranges for restaurants, boarding houses, clubs and camps, Gas stoves and ranges for cooking and heating

ALL SOLD AT ACTUAL FACTORY PRICES.

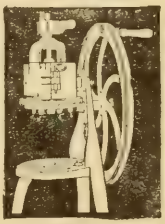
Kalamazoo Stove Company, Manufacturers, Kalamazoo, Mich.

All Kalamazoo cook stoves and ranges are equipped with patent oven thermometer which saves fuel and makes baking and roasting easy.

You Can Get More Eggs

And Save Feed Bills.

GREEN BONE fed raw gives fowls the food they need to take the place of bugs and worms. It has more than **four times** the egg making value of grain: is rich in protein and other elements that make **more eggs**, fertile eggs, livelier chicks, earlier broilers, heavier fowls. Cut it with



MANN'S Latest Model Bone Cutter

Turns easily; cuts rapidly; never clogs: automatically adjusts itself to any one's strength. Cuts all bone with all adhering meat and gristle.

Ten Days Free Trial We ask no money until you try the machine. If not satisfied, return at our expense. Write for catalogue.

F. W. MANN CO., Box 37, Milford, Mass.

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6 FREE

SEND FOR THEM TO-DAY

HARDY BLIZZARD BELT

To prove that our EVERGREENS are HEALTHY, HARDY and Vigorous, we offer to send SIX fine two year-old trees, entirely FREE OF CHARGE, to every property owner who will answer this advertisement. Mailing expense 5 cts., which send or not, as you please. A postal will bring them and our catalogue which contains many COLORED PLATES of our BLIZZARD BELT FRUITS; SPECIAL BARGAINS and a mine of valuable information for fruit growers. We want to become acquainted with you, and it will pay you to get into touch with our HARDY "BLIZZARD BELT" stock and our liberal manner of doing business. THIRTY-EIGHT years' experience in growing HARDY "BLIZZARD BELT" trees. Write to-day.

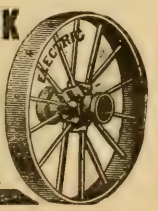
The Gardner Nursery Co., 26 Nursery Ave., Osage, Ia.

6 EVERGREENS FREE

SAVE YOUR BACK

Save time, horses, work and money by using an

Electric Handy Wagon



Low wheels, broad tires. No living man can build a better. Book on "Wheel Sense" free.

Electric Wheel Co. Box 95, Quincy, Ill.

GET MY LOW PRICES

Before you buy an Incubator. I manufacture in largequantities and sell direct to you.

IDEAL Hot-Air and Hot-Water Incubators and Brooders

hatch more chicks and stronger chicks. Send for my big free handsomely illustrated book, **"Poultry for Profit."**

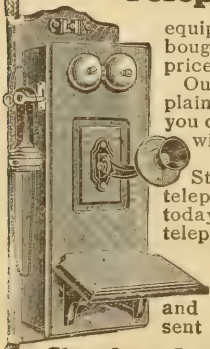
J. W. MILLER COMPANY, Box 48, FREEPORT, ILL.

Just Listen a Moment

You can hear lots of important news—The Hog Market is up—ship that carload. Wheat is off a cent.

Information like this is important to every farmer—and it can be had for less than a cent a message if you and nine or ten of your neighbors will build your own telephone line.

Stromberg-Carlson Telephone



equipments can be bought at reasonable prices.

Our directions are so plain and simple that you can put up the line with little effort.

Over one million Stromberg-Carlson telephones are in use today. Write today for telephone book "How the Telephone Helps the Farmer." 21st edition and other literature, sent free.

Stromberg-Carlson Telephone Mfg. Co.,
Rochester, N. Y. Chicago, Ill.
Address nearest office

See our Exhibit at the Electrical Show, Chicago, January 13-25, 1908. Space 7-8, Section L.

Make Your Own Fertilizer

at Small Cost with
WILSON'S PHOSPHATE MILLS

From 1 to 40 H. P. Also **Bone Cutters,** hand and power for the poultrymen; grit and shell mills, farm feed mills, family grist mills, scrap cake mills. Send for our catalog.

Wilson Bros., Sole Mfrs., Easton, Pa.

LET ME SHOW YOU

how easy it is for you to build your own Incubators and Brooders with my **Free Plans.** I furnish all parts you can't make. Thousands doing it—not a single failure. Send today for **my free Book of Plans and Catalog.**

H. M. SHEER CO.,
242 Hampshire St., Quincy, Ill.

High Grade Door ONLY 80c

2-0 x 6-0, All White Pine. Regular Price, $2.00

If you have any use for doors, windows, storm sash, moulding, porch brackets, columns and millwork, for your own buildings, or as contractor, **don't buy elsewhere** at any price or under any circumstances until you get **the Grand Millwork Catalog** which makes a clean saving of 50% on any dealer's prices. It makes no difference where you live. If you intend to build, or if you need millwork for any purpose, do not think of buying until you get our estimate. Our goods are high grade as well as wonderfully low in price. Our lumber is first air-dried and then, as an extra precaution, is put through a scientific drying process. Joints are made with heavy hardwood dowel pins, glued with imported glue, pressed together by heavy steam power press. There is no "come apart" to our work.

Door panels have a heavy raise on both sides. The panels are sandpapered on a special machine of our own invention before the door is put together, and the entire is then smoothed with fine-grained sandpaper. We guarantee our goods to be strictly up to the official grade adopted by the Sash, Door & Blind Manufacturers' Association of the Northwest.

We operate the **largest** mill in the world—163,000 feet of floor space (four acres)—have been in business since 1865—own our timber lands, sawmills and lumber yards. We carry a large stock and can therefore ship promptly. We have no traveling men—sell only for cash. We are the **only** large manufacturers of sash, doors and blinds selling direct to the consumer. Our prices will astonish you. Don't buy anything in our line until you get our catalog, **the grandest woodwork catalog published.** It's Free—write for it today. Address

GORDON, VAN TINE CO.
418 Case Street, DAVENPORT, IOWA

SAVE HALF YOUR FUEL

BY USING THE

Rochester Radiator

Fits any Stove or Furnace.
Guaranteed to do all we claim or money refunded.
Write for booklet on heating homes.

Rochester Radiator Co.,
50 Furnace St., Rochester, N. Y.

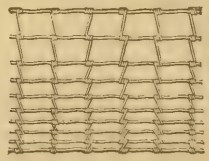
Price from $2.00 to $12.00

For hard or soft coal, wood or gas.

FENCE *Strongest Made*

Made of **High Carbon Double Strength** Coiled Wire. **Heavily Galvanized** to prevent rust. **Have no agents.** Sell at **factory prices on 30 days' free trial.** We pay **all freight.** 37 heights of farm and poultry fence. **Catalog Free.**

COILED SPRING FENCE CO.
Box 101 Winchester, Indiana



WIRE FENCE 29c

48-in. stock fence per rod only

Best high carbon coiled steel spring wire. Catalogue of fences, tools and supplies **FREE.** Buy direct at wholesale. Write to-day.

MASON FENCE CO.,
Box 88 Leesburg, O.

Send for free Catalogue.

Hatch Chickens by Steam with the EXCELSIOR INCUBATOR Or WOODEN HEN

Simple, perfect, self-regulating. Hatch every fertile egg Lowest priced first-class hatchers made.

GEO. H. STAHL, Quincy, Ill.

Joseph Horne Co.,

PITTSBURG, PA.

Christmas at Horne's

This is the last issue of GLEANINGS in which we shall talk about Christmas things—the next issue will be about things of the new year.

We can not urge upon you too strongly to send for our Christmas paper. It has a thousand and one suggestions for everybody.

It is a 16-page sheet, generously illustrated, especially in the matter of toys.

Kindly remember that this is a store of 80 different divisions, a store doing many millions of dollars of business in a year, a store that has every thing for man and woman, boy and girl, and it is safe to assume that whatever you have in mind in the way of a gift that we have it.

The INDUSTRIOUS HEN

The Leading

Poultry Journal

of the South.

Every Farmer and Chicken-raiser Should Read It.

50c One Year; Three Years, $1.
(Sample Free)

The Industrious Hen Co.,
617 Gay Street. Knoxville, Tenn.

PATENTS No attorney's fee until patent is allowed. Write for "*Inventor's Guide.*"
Franklin H. Hough, Loan & Trust Bldg., Washington, D.C.

THE BEE & POULTRY INDUSTRIES DOVETAIL

and go well together

In poultry culture the main thing is health, and

Conkey's Poultry Remedies

Are the World's Standard

This is the season for Roup and the sneezing, wheezing, swollen headed fowls should be quickly restored to health, usefulness and profit. You cannot afford to experiment, so use

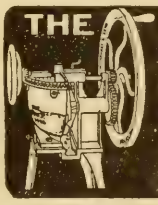
CONKEY'S ROUP REMEDY

Just a thimbleful in the drinking water and they cure themselves. Our absolute guarantee goes with it, and it means your money back should it disappoint you.

Conkey's Book on Poultry Free for 4c in stamps and names of two others interested. It solves the whole poultry problem and is worth dollars to any poultry raiser. GET IT TODAY.

THE G. E. CONKEY CO.
315 OTTAWA BLDG, CLEVELAND, O.

Conkey's Poultry Remedies are carried by A. I. Root Co. at their branches, New York, Philadelphia, Washington, Chicago and Medina.



THE HUMPHREY GREEN BONE and VEGETABLE CUTTER

will save half your feed bills and double egg yield. Guaranteed to cut more bone, in less time, with less labor, than any other. Send for Special Trial Offer and handsome catalogue.

HUMPHREY,
Mine St. Factory, Joliet, Ills.

Paint Without Oil

Remarkable Discovery that Cuts Down the Cost of Paint Seventy-five Per Cent.

A Free Trial Package is Mailed to Every One Who Writes.

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powdrpaint. It comes in the form of a dry powder, and all that is required is cold water to make a paint weather-proof, fire-proof, and as durable as oil paint. It adheres to any surface, wood, stone, or brick, spreads and looks like oil paint and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manufacturer, 202 North St., Adams, N. Y., and he will send you a free trial package, also color-card and full information showing you how you can save a good many dollars. Write to-day.

ADVANCED BEE CULTURE

One of the most difficult tasks of my life is that of writing an advertisement of *Advanced Bee Culture*. Be as modest as I can, it still smacks of egotism—sounds like a parent praising his own child. If the book had been written by some other man, the writing of an advertisement would be comparatively easy. However, even at the risk of laying myself open to ridicule, of becoming a laughingstock, I am going to

Forget for Once

that I am the author and pub'isher, and write as though of another's work.

When 18 years old I visited an apiary in swarming-time; saw bees hanging in great golden-brown clusters from the swaying boughs of the old apple-tree; saw the snowy-white combs growing as by magic; saw the waxen cells filled with nectar, and inhaled that *sweetest* of all perfumes the odor of a bee-hive in harvest time. I was filled through and through with enthusiasm. Here was a business that was most truly

The Poetry of Life.

I was that day born a bee-keeper. There was no longer any doubt as to what should be my life-occupation. I at once began buying bee books and journals, and visiting bee-keepers, and studying the business from every possible standpoint. It was six years later before I was able to engage actually in the business, but I then possessed as thorough a theoretical knowledge of bee-keeping as does a young physician of medicine when he begins to practice. All this was 30 odd years ago; and since then I have

Run the Whole Gamut

of bee-keeping, time and time and again. I have practiced all sorts of methods for artificial increase; I have battled with the difficulties of natural swarming; I have produced tons and tons of comb honey; have tried my hand at extracted-honey production; I have reared and sold thousands of queens; I have exhibited bees and honey for 15 consecutive years at from one to half a dozen State fairs; I have wintered bees in all sorts of ways, outdoors and in, in cellars and buried in clamps; I have attended nearly all of the conventions of a national character;

Visited Hundreds of Bee-keepers

in their homes, scattered from ocean to ocean and from the lakes to the Gulf; I have read all the books and journals; for nearly 20 years I have published the *Review*, enjoying the confidence and correspondence of bee-keepers scattered all over the country; in short, I have been a wide-awake, enthusiastic, practical, actual work-a-day, bread-and butter bee-keeper all of these years, making a living for myself wife, and little ones, *out of bees*. *Advanced Bee Culture* is

The Ripened Fruit

of all these years of varied experience; it is the crowning effort of my life. I look upon it as the best piece of work that I have ever done, or, perhaps, ever *will* do. It is written from a bread-and-butter standpoint. It teaches how to make a living, yes, more than that, *make money* out of bees. From all of these sources that I have mentioned, from my own experience, and that of the men with whom I have associated, I have described the most advanced, the *best* methods of keeping bees for *profit*. I begin at the opening of the year, and go through the season step by step, touching briefly but clearly and concisely upon all of the most important points, showing their relationship one to the other, and how, joined together, they make a perfect whole. If I could have had this book 20 years ago, and followed its teachings, I might now have

Been a Rich Man.

I say it fearlessly, because *I know that it is true*, that no practical bee-keeper can afford not to read it. The courage, enthusiasm, and inspiration alone will be worth more to him than the cost of the book, to say nothing of the more practical instructions. Many a man fails from a lack of these very useful qualities, and the perusal of *Advanced Bee Culture* will do much to help him in this respect.

One more point: A dozen years ago I took up photography as a hobby, as a pastime. I have studied it just as you have studied bee-keeping. I have read the journals and books on the subject, attended the conventions, etc. I have lugged a large camera along with me all over the United States and Canada, and used it with loving care. *Advanced Bee Culture*

Contains the Gems

of this collection of all these years—a collection that is simply unapproachable in the line of apiculture. The book is beautifully printed with clear, large type, on heavy enameled paper. It is bound in cloth of a bluish drab, and the front cover embellished with a green vine of clover, a

Bee of Gold

sipping nectar from the snowy-white blossoms of the clover. Taken all in all, it is a beautiful book. If the advertising that I have done in the past has not convinced you that you need the book then the fault is in the *advertising;* and for this once I have cut loose and said just what I think of the book, just as I would of some other book—I may never do it again.

Price of the book $1.20, or the *Review* one year and the book for only $2.00. And remember that just at present you get all of this year's numbers free! That is you can get the *Review* for this year and next, and the book, for only $2.00!

W. Z. HUTCHINSON, :: :: :: FLINT, MICH.

Dittmer's Comb Foundation

is the best, not because we say so, but because the bees prefer it to other makes.

DITTMER'S PROCESS IS DITTMER'S.

It has built its reputation and established its merits on its own foundation and its own name.

We make a specialty of working wax into foundation for cash.

Write for free catalog, and prices on full line of supplies.

GUS DITTMER, Augusta, Wis.

BEE HIVES

FOR SALE—It will pay to get our special proposition. A. G. WOODMAN CO., Grand Rapids, Mich.

SPRAY PUMPS

"TAKE OFF YOUR HAT TO THE MYERS"

MYERS

The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers. Pumps, Hay Tools & Barn Door Hangers. Send for catalog and prices.

F. E. Myers & Bro.
Ashland, Ohio.

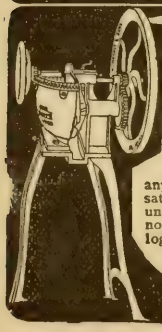
Northern New York Bee-keepers.

4½ PER CENT DISCOUNT.

We have a large stock of shipping-cases and feeders, and all orders for same will be filled promptly. Beeswax and old combs wanted; cash or trade; 4½% discount during the month of Dec. on every thing but cases and feeders. Comb honey wanted; write stating how put up, kind, and lowest cash price deliver'd in Watertown, N. Y.

A. H REEVES & CO., No 3 State St, WATERTOWN, N. Y.

WINTER EGGS



Feed cut green bone; save half your grain and double your egg yield. The

Humphrey
Green Bone & Vegetable Cutter,

the only open hopper machine, is guaranteed to cut more bone, with less labor and in less time than any other. Money back if you are not satisfied. It's the one hand cutter; feed under operator's control at all times; no complicated parts. Send for catalogue and special Trial Offer.

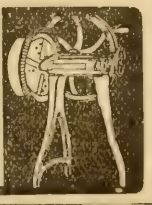
HUMPHREY,
Mine St. Factory,
Joliet, Ill.

$5 AND UP

NO MONEY IN ADVANCE

The "Dandy" is the easiest operated, best built, fastest cutting green bone cutter made. Sold on 15 days free trial with a broad guarantee. If it suits keep it, if not, send it back. Free catalog.

Stratton Mfg. Co., Box 54, Erie, Pa



CUTS USED IN THIS MAGAZINE ARE FROM THE MUGLER ENGRAVING CO. MUGLER BLDG. CLEVELAND, OHIO.

HONEY-JARS

No. 25, with burnished caps, $5.00 gross. Several other styles of jars in stock.

HONEY!

We have some fine thick white honey, in cans, two in a case, 124 lbs., at 9c lb.; 5 cases, 8¾c lb.; 10 cases, 8½c lb. Catalog of supplies free.

I. J. STRINGHAM,
Apiaries: Glen Cove, L. I. 105 Park Place, New York

NOTICE!

This is to notify you that Norris & Anspach, Kenton Ohio, are no longer our agents and we can not be responsible for any orders sent them. If you wish any of our goods, kindly send your orders to our agents, Cleaver & Green, Troy, Penna.

Agents wanted to handle our goods by the carload for the State of Ohio. Write us at once.

G. B. Lewis Co., Watertown, Wis.

"IF You want BEST GOODS QUICKEST, order of PEIRCE.

ROOT'S GOODS AND PRICES

EDMUND W. PEIRCE,
136 W. Main St. Zanesville, Ohio.

SAVE EXPRESS!
SAVE FREIGHT!
SAVE TIME!
by ordering your supplies in ...Boston

H. H. JEPSON,
182 Friend St. Phone Haymarket 1489-1

PATENTS.

Twenty-five Years' Practice

CHARLES J. WILLIAMSON,

Second Nat'l Bank Bldg., Washington, D. C.

Patent practice in Patent Office and Courts.
Patent Counsel of The A. I. Root Co.

Classified Advertisements.

Notices will be inserted in these classified columns at 20 cents per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Wanted, Situations.

WANTED.—Position in apiary for coming season. Have had experience. EZRA HEININGER, Dexter, Mich.

WANTED.—Position on a bee-ranch; have 15 years' experience; South preferred. T. H. ANDERSON, Winthrop, Minn.

Help Wanted.

WANTED.—We wish to employ a good all-round bee-keeper—one to devote special attention to queen-rearing. VIRGIL SIRES, No. Yakima, Wash.

WANTED.—Young men with or without experience, married or single, to work with bees; real desire to work and learn the business, sole requirement; best of wages and percentage of crop. I am one of the largest producers of honey in this State.
H. T. CHRISMAN, Coalinga, Cal.

For Sale.

FOR SALE.—Yellow-sweet-clover seed, 30 cts per lb. postpaid. MRS. A. L. AMOS, Comstock, Neb.

FOR SALE.—Opaline honey-jars, all kinds; send for price list. HAROLD E. SHORE, Germantown, Pa.

FOR SALE.—Fine job-printing outfit.
C. A. STEBBINS, Broad Creek, Va.

FOR SALE.—1000 sq. ft. brand-new steel siding, left over. Cheap. Fgt. paid. J. B. HOLLOPETER, Pentz, Pa.

FOR SALE.—Homestead farm crops in their season, consisting of honey, grapes, pears, apples, etc.
C. J. BALDRIDGE, Kendaia, Seneca County, N. Y.

FOR SALE.—80,000 black-locust insulator pins for telephone and telegraph; will sell them cheap. Apply to D. W. SWITZER, Roebuck, S. C.

FOR SALE.—Special sale of half a million of best Wisconsin sections; thousands of shipping-cases; big discounts on all supplies till February 1. Seeds of honey-plants. Write at once. H S. DUBY, St. Anne, Ill.

FOR SALE.—100 ten-frame extracting supers, painted; Hoffman frames; full sheets wired foundation, used two years; price $1.00 each, in lots of five or more.
GEO. A. HUMMER, Prairie Point, Miss.

FOR SALE.—Scotch Collie pups. Pure bred, of registered stock; finely marked. Satisfaction guaranteed. Males, $10.00; females, $7.00.
F. A. KRAUSE, Ridgeland, Wis.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1907 send your name and address to FRANK S. STEPHENS, (Root's Goods.) Paden City, W. Va.

FOR SALE.—Beautiful long-haired Angora and Persian kittens, some white and other colors. Prices low. Stamp for description.
MRS. J. F. SKEES, Marion, Ohio.

FOR SALE.—Cow peas, $2.25 per bushel; one No. 18 Cowan extractor, good order, $7.50; one 100-egg incubator, Prairie State, used this year, and in good condition. G. L. ELLIS, Millsboro, Del.

Poultry Offers.

FOR SALE.—Indian Runner ducks. Choice stock. Write me your wants. KENT JENNINGS, Mt. Gilead, O.

FOR SALE.—L. B. Barred P. Rocks. White Wyandotte cockerels, each $1. H. S. DUBY, St. Anne, Ill.

Post Cards.

POST CARDS.—Sample package of 6 beautiful new Christmas and New Year cards, with descriptive circular, postpaid, 15c; 12 for 25c. Special prices on larger quantities. M. T. WRIGHT, Medina, Ohio.

Send us your picture and we will copy it on one dozen post cards, and return the same with picture for 50 cts. postpaid. ACME POST CARD CO.,
603 South Broadway, Medina, O.

Real Estate for Bee-keepers.

FOR SALE.—A good Ohio home is offered cheap; 22 acres of land all cleared and tiled; a good two-story house and barn, and all other buildings as good as new; 125 fruit-trees; all kinds of fruit, all in good bearing condition; 20 colonies of bees and a lot of bee-supplies, and a good extractor—a good chance for a bee-man. Write for price and description.
C. R. HAGEMAN, Homerville, O.

Wants and Exchange.

WANTED.—500 colonies of bees in Texas, Arizona, or California. N. E. MILLER, Box 373, Logan, Utah.

WANTED.—Two-frame extractor, "L. size."
W. B. TAYLOR, Glen Allen, Va.

WANTED.—Capital to invest in honey production in the West. Opening for a desirable partner with capital. L. B. BELL, Camp Verde, Ariz. T.

WANTED.—To buy, rent, or work on shares, 200 colonies of bees in standard hives.
EARL RULISON, R. F. D. No. 1, Amsterdam, N. Y.

WANTED.—To lease, with the option of purchase, an apiary in the West or Southwest. Cash rental. Please send all particulars to
W. K. MORRISON, 528 Friendship St., Medina, O.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—Names of parties having bees to sell in South. Give price. Would like to correspond with bee-keepers on or near the Ohio, Cumberland, and Tennessee rivers. W W. CRIM, Pekin, Ind.

Honey and Wax For Sale.

FOR SALE.—Buckwheat and amber extracted honey in 50-lb. pails and 200-lb. kegs. W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—Fine white honey, two cans in case, 124 lbs. at 9 cts. per lb.; 10 cases, 8½ cts. Sample, 10 cts. I. J. STRINGHAM, 105 Park Pl., New York.

FOR SALE.—Strictly white-clover fancy comb, $4.00; No. 1 comb, $3.50; No. 2 comb, $3.00; amber, $3.50 and $3.00; in strawed carriers. Extracted, 11 cts. in 60-lb. cans. Sample 10 cts. J. C. STEWART, Hopkins, Mo.

FOR SALE.—Fancy orange-blossom honey, 60-lb. cans, 9¾c; water-white sage, 60-lb. cans, 9½c; light amber, 60-lb. cans, 8¾c; dark amber, 60-lb. cans, 8¼. Special prices in quantities.
E. R. PAHL & CO., Milwaukee, Wis.

FOR SALE.—Choice table honey, heavy body, fine flavor, aster-buckwheat blend; 60-lb. cans, $5.00 each. Inquire H. M. WEST, N. Kingsville, Ashta. Co., O.

FOR SALE.—3000 lbs. strictly pure fancy extracted honey in 60-lb. cans at 12½ cts. f. o. b. here. Sample 10 cts. H. A. ROSS, 1709 Upper Sec. St., Evansville, Ind.

FOR SALE.—Choice buckwheat and clover honey, in 60-lb. jacketed cans, at 9 cts. for clover and 7 for buckwheat. G. H. ADAMS, Schenectady, N. Y.

FOR SALE.—Light-amber fall honey, in barrels and 60 lb. cans; also white alfalfa in 60-lb. cans, two in a case. Write for prices to
DADANT & SON, Hamilton, Ill.

FOR SALE.—One ton amber and buckwheat comb honey at $3.00 per case, 24 sections, in glass-front case; 18 light-weight cases at $2 50 per case; also dozen cases extracted. QUIRIN-THE-QUEEN-BREEDER,
Bellevue, Ohio.

FOR SALE.—Fancy white comb honey; also extracted basswood, white clover, alfalfa, and amber honey in barrels or 60-lb. cans,
ROBT. A. HOLEKAMP & SON,
4263 Virginia Avenue, St. Louis, Mo.

FOR SALE.—5000 lbs. of white-clover and basswood extracted honey in new 60-lb. cans at 10 cts. per lb. by the case, or for the entire crop. Two cans in a case. Cash must accompany order. This honey was left on the hives all summer and is of finest quality.
LEONARD S. GRIGGS, 711 Avon St., Flint, Mich.

Honey and Wax Wanted.

WANTED.—White extracted honey. Give price and particulars in first letter. D. E. LHOMMEDIEU,
Colo, Story Co., Iowa.

WANTED.—White ripe extracted honey; will pay cash. GEO. RAUCH, No. 5343 Hudson Boulevard,
North Bergen, N. J.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.
R. A. BURNETT, 199 S. Water St., Chicago, Ill.

WANTED.—To buy basswood, clover, and amber extracted honey for cash. Best prices paid. Send sample, and quote price delivered in Preston
M. V. FACEY, Preston, Fillmore Co., Minn.

WANTED.—No. 1 and fancy comb honey; 4x5x1⅜ section preferred. Also light extracted. Must be guaranteed pure. Write, stating grade and how put up, and lowest cash price.
C. M. CHURCH, Arnold, Pa.

Bee-keepers' Directory.

QUEENS.—Clover stock. Experience and methods count. Write me. H. G. LARUE, LaRue, Ohio.

ITALIAN queens bred for honey, untested, 75c each.
GEO. H. PLACE, 816 No. 49th St., Omaha, Neb.

Extra honey queens and choice mountain honey.
Francis J. Colahan, Bernardo, San Diego Co., Cal.

QUEENS.—Pure Gold, Red-clover, Caucasian, Banat.
ROSE LAWN APIARIES, College View, Lincoln, Neb.

ITALIAN QUEENS.—Golden and leather, 60c each; worth $1.00. G. W. BARNES, Box 340, Norwalk, O.

Bee-keepers' supplies, Italian queens. Send for a free catalog. ARTHUR RATTRAY, Almont, Mich.

ITALIAN BEES and queens—Red-clover strain imp'd mothers. A. W. YATES, 3 Chapman St., Hartford, Ct.

ITALIAN BEES, queens, and Root's bee supplies.
E. SCOGGIN, Carlsbad, N. M.

I club a high-grade Italian queen with GLEANINGS, new or renewal. W. T. CRAWFORD, Hineston, La.

ITALIAN BEES and queens—red-clover and golden strains. E. A. SIMMONS, Greenville, Ala.

Well-bred bees and queens. Hives and supplies.
J. H. M. COOK, 70 Cortlandt St., New York City.

ITALIAN bees and queens bred for honey; price list free. B. F. YANCEY & SON, Angleton, Tex.

FINEST Golden and red-clover queens, Caucasian and Carniolan. DANIEL WURTH & GRANT, Pitkin, Ark.

ITALIAN AND CAUCASIAN bees and queens of best quality; price list free. A. E. TITOFF, Ioamosa, Cal.

FOR SALE.—Golden and red-clover Italian queens.
WM. A. SHUFF, 4426 Osage Ave., Philadelphia, Pa.

GOLDEN yellow Italian queens—my specialty. Price list free. E. E. LAWRENCE, Doniphan, Mo.

ITALIAN BEES, queens, honey, and ROOT'S bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

FOR SALE.—Root's bee-supplies, wholesale and retail; factory prices; catalog free. Beeswax wanted.
W. E. TRIBBETT, Staunton, Va.

QUEENS.—Improved Red-clover Italians bred for business; June 1 to Nov. 15, untested queens, 60c; tested, $1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

IMPROVED ITALIAN QUEENS now ready; nuclei and colonies about May 10, Danzenbaker or L. frames; 20 years a queen-breeder; 500 colonies to draw from. Circular and testimonials free.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

ANGEL'S GOLDEN BEAUTIES and his bright three-banded Italian Queens have but few equals and no superiors. A fine large queen of either strain for $1.00; an extra select breeder for $2.50. I have had 12 years' experience at queen-breeding. Address
SAMUEL M. ANGEL, Route 1, Evansville, Ind.

Convention Notices.

The Michigan Bee-keepers' Association will hold its annual meeting at Saginaw, the first session being on Wednesday evening, Dec. 18, and the last one on Friday afternoon, the 20th. Headquarters will be at the Sherman Honse, at which the special rate of $1.50 per day has been secured. Among the speakers will be R. F. Holtermann, of Brantford, Ont.; L. A. Aspinwall, Jackson, Mich.; E. D. Townsend, Remus Mich.; W. J. Manley, Sandusky, Mich., and W. Z. Hutchinson, Flint, Mich.

An exhibit of honey and wax will be made, and premiums are as follows:

Best single section of comb honey, one Advance bee-veil by The A. G. Woodman Co., Grand Rapids.

Best six sections of comb honey, 500 sections by The A. G. Woodman Co.

Best 5 lbs. of beeswax, one Hilton hive by Geo. E. Hilton, Fremont, Mich.

Best 5 lbs. of extracted honey, choice of one year to *Bee-keepers' Review* or one copy of Advadced Bee Culture by W. Z. Hutchinson, Flint, Mich.

Best suggestion or plan offered to increase membership of the association, the same to be in writing, and not more than 150 words, one copy of *de luxe* edition of the new A B Culture. M. H. Hunt & Son, Redford, Mich. For further information write to
ELMORE M. HUNT, Redford, Mich.

NEW YORK STATE BEE-KEEPERS' CONVENTIONS.

A series of bee-keepers' meetings will be held in this State as follows: Mt. Morris, Dec. 9; Canandaigua, Dec. 10 11; Auburn, Dec. 12; Syracuse, Dec. 13; Fulton, Dec. 14; Watertown, Dec 16, 17; Amsterdam, 18. 19; Albany, Dec. 20; Glenns Falls, Dec. 21. Mr. C. Stewart, of Sammonsville, N. Y. has been designated as conductor, and he will be present at all of the meetings. The annual meeting of the New York State Association of Bee-keepers' Societies will be held at Amsterdam, Dec. 18. 19. All interested in bee-keeping are invited to attend these meetings.

Romulus, N. Y. C. B. HOWARD, Sec.

SUNDAY SCHOOL TIMES.

There is no weekly home paper for the moral and religious nourishment of the family that will equal the *Sunday School Times*. It is especially helpful to Sunday-school teachers and others interested in Bible study. We can supply it clubbed with GLEANINGS at $1.75 for the two, the regular price of each being $1.00.

ADVANCE IN PRICE OF BUSHEL BOXES.

Because of increased cost of lumber we are obliged to mark up the price on bushel crates and boxes. Until further notice the price of all-slatted bushel boxes, 14 to crate, is $2.10 per crate; 12 to crate, $1.90; galvanized bound, 12 to crate, $2.50. A corresponding advance is made in wholesale and jobbing prices.

A CORRECTION.

On page 1450 of our last issue Mr. Henry Stewart is made to say that his yellow sweet clover grew six *feet* while it should have been only six *inches*. The footnote, made by A. I. R., was on the supposition that it was six *inches*, hence it does not seem to correspond with Mr. Stewart's statement. The trouble arose from the fact that neither inches nor feet was written, and the two little dots representing inches were overlooked.

WHITE-SWEET-CLOVER SEED.

We have secured a pretty good stock of unhulled white-sweet-clover seed. We find in several instances a large local demand for the seed at better prices than we have been selling at, and that, in order to make it an object for those able to gather the seed to do so, we shall have to pay better prices than we have been doing in former years. Our stock of seed secured for the coming season is little more than half what we had a year ago. We are obliged, therefore, to raise our selling prices to 25 cts. per lb., postpaid; 15 cts. where shipped with other goods; $1.30 for 10 lbs.; $11 00 per 100 lbs.; hulled seed at 8 cts. per lb. extra.

REMITTANCES FOR ORDERS AND ACCOUNT.

We are under the necessity of asking our friends and patrons when making remittances not to send checks on local banks, but to send, instead, either a bank draft on some large city bank, preferably New York or Chicago, or a postoffice or express money order. The tight money market through which numerous sections are passing is making it difficult for us to get credit at the banks for local checks, and in some cases we may be obliged to return them and ask instead for a remittance in one of the forms mentioned above. Where we make payments we almost invariably do so by New York draft. Where you can not remit by any of the methods mentioned, then send money by registered mail. The most approved methods, however, are by bank draft, postoffice or express money order.

DR. MILLER SPLINTS.

We have often had calls for wood splints for use with foundation in brood-frames to prevent sagging, as used and recommended by Dr. C. C. Miller. We have usually made them by sawing them out, and wasted more than three-fourths of the wood in sawdust. We have hit upon a plan of slicing them, thereby saving all the wood, and cheapening the process as well. We can furnish them 8½ inches long for L. frames at 50 cts. per 1000 by mail; 40 cts. shipped with other goods. Small lots at 10 cts. per 100 postpaid. Other lengths can be furnished as well. If shorter, same price in 1000 lots. If longer, add fifty per cent up to 12 inches long.

ALFALFA HONEY, COMB AND EXTRACTED.

We have received in the last two weeks a car each of comb and extracted alfalfa honey. The extracted comes from Utah, and the comb from western Colorado. We are selling the extracted in 60-lb. cans at 10 cts. in single-can lots; 9½ cts. by the case of two cans; five cases or more at 9 cts. per lb.

The comb honey, 24 sections to the case, sells at $4.00 per case; per crate of 8 cases or more, $3.80 per case; 25 cases or over, write for prices. No. 2 honey at 30 cts. per case less. We also have some New York and Pennsylvania white comb honey at 18 to 20 cts. per lb., according to quality or grades. We are in the market to buy clover extracted honey. If any of our readers have any to offer, mail sample and write us, stating how much you have, how packed, and what you ask for it.

WAX MOLDS FOR OUNCE CAKES.

There is a very large demand for little cakes of beeswax for various household purposes. You will find that nearly every druggist keeps wax, not only for compounding but for sale. Since the enactment of the national pure-food law there has been a stimulus to the demand for cakes of pure beeswax where, before, a mixture was often used. We have calls for molds for making these small cakes. We have not heretofore had them to furnish. We found something of compact form, and just the right size to hold one or two ounces of wax. They are pressed tin retinned. Price of one-ounce size, 35 cts. per dozen; by mail, 40 cts.; of the two-ounce size, 40 cts. per dozen; by mail, 50 cts. For our trade we put up each ounce cake in a carton, and 32 cakes, or 2 lbs., in a large carton, which sells to the dealer for $1.00. The price of these cartons depends on the quantity you require and the printing on them. Prices quoted to those interested, on application. For limited local need you can doubtless work up a trade without the cartons.

SECOND-HAND FOUNDATION-MILLS.

We have to offer the following second-hand foundation-mills in good condition. We shall be pleased to hear from any one interested. To such we can send a small sample of comb foundation representing the kind of work produced by the particular machine you enquire about.

No. 078.—6x2½-inch hex. cell thin-super mill, in very good condition. Price $12 00.

No. 079.—6x2½-inch hex. cell thin-super mill, in very good condition. Price $12.00.

No. 088.—6x2½-inch hex. cell thin-super mill, in good condition. Price $12.00.

No. 086.—6x2½-inch hex. cell extra-thin-super mill, in good condition. Price $12.00.

No. 088.—12x2½-inch round-cell heavy-brood mill, in fair condition Price $12.00.

No. 082.—10x2½-inch round-cell medium-brood mill, in very good condition. Price $15.00.

No. 089.—10x2-inch round-cell medium-brood mill, in old-style frame; rather old-style machine in fair condition Price $12.00.

No. 090.—10x2-inch round-cell medium-brood mill, in fine condition. Price $15.00.

No. ——.—10x2-inch hex. cell, medium or light brood mill, in good condition. Price $15.00.

CARTAGE CHARGE ON ORDERS FILLED BY OUR CITY BRANCH OFFICES.

The expense of doing business in our large cities is so great that we can not continue furnishing goods at regular prices free on board cars from our city branch offices. It is a great accommodation to many custom-

ers, especially in the busy season, to be able to secure goods promptly and at lower freight rates from these distributing centers, and I am sure they will be willing to share with us the heavy expenses necessary to make this accommodation possible. Hereafter on all orders from Chicago, New York, Philadelphia, and Washington offices, shipped by freight, a cartage charge of 25 cts. will be made on orders of $3.00 or less; 35 cts. on orders of $3.00 to $5.00; 50 cts. on orders of $5.00 to $10.00; over $10.00 in value, 5 per cent of the bill, or 20 cts. per 100 lbs., if that figures less than the 5-per-cent plan. At New York city the minimum charge will be 50 cents.

These charges do not cover the cost to us, but represent a fair division of the cost.

CHANGES IN PRICES FOR 1907-8.

Up to this time we have determined on the following changes in list prices. During the past season we have worked off our surplus stock of No. 2 plain sections so that from this date forward, until further notice, the price on B grade or No. 2 plain sections will be 25 cents per 1000 higher than the rate given in our catalog.

We cut out the dozen rate on No. 30 wire on spools, and increase the 5-lb. coils to $1.00 each.

B. P. S. paint for hives is advanced to $1.75 per gallon; 90 cts. per ½ gallon; 50 cts. a quart; 30 cts. a pint.

Painted wire cloth is advanced to 2½ cts. per foot for cut pieces; 2 cts. in full-roll lots. Galvanized wire cloth, 8 mesh, is advanced to 8 cts. per sq. ft.

There has been an advance of over 30 per cent in material for bee-veils, and new prices are adopted as follows: No. 1, all silk tulle veil, 90 cts.; No. 2, cotton tulle with silk face, 60 cts.; No. 3, all cotton tulle, 50 cts.; No. 4, mosquito-bar veil, 30 cts.; bee-hat, 30 cts.; silk tulle per yd., 60 cts.; cotton tulle per yd., 25 cts.; mosquito-bar, per piece of 8 yds., 75 cts. No change in globe veil.

THE NEW EDITION OF THE A B C OF BEE CULTURE NOW READY FOR DISTRIBUTION.

The new edition of the A B C of Bee Culture has finally, after a great deal of labor, been completed. So far from being merely a work for beginners, or the A B C, it is also an X Y Z of the business, and hence equally valuable to the veterans, for it gives all the latest processes and methods of the most advanced bee-keepers, as well as those that may be used by the novice.

It very often occurs that an experienced bee-keeper has, within a year or so back, read such and such a method for producing comb honey or some one else's plan for the prevention of swarming. He has not kept a file of the journals. He can not remember in what issues those methods appear. On reading them at the time, he determined to give them a further test when the season opened up; but where, oh! where, can he find those journals containing just the articles that describe these methods? Well, the new work has given in brief some of the most important; and all he has to do is to turn to the index and find what he wants boiled down in clear language.

Then, again, it often happens that the bee-keeper hears about the Heddon method of transferring, or reads something about Alexander's method of strengthening weak colonies in the spring. Again, he sees something about the Doolittle or the J. E. Hand scheme for producing comb honey in connection with the divisible-brood-chamber hive. He is all at sea; but the new volume will tell him all about these and more.

But in a scientific way the A B C and X Y Z is far ahead of what it has ever been before. The botanical list of honey-plants has been almost entirely re-written by W. K. Morrison; the chemistry of honey, of glucose, and of nectar are all covered by the same writer.

Mechanically the new edition has been improved by the use of an almost entirely new set of engravings, the old ones being reëngraved, and the use of enameled book paper, the most expensive paper of the kind procurable. This brings out not only the letter-press but the engravings as well to a point of brilliancy and clearness that is pleasing.

But it would take quite a little volume to tell about the new features of this magnificent work, and the reader will have to see it in order to appreciate its merits. While it is nearly 100 pages larger, and all told 300 pages of new matter, the price has been increased only slightly — from $1.20 by mail to $1.50, or $1.25 if sent with other goods. Or in half morocco, $2.00, postpaid, or $1.75 with other goods. Full leather, $2.50, postpaid, or $2.25 with other goods.

EARLY-ORDER CASH DISCOUNT.

We have been obliged to cut down the early-order cash discount below that offered in former years; but it is still sufficiently liberal to pay transportation charges quite a distance, or to pay liberal interest on the money invested in supplies early, and should attract those forehanded people who know pretty well what they want for the coming season.

The following is the schedule of discounts for early cash orders for bee-keepers' supplies, subject to the conditions below:

For cash sent in December,	deduct	4	per cent.
" " " January,	"	3½	"
" " " February,	"	3	"
" " " March.	"	2½	"
" " " April,	"	2	"

The discount is only for cash sent before the expiration of the months named, and is intended to apply to hives, sections, frames, foundation, extractors, smokers, shipping-cases, cartons, and other miscellaneous bee-keepers' supplies. It will not apply on the following articles exclusively; but where these form no more than about one-tenth of the whole order the early-order discount may be taken from the entire bill: Tinned wire, paint, Bingham smokers, Porter bee-escapes, glass and tin honey-packages, scales, bees and queens, bee-books and papers, labels, and other printed matter, bushel boxes, seeds, and other specialties not listed in our general catalog.

Mt. Mellick Embroidery

Send 10c for a beautiful Mt. Mellick centerpiece on heavy Art Linen, 18 inches square. With it we send free instructions showing over 50 different stitches, and our offer of free shirt-waists, centers, etc., in Mt. Mellick, Wallachian, Eyelet, or Shadow embroidery.
MASON SUPPLY CO., Mechanic Falls, Me.

W. H. Laws says, If there is a queen-breeder who can boast of better stock let him trot out the proof. Testimonials enough to fill this book. Will give you only one. Mr. J. C. King, Washington, D. C., writes, "For two years I have had one of your queens in my apiary. Each season she has given me over 200 lbs. comb honey; last season she actually stored while other colonies starved. I have over twenty strains in my three apiaries, but yours is the best."

Now is the time to get a fine breeding queen; stock up this fall and double your crop of honey the coming season. Single queen, $1.00; 6 for $5.00. Extra select breeders, $5.00. Safe arrival and satisfaction guaranteed

W. H. LAWS, Beeville, Bee Co., Texas.

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The demand for these has been so great that we were compelled to undertake a new edition at once, and in doing so we took the opportunity to revise and greatly enlarge it again, though it had been generally considered quite a large book.

In doing so we brought in new blood to assist us, give new ideas, and otherwise enable us to produce as good a book as it is possible to make at a popular price. If you will carefully examine a copy you will be prepared to admit the new volume is quite an improvement on its predecessors. To keep pace with improvements it contains nearly 100 double-column pages more than the previous edition.

The new methods of queen-rearing have been carefully reviewed, and the main points incorporated in the new edition, so that the practical bee-keeper who possesses a copy will have the best ideas of the subject constantly by his side for reference.

The new methods of wax-production are treated in an exhaustive fashion; and as this subject is now of more importance than formerly, more space has been devoted to it.

The new power-driven automatic extractors are amply illustrated and described. The subject of diseases has received entirely new treatment to keep pace with the new discoveries of the last few years. The laws relating to bees have for the first time received full treatment. No other bee-book treats of this very important subject. Honey, sugar, nectar, and glucose are carefully defined in accordance with the demands of our new pure-food laws.

In accordance with the ideas of its first author, A. I. Root, the new A B C and X Y Z is *eminently practical.*

German edition (new), paper covers, $1.75; cloth-bound, $2.00. Postpaid anywhere. This is the famous A B C in the language of the Fatherland, to suit our many German friends.

French edition (new), cloth-bound, $2.00, postpaid This is another edition, translated into the beautiful language of France.

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We will pay highest market price for good pure wax in exchange for supplies. We mean **ROOT'S GOODS,** of course. It will pay you to secure your goods now for next season's use. Liberal discounts on goods slightly damaged by fire. Send us list of goods you will need and we will quote you prices and save you money in freight from **Toledo.**

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565-7 W. 7th St. Des Moines, Iowa

Gleanings in Bee Culture

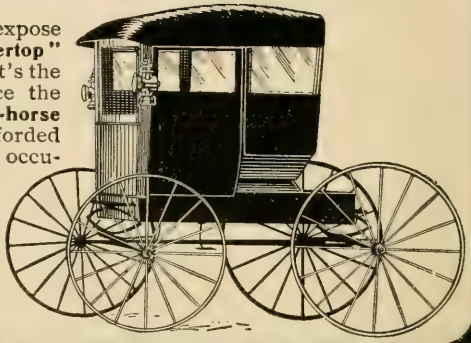
Christmas Greetings to the readers of GLEANINGS. Presented for the publishers by a junior member, Ralph Root Boyden.

Vol. XXXV December 15, 1907 No. 24

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

Keep Dry and Comfortable

WHEN YOU DRIVE



Be snug and comfortable. Don't expose yourself to the elements. The **"Sheltertop" Buggy** will protect you on your drives. It's the first real improvement in buggies since the days of the **"Deacon's wonderful one-horse Shay."** The first buggy that ever afforded immediate and absolute protection to its occupants from rain, snow, mud, wind, dust—the only buggy with a top that closes up tight in a moment and actually shuts out every drop of rain, while at the same time it allows ample and thorough ventilation and a clear, unobstructed vision in every direction.

THE "SHELTERTOP" BUGGY

The top of this buggy is so constructed that this absolute and complete protection is always on the buggy—in fact, a part of the buggy—out of sight when not in use, right at hand when needed. Three simple, easy, one-hand movements—done in four seconds—close the buggy without leaving the seat, dropping the lines or stopping the horse.

When the storm is over, three movements change the buggy back again to an open, fair-weather buggy.

This is certainly the buggy for the farmer and the man who drives much. It makes a wet, blustering day worth almost as much as a dry one. You can ride in it to transact business at the neighbor's, or in town, as comfortably as you could in any other buggy on a clear, bright, dry day.

The improved top on the **"Sheltertop" Buggy** is actually lighter than an ordinary buggy-top, looks better, and lasts longer, while it has none of its bad features. There are no bows in the way to bump the head against when entering or leaving the buggy. The door is clear, large and roomy. There are no doors to rattle or stick.

30 DAYS
Free Trial
Send No Money in Advance

There are so many new and desirable features in the **"Sheltertop" Buggy** that we want you to know about, that we have decided to send it on **30 days' free trial** to responsible parties to test before they buy it. Don't buy the same kind of a buggy your great-grandfather did when you can get this improved buggy. Your great-grandfather would not have bought the other sort if he could have gotten a **"Sheltertop."** He bought the best there was in his day. You should do the same now.

Send us your order, or write for catalog describing it, and be sure to ask for terms on which we send them **free for 30 days' road test.**

Write today for Free Catalog.

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TRADE MARK REGISTERED

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Special Discount on Early Orders

I will buy your **HONEY AND BEESWAX.** I pay **Cash on Delivery;** or if you are in **need of honey,** write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted — in cans, barrel-lots, or car-lots — of **extracted** or **comb honey.** I guarantee its purity.

WANTED=Sweet Clover.

If you have **Sweet Clover,** state if yellow or white, hulled or unhulled, also quantity and lowest price.

C. H. W. WEBER

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

CINCINNATI, OHIO

Honey Markets.

GRADING RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

A No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct, to the retail merchant. When sales are made by commission merchants, the usual commission (from five to ten per cent) cartage, and freight will be deducted, and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

INDIANAPOLIS.—Demand for best grades of extracted honey is good, while the demand for comb honey is not so brisk. It is evident that consumers are learning to prefer their honey in the extracted form. Jobbers are paying the following prices, delivered here: No. 1 and fancy comb, 16 to 17, net weight. Extracted, white-clover, 9 to 10. Beeswax, 28 cash or 30 in exchange for merchandise.

WALTER S. POUDER,
Dec. 10. Indianapolis Ind.

ST. LOUIS.—The demand for extracted honey has increased considerably; and as stocks are reduced to a minimum, prices are well sustained. Comb honey sells slowly at the following quotations: Fancy white, 16 to 17; No. 1, 15 to 16; amber color, 14 to 16, according to quality. Broken and defective honey sells at considerably less. Extracted white, in cans, 8 to 9; amber color, 8 to 8½; in barrels and half-barrels, 1 ct. per pound less. Beeswax, 26 for choice pure. All impure and inferior, lower.

R. HARTMANN PRODUCE CO.,
Dec. 12. St. Louis, Mo.

SAN FRANCISCO.—Honey is growing very scarce in this market, and hardly any is being received. It is firmly held at the prices that have ruled all season, though under present conditions the movement is limited. Light amber, extracted, 7 to 7½; water-white comb, 16 to 17; white comb, 15; water-white, extracted, 8 to 8½. *Pacific Rural Press*, Dec. 7.

CINCINNATI.—The market on honey has eased considerably, because of the stringency of the money market. Slow sales on comb honey. Colorado retails at $4.00 per case; white-clover comb honey at 17c per pound. Extracted, white sage, 9 to 9½. Amber, in barrels, 6 to 6½. Beeswax, very slow at 30c per lb.

C. H. W. WEBER,
Nov. 23. 2146 Central Ave, Cincinnati, O.

KANSAS CITY.—There is very little change in the honey market since our last report. The demand for both comb and extracted has been very light, and prices weaker; but we attribute this to the money market. We quote: No. 1 white comb, 24-section, $3.25 per case; No. 2, white and amber, $3.00 per case; extracted white, per lb., 8 to 8½; amber, 7 to 7½. Beeswax, 20 to 27. C. C. CLEMONS & CO.,
Dec. 12. Kansas City, Mo.

PHILADELPHIA.—Sales of honey have been quite active in this market, and we quote: Fancy comb honey, wholesale, 17½ to 18½; No. 1 white, 16 to 17; amber, 14½. Extracted honey, water-white, 9 to 9½; amber, 8; dark, 7½. Beeswax, 30.

We are producers of honey, and do not handle on commission. WM. A. SELSER,
Nov. 25. 10 Vine St., Philadelphia, Pa.

DENVER.—The local demand for comb honey is light at present, and we do not expect much improvement until after the holidays. We quote No. 1 white, per case of 24 sections, $3 25 to $3 50; light amber and No. 2, $2.75 to $3.00. We now have a good stock of very fine extracted honey which we offer at 9 to 10 cts. for strictly white alfalfa; light amber, 8 to 9; strained amber honey, 6¾ to 7½. We are paying 22 to 24 for clean yellow beeswax.

THE COLORADO HONEY PRODUCERS' ASSO'N,
Dec. 10. F. RAUCHFUSS, Mgr.

BUFFALO.—The demand for honey is very slow. The quantity in our market is small; and if the demand were fair for a short time it would soon clean up what is here. We quote fancy white comb, 16 to 17; No. 1 ditto, 15 to 17; No 2 ditto, 13 to 14; No. 1 buckwheat, 11 to 12½; No. 2, 9 to 11; No. 1 white extracted, 8 to 9; ditto dark, 7 to 7½. Beeswax, 30 to 35.
Buffalo, Dec. 11. W. C. TOWNSEND.

CHICAGO.—The sale of honey during November has not been large, and especially is this true of comb honey, the choice grades of which have sold at 17 as against 18 cts. in October. Extracted is lower, with the exception of white clover and basswood, which bring 9 cts. Beeswax, 30.

R. A. BURNETT & CO.,
Dec. 12. Chicago, Ill.

ST. PAUL.—Fancy white clover, new, per lb., 18; strained, in 60-lb. cans, per lb., 10.

W. H. PATTON,
Dec. 10. Sec. Bd. of Trade, St. Paul, Minn.

WHAT HAS MUTH GOT NOW?

Genuine **Orange-blossom Honey.** Genuine **Black-sage Honey.** Genuine **White-clover Honey.**

(All in crates of two 60-lb. cans each)

and Fancy Comb Honey in 24-section cases, averaging 22 lbs. to the case.

You better write for prices; this honey is too good to stay long on our hands.

THE FRED W. MUTH COMPANY,

51 WALNUT STREET. The Busy Bee Men. CINCINNATI, OHIO.

NEW YORK.—We are having a good demand for strictly fancy white comb honey. Receipts have been quite heavy and numerous of late, owing principally to the fact that most of the bee-keepers were late in shipping. We quote fancy white at 16 to 17; No. 1, 14 to 15; No. 2 and amber, 13; buckwheat, 12 to 13. The demand for extracted continues good, and we have as yet experienced no scarcity, having enough to supply our wants and more. Prices are firm. We quote California white sage at 9 to 9½; light amber, 8 to 8½; amber, 7 to 7½; extracted buckwheat, 6½ to 7. Nothing is coming along to amount to any thing from the South, and therefore it is hardly worth while to make quotations. What little is coming sells at from 65 to 80 cts. per gallon, according to quality. Beeswax quiet at 29 to 30.

HILDRETH & SEGELKEN,
Nov. 25. 265-7 Greenwich St., 82-6 Murray St.

DETROIT.—Honey continues to be scarce, and prices are much the same. There seems to be no Michigan extracted, and prices quoted are for the California extracted. The feeling seems to be among commission men that the bee-keepers are holding for a high price, and will have to let it go later cheaper. No. 1 and A No. 1 white comb honey, 20c; No. 2, 15 to 18. Extracted, 8 to 8½. Beeswax, 27 to 29.

M. H. HUNT & SON,
Nov. 11. Redford, Mich.

ZANESVILLE.—This market is well supplied with comb honey, especially alfalfa. Practically no change in prices since last quotations; 19 to 20 cts. wholesale. There is some demand for extracted in glass retail packages; otherwise market is very quiet. Little demand for beeswax in a wholesale way. I offer 29c f. o. b. here in exchange for bee supplies.

EDMUND W. PEIRCE,
Nov. 6. 136 W. Main St., Zanesville, O.

SCHENECTADY.—No great stock on our market, and prices maintained. Fancy white is quite scarce, and sells at 16 to 18; No. 1, 15 to 16; mixed and buckwheat, 13 to 14. Extracted, light, 8 to 9½; dark, 7½ to 8.

CHAS. MACCULLOCH,
Nov. 18. Schenectady, N. Y.

BOSTON.—Our market on honey is very strong, ranging from 16 to 18c for No. 1, with, comparatively speaking, light supplies, and a good demand. Extracted honey, also very light supply, brings 8c.

BLAKE, SCOTT & LEE CO.,
Nov. 9. Boston, Mass.

LIVERPOOL.—Honey firmer in tone. Chilian, 4 to 6¾; Peruvian, 4 to 6¾; Jamaican, 4¼ to 6¼; California, 8 to 11. Beeswax, Jamaican, 29 to 34; African, 29¼ to 30; American, 30 to 35; West Indian, 29½ to 34; Chilian, 30 to 35

TAYLOR & CO.,
Nov. 18. 7 Tithebarn St.

ANTWERP.—Beeswax, Zanzibar (in pots) 32c; Zanzibar (dirty), 27c: Mozambique (chunks), 32; Morocco, 32; Portugal (in pots) 32½; Benguella, 32; Abyssinia)not refined) 27c.

E. BONDONNEAU.

If You Want the Bee-book

that "covers the whole apicultural field more completely than any other published," send $1.20 to

Prof. A. J. Cook, Claremont, Calif.

FOR HIS

"Bee-keepers' Guide"

Liberal Discount to the Trade.

Extracted Honey Wanted

We are always in the market.

If you have any to sell, mail small average sample to

NATIONAL BISCUIT COMPANY

Purchasing Department,

205 La Salle St., Chicago, Illinois.

WE WILL BUY AND SELL

HONEY

of the different grades and kinds.

If you have any to dispose of, or if you intend to buy, correspond with us.

We are always in the market for WAX at highest market prices.

HILDRETH & SEGELKEN,

265-267 Greenwich St. 82-86 Murray St.

NEW YORK.

I WILL BUY YOUR

HONEY

for cash. Send sample, and mention quality, style of package, and price.

ONE CAR OF ALFALFA HONEY WANTED.

M.V.FACEY, Preston, Fillmore Co., Minn.

Established 1873. Circulation 32,000. 72 pages. Semi-monthly.

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$1 per year. When paid in advance: 2 years, $1.50. 3 years, $2.00. 5 years, $3.00.

Devoted to Bees, Honey, and Home Interests.

Published by
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J. T. CALVERT, Business Manager

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DISCONTINUANCES.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

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Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents. at the prices shown:

PARIS, FRANCE. E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid.* 7¼ *fr.*

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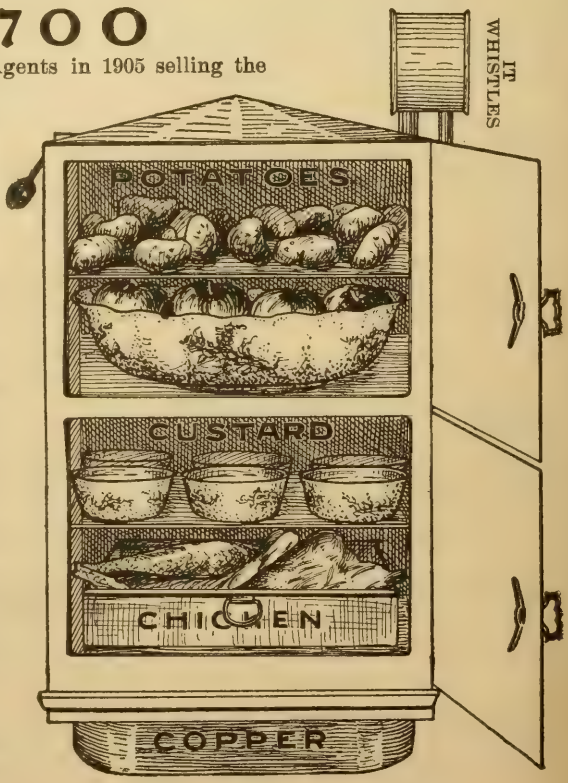

GLEANINGS PLANS for 1908

For next year we have decided to issue, in addition to the regular Christmas number, three other special numbers that will be unusually valuable for the particular time of the year at which they appear. We have facilities for choosing a very high class of articles, for we are able to use only a part of those which are sent us from time to time. We shall select for each special number the best articles that we can get. Many of the best authorities will be asked to contribute, and an effort will be made to have each article very practical. It will be our policy to avoid all lengthy theoretical discussions that are of little practical value to the bee-keeper who is in the business for the money he can get out of it.

The First Special Number

of the year will be the "Spring Number," issued March 1. It will be much larger than the regular ones, and will be valuable for the beginner and for the expert. We have already on hand many of the articles that will appear at that time. Briefly, the subjects treated will be:

March 1.—SPRING NUMBER. **Articles to be selected on the subject of Early Spring Management: Taking bees from cellars; Protecting hives; Building up colonies to proper strength for honey-flow; Stimulative feeding; Preparing supers and sections; Painting hives; Starting with bees. Beginner's questions. Buying bees; starting with nuclei; full colonies; small apiary.**

The Second Special Number

will be issued May 1, and will be called "The Midsummer Number." As its name indicates, it will contain discussions and articles that are needed for the busy man during the height of the season. It will appear just before the rush begins, when there will be time to read and study the various plans that are given by the men who have been through the mill and have, therefore, had the experience. The subjects treated will be as follows:

May 1.—MIDSUMMER NUMBER. **Prevention of swarming. Making increase. Putting on and taking off supers. Bee-escapes; methods of clearing supers of bees. Extracting of hone ; uncapping; ripening. Uncapping boxes; different styles. Melting cappings immediately.**

The Third Special Number

will appear September 1. We have decided to call it "The End of the Harvest Number." This will, perhaps, be the most helpful of any in the year, for so much depends upon the methods of taking care of the crop and disposing of it. There are many who can produce honey without limit, but who are not able to dispose of it to the very best advantage. The men who have had the experience will tell how they did it. The following subjects will be discussed:

September 1.— "END OF THE HARVEST NUMBER."
Putting up honey for market; care in packing; comb; extracted. Selling honey; retail; wholesale. Market reports Condition of honey market. Prices. Preparing colonies for the winter. Uniting. Packing hives. Cellar wintering. Winter flights.

December 15.—CHRISTMAS NUMBER. **The best articles of the year on various topics; good illustrations.**

ILLUSTRATIONS.—The unusually fine illustrations appearing in GLEANINGS of late are representative of the line of illustrations we shall have in 1908. We employ none but the best engravers, as we want our readers to find GLEANINGS as attractive a magazine as any other magazine that reaches their home.

SUGGESTIONS.—We welcome suggestions which are given to better our paper in any way. We may not be able to adopt a suggested plan for some months, or perhaps not at all, for certain reasons; but we appreciate frank criticism and suggestions which may make a better magazine. To such letters we may not make reply in all cases, but this note is our expression of thanks in advance.

Gleanings in Bee Culture

E. R. ROOT, Editor | A. I. ROOT Editor Home Department | H. H. ROOT Ass't Editor

Department Editors—DR. C. C. MILLER, J. A. GREEN, PROF. A. J. COOK, J. E. CRANE, LOUIS H. SCHOLL, G. M. DOOLITTLE, R. F. HOLTERMANN, "STENOG," W. K MORRISON.

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SAVING THE HEAT.

Have you noted the advertisement of the Rochester Radiator Co., placed elsewhere in these columns? They offer one of the most useful and practical contrivances for the home in the North that we know any thing about. As everybody knows, a great deal of heat is wasted with ordinary heaters, but this invention goes a long way toward saving the heat which is now allowed to escape. It is a simple, practical, and economical invention.

SHELTERTOP BUGGIES.

We are desirous of again calling attention to what, in our opinion, is a very meritorious vehicle that the makers of it term the "Sheltertop" buggy. It represents a distinct advance in the construction of family buggies. Owing to its peculiar makeup it is wind, dust, rain, mud, and snow proof. It appeals very strongly, of course, to the farmer's wife and daughters, as their clothes and persons are completely protected. Yet the carriage is quite comfortable, airy, and easy to get out and in of. In fact, it is just as easy to manage as any other, and possibly easier than the others which have bows to bump against when entering or leaving. It may be closed at a moment's notice without any of the occupants leaving their seats, and while the horse is going along at a good gait. It is so completely closed up that, when the hose is turned on it, none of the water can possibly get inside. This is important in cleaning it.

In addition there is no obstruction to seeing the road, either alongside or straight ahead. We are much inclined to think this new-fangled buggy fills a long-felt want in country life, and we have persuaded the makers to have it advertised in this journal for some time, and the full-page advertisement appears elsewhere in these pages for the first time. The manufacturers are so sure they have a good thing that they have arranged to give prospective purchasers thirty days' free trial without sending them any money in advance. They are sincere in making this offer, and are anxious that buyers should avail themselves of these liberal terms. Should you have it in mind to purchase a family conveyance we urge you to correspond with them before placing your order. The correct address is Fouts & Hunter Carriage Mfg. Co., 333 South Third St., Terre Haute, Indiana.

Gleanings Magazine Clubbing Offers

In the list below we have arranged to furnish our readers with GLEANINGS and certain magazines, and other periodicals, at prices far below the cost of the same papers if ordered separately.

McClure's Magazine. We do not expect to be able to supply this magazine after Feb. 1, 1908, at the prices below. It is important therefore that your order be sent before that time.

Other Periodicals. If you do not find here a club which you want, send us your list and we shall be pleased to quote by letter.

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McClure's*..... " 1 50
$5 50 — $3 35

*Or Harper's Bazar, Success, Cosmopolitan, American, The World To-day, American Boy, Woman's Home Companion.

Gleanings.....1 yr. $1 00
Suburban Life..... " 3 00
McClure's*..... " 1 50
The World To-day*..... " 1 50
$7 00 — $4 00

*Or Good Housekeeping, Woman's Home Companion, or any magazine in offer No. 1.

Gleanings.....1 yr. $1 00
Suburban Life..... " 3 00
Review of Reviews*..... " 3 00
American Magazine..... " 1 00
$8 00 — $4 70

*Or Outing, Reader Magazine, Independent.

Gleanings.....1 yr. $1 00
Suburban Life..... " 3 00
Review of Reviews*..... " 3 00
McClure's..... " 1 50
$8 50 — $5 05

*Or Bookman, Yachting, or any magazine in offer No. 3.

Gleanings.....1 yr. $1 00
McClure's..... " 1 50
Woman's Home Companion.... " 1 00
$3 50 — $2 65

Gleanings.....1 yr. $1 00
McClure's..... " 1 50
Woman's Home Companion..... " 1 00
Review of Reviews..... " 3 00
$6 50 — $3 65

Gleanings.....1 yr. $1 00
Delineator..... " 1 00
McClure's..... " 1 50
World's Work..... " 3 00
$6 50 — $3 65

Gleanings.....1 yr. $1 00
McClure's..... " 1 50
Good Housekeeping..... " 1 00
$3 50 — $2 65

Gleanings.....1 yr. $1 00
St. Nicholas (new)..... " 3 00
Review of Reviews..... " 3 00
$7 00 — $4 05

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World To-day..... " 1 50
$4 00 — $2 65

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McClure's..... " 1 50
$2 50 — $1 70

Gleanings.....1 yr. $1 00
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Gleanings.....1 yr. $1 00
Review of Reviews..... " 3 00
Rural New-Yorker..... " 1 00
Woman's Home Companion..... " 1 00
$6 00 — $4 00

Gleanings.....1 yr. $1 00
Review of Reviews..... " 3 00
Sunday School Times..... " 1 00
$5 00 — $3 25

Gleanings.....1 yr. $1 00
Sunday School Times..... " 1 00
$2 00 — $1 80

Gleanings.....1 yr. $1 00
Rural New-Yorker..... " 1 00
$2 00 — $1 90

Gleanings.....1 yr. $1 00
Farm Journal.....5 yrs. 1 00
Garden Magazine.....1 yr. 1 00
$3 00 — $2 20

Gleanings.....1 yr. $1 00
Sunday School Times..... " 1 00
McClure's..... " 1 50
$3 50 — $2 50

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Rural New-Yorker..... " 1 00
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Send all orders to *The* A. I. Root Co., Medina, Ohio

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THAT FUR COAT.

Now that chilly winter has us in his grip, and the storm king reigns supreme all over the north land, fur coats are certainly very seasonable subjects to talk about. Did you take notice of the advertisement of the National Fur and Tanning Co., 119 Peeler St., Three Rivers, Mich.? This concern makes a business of making up coats from cow or horse hides. These coats certainly enable a man to defy the coldest wind that blows, even if he happens to live outside the Arctic Circle; and it goes without saying, that they will last for years. If you happen to have a nice skin which you would like made up we respectfully suggest that this firm be given a chance to do the work for you. They claim their work is bound to give satisfaction, and we know they have been in the business a long time, and have a reputation for doing what they agree to do. If you do not require a coat, perhaps you need a fur robe for your carriage or buggy. A robe of this kind is almost indestructible, and is far ahead of all woolen ones when it comes to giving real satisfaction on a stormy day in winter with the thermometer away below zero.

FELT-ASPHALT ROOFING.

We have received samples of the roofing-felt made and sold by Gordon, Van Tine Co., Davenport, Ia., and it seems to us an excellent material for the purpose. Moreover, it is sold at what seems to be quite a reasonable figure, as will be noted in their advertisement elsewhere in this issue.

This concern does a large business in building-material; and to cope with their immense mail-order trade they have recently installed agencies in the great centers of commerce—Philadelphia, Chicago, Memphis, Kansas City, Minneapolis, with headquarters at Davenport, Ia., where all correspondence must be addressed. The object of the city agencies is to reduce railway charges. For example, if you live in Delaware you order from Iowa, but pay freight on the goods only from Philadelphia. There is not only a saving in freight, but a saving in time, as the company maintains a supply of goods at each place to fill orders. This applies only to the roofing department of their business. All other goods they sell are shipped from headquarters. They make this roofing in immense quantities at their own factories, so that they are in position to compete in price and quality with all comers.

Bee-keepers have considerable use for roofing-felt, and it is coming into use more and more. Some find it a very good covering for hives It keeps the bees warm, and protects the hive from decay. It is good, too, for covering houses, barns, chicken-houses, and, in fact, is almost indispensable on a farm.

TO GET MORE EGGS.

The problem of profits from poultry consists very largely of getting a good supply of eggs in winter.

Of course, cleanliness and proper housing are matters of great importance. After all, the question in reality resolves itself into the matter of feeding. Hens can not lay unless they have egg-producing food. Chemistry, experience, and common sense have all shown that no article used as poultry food is so productive of good results, both in eggs and in growth and thrift, as is freshly cut green bone. Every owner of hens, few or many, should have a good bone-cutter.

Humphrey & Sons, Joliet, Ill., are sending out a good sensible booklet on this subject. It describes not only the Humphrey open-hopper bone-cutter, but other articles of the Humphrey line for poultry-raisers, including Humphrey's rapid clover-cutter; the Humphrey pure-air brooder; Humphrey grit-mortar, corn-sheller, etc. The book is mailed free. Send for it to-day. Kindly mention this paper.

A HANDY TOOL.

We know of no handier tool around a farm or homestead than the Myers lock-stitch awl. It comes in extremely useful when you wish to repair shoes, harness, carpets, awnings, sails, gloves, saddles, fur robes, and fur coats. It is one of the most useful household articles we know of; and when you get one you are likely to wonder how you could ever get along without it. The proprietors want agents to sell this tool in unoccupied territory east of the Mississippi. Write them.

Advertising Rates For 1908

Circulation 35,000

Our circulation is about three times the combined circulation of all other American bee-papers

Low Rates

The advertising rates of Gleanings in Bee Culture are sometimes said to be higher than the rates of other bee-journals. This is not true, as any one familiar with advertising knows. Rates are usually based on a certain rate per line (or per inch) on each thousand copies. As a matter of fact, Gleanings reaches more readers for a given amount than any other bee-journal does for the same amount, but our rate per inch, while higher, *is not higher proportionately.* Let us analyze the case. An advertisement of one inch space in Gleanings now costs $2.80. It has a circulation of 35,000, thereby reaching over 12,000 readers for each dollar expended. A dollar similarly expended with some of the other bee-journals would reach less than 2000 readers according to their own figures.

Cost

In considering the matter of advertising, we take it that you are really interested in knowing what to expect when placing your order with us. Take, for instance, a one-page advertisement in Gleanings for one year; according to the rates herewith, it will cost $900.00. This is $37.50 for each issue. On each page you have ample opportunity to describe your goods at considerable length, and twice each month you reach 35,000 people with something better than a circular letter; 35,000 circular letters would cost you approximately $500.00, while you can use a full page of Gleanings to tell them as effectively about your business for $37.50. In other words, at less than one-tenth the cost we take care of the work for you, and without question we reach a more select and better class of buyers than you could obtain elsewhere.

This rate of $37.50 per issue makes the cost of each page $1.07 for each thousand copies. Think of it! For $1.07 we give you a *full page* to talk to one thousand bee-keepers. Compare this, if you please, with rates offered by any other bee-journal and you will find that it is lower by considerable, and, besides, we maintain that the class of buyers among Gleanings readers is the best to be found.

Orders

Not only do we have a large subscription list, but we know that our buyers are among the best. These are some of the orders that have found their way to Gleanings advertisers: One order for foundation amounting to over $2000; a first order for a miscellaneous lot of supplies amounting to $600; several orders for queens in lots of 200 and over; two remittances to different advertisers of $1000 each. One of these was received before any inquiry was made of the advertiser at all. The sender simply said he saw the advertisement in Gleanings.

RATES FOR 1908

Definite orders received by us before February 1, 1908, will be entered at the following rates:

INSIDE WHITE PAGES.

SPACE	1 time	6 times	12	24
1 inch	$ 2 80	$ 16 80	$ 33 60	$ 67 20
4 inches (¼ page)	11 00	66 00	132 00	264 00
8-in. single column or 4-in. double col. (½ page)	21 00	125 00	250 00	500 00
1 page	40 00	225 00	450 00	900 00

Preferred position, white pages, 30 per cent extra.
Inside cover page, per issue, $60.00.
Outside cover page, per issue, $80.00.

On orders received after February 1, the following rates will apply:

INSIDE WHITE PAGES.

SPACE	1 time	6 times	12	24
1 inch	$ 3 50	$ 21 00	$ 42 00	$ 84 00
4 inches (¼ page)	12 50	75 00	150 00	300 00
8-in. single column or 4-in. double col. (½ page)	25 00	150 00	300 00	600 00
1 page	50 00	300 00	600 00	1200 00

Preferred position, white pages, 30 per cent extra.
Inside cover page, per issue, $75.00.
Outside cover page, per issue, $100.00.

All contracts subject to space being unsold. First orders get best positions. Make a second choice if you order a preferred position, to avoid delay. Cash with order, 5 per cent discount; otherwise payable monthly.

Orders should be sent at once if the old rates are to be secured.

Address all correspondence to

Advertising Dept., Gleanings in Bee Culture, Medina, O.

Our Clubbing Offers!

Gleanings in Bee Culture 1 year. . $1.00

The Hunter-Trader-Trapper 1 year 1.00

Total . . .$2.00

BOTH FOR

$1.50.

Canadian postage extra.

THE WHOLE FAMILY GROUP—

(Good until Feb. 1, 1908)

The Delineator,

McClure's Magazine,

World's Work,

Gleanings in Bee Culture,

COMBINED PRICE,

$3.75.

Canadian postage, $1.90 extra per year.

Foreign postage, $3.88 extra per year.

The Garden Magazine (two years),

The Farm Journal (two years),

Garden and Farm Almanac (one copy),

Gleanings in Bee Culture (one year),

CLUB RATE,

$2.65.

Canadian postage, $1.30 extra.

The American Boy

A Profusely Illustrated Monthly for BOYS.

Without Question the Most Entertaining and Practical Magazine in the World for Young Americans.

COVERS IN COLORS.
36 Pages, size of Ladies' Home Journal.

Serial and Short Stories by Stratemeyer, Tomlinson, Trowbridge, Munroe, Shute, and others, the best writers for boys in the world.

Departments relating to all Boy Hobbies, edited by experts.

It preaches the religion of "DO," and not that of "DON'T."

Is doing more for the Uplift and Encouragement of Boys than any other agency.

Approved by parents and educators. Boys (250,000 of them) everywhere enthusiastic for it.

The subscription price of The American Boy is $1.00 per year.

The American Boy (1 yr.) . . $1.00
Gleanings in Bee Culture (1 yr.) 1.00
Total $2.00

BOTH FOR $1.65

Address

The A. I. Root Co., Medina, O.

. . . . . **Address all orders to** . . . . . .

THE A. I. ROOT COMPANY, :: :: :: MEDINA, OHIO.

THE YOUTH'S COMPANION

For 1908

The Best Christmas Present for $1.75

The Only Paper that Interests All the Family.

The fifty-two weekly issues for 1908 will give as much reading for $1.75 as twenty 400-Page books of fiction, history, etc., ordinarily costing $1.50 each.

250 Capital Stories; 300 Articles and Sketches; 2000 One-Minute Stories; 1000 Notes on Nature and Science; Weekly Medical Article; Children's Page, etc.

Christmas Present Coupon.

Cut out at once and send this slip (or mention this publication) with $1.75 for the 52 issues of 1908 and you will receive

GIFT 1. All the issues of the paper for the remaining weeks of 1907, including the Beautiful Holiday Numbers.

GIFT 2. The Companion's 4-Leaf Hanging Calendar for 1908 in Full Color—exclusively for Companion subscribers.

Then The Companion for the fifty-two issues of 1908—a library in itself.

170

Send for Sample Copies of the Paper and Illustrated Announcement for 1908.

THE YOUTH'S COMPANION, BOSTON, MASS.

The HOME LIBRARY of MEDICINE

6 VOLUMES—ILLUSTRATED,
Half Leather Style Binding

The Final Household Encyclopedia of Medicine, Disease, Sanitation, Hygiene, Physical Culture and Long Life

THE GREATEST THING IN LIFE

Health being the greatest thing in life, it is astonishing that the one necessary reference work has not long ago been written, especially since the last generation has seen such revolutions in medicine, surgery and sanitation that no layman, and scarcely any one physician, can keep up with them.

As a supplement to the physician's work, as a resource when a physician cannot be had, as an *educator in the art of living*, the Home Library of Medicine has received the most enthusiastic reception ever accorded a special encyclopedia.

4,000 SETS WERE SOLD BEFORE PUBLICATION

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Before this physicians have discouraged such works, and rightly. Now that a really standard household medical library is at hand to aid in the work of showing intelligent people how to live vigorously and happily, the best physicians are welcoming it with the highest praise. It is written so that any man, any woman and any household can understand and use it. Associated with Dr. Kenelm Winslow, a former Harvard Professor, in this work, is a notable board of 23 eminent specialists—landmarks in the medical profession.

EVERYBODY CAN UNDERSTAND AND USE IT

Every important illness, small and great, is described as clearly and concisely as possible, and under each disease the reader is instructed what to do, whether to consult a physician, what to do until the physician comes, and what to do if a physician cannot be had. The remedies and treatment resulting from the very latest scientific knowledge are given; all data concerning prescriptions, etc., have been rigorously revised and safeguarded by the most famous specialists.

We are not book publishers and we do not have to make a profit out of this set other than the widened recognition of the REVIEW OF REVIEWS as the magazine most closely up to the times, a magazine that consistently *helps* in living and thinking. The six handsome volumes would be cheap at ten dollars, and this will be their price when they are put on sale at the book stores.

OUR SPECIAL INTRODUCTORY OFFER

This first edition we are going to ship to responsible persons who send 50 cents, engaging to pay $1 a month for only seven months—and each purchaser will receive the REVIEW OF REVIEWS for two full years—or $7 pays for the books and the two years' subscription.

As this proposition is to deliver to you the full standard $10 set of the new Home Medical Library, express prepaid, for $1 over the regular subscription price of the Magazine, *it* is obvious the first edition will not last long.

So Order at Once to Get This Price.

THE REVIEW OF REVIEWS CO., 13 Astor Place, New York

CUT OFF HERE

No. 94.

I enclose 50c. for the Home Library of Medicine and the Review of Reviews for two years. If I like the books I will accept your Introductory Offer.

Name .....

Address .....

Gleanings in Bee Culture

Combination and Club Offers.

Last season, without intending to show any partiality, a premium list was issued in the interest of subscription work. A wide choice of books and papers on bee-keeping, poultry-raising, fruit culture, and kindred subjects was open to any one who could devote a little leisure time in securing GLEANINGS subscriptions, either new or renewals.

ONE RESTRICTION—that a renewal for one's self did not entitle the sender to a premium—caused an occasional protest.

Fair to Everyone

During the season 1907–8, both old and new subscribers may secure a year's subscription to GLEANINGS IN BEE CULTURE, and choice of any of the following books, papers, or articles, by sending a small additional amount to subscription price, as specified under terms of the offer which meets his needs. We feel certain that these offers will be appreciated by all, especially by any who may have felt that the list last season was too restrictive.

Offer No. 1 B.—A B C OF BEE CULTURE (1907 edition), postpaid, and GLEANINGS one year, for $2.25.

Offer No. 2 B.—HOW TO KEEP BEES, postpaid, and GLEANINGS one year, for $1.50. A handbook for those who keep bees for happiness and honey, and, incidentally, for money. It serves as an introduction to more extended manuals, such as the A B C of Bee Culture.

Offer No. 3 B.—FORTY YEARS AMONG THE BEES, by Dr. C. C. Miller, and a year's subscription to GLEANINGS, $1.75, postpaid.

Offer No 4 B.—STANDARD ROOT SMOKER, postpaid, and GLEANINGS one year, $1.85. One of the best smokers made, both in principle and construction.

Offer No. 5 B.—WHAT TO DO AND HOW TO BE HAPPY WHILE DOING IT, by A. I. Root. This book postpaid, with GLEANINGS one year, $1.35.

Offer No. 6 B.—A copy of MINK-TRAPPING, postpaid and GLEANINGS one year, $1.30. The methods published are those of experienced trappers from all parts of the country.

Offer No. 7 B.—A copy of FOX-TRAPPING, postpaid, and GLEANINGS one year, $1.30. A book of instructions telling how to trap, snare, poison, and shoot. A valuable book for trappers.

Offer No. 8 B.—BEE-GLOVES. One pair of cloth bee-gloves, with or without fingers, with GLEANINGS one year, $1.35, postpaid.

Offer No. 9 B.—One FOUNTAIN PEN, postpaid, with GLEANINGS one year, $1.50. Price of pen alone is $1.00; not equal to pens sold at $2.50 and up, but as good a pen as we can find for $1.00.

Offer No. 10 B.—A year's subscription to GLEANINGS and THE AMERICAN BOY, $1.65.

Offer No. 11 B—DEADFALLS AND SNARES. (Just the book for trappers, hunters, woodsmen, and the country boy who wants to know the different ways of capturing fur bearing animals of all kinds). This book, postpaid, with a year's subscription to GLEANINGS, $1.30.

Canadian postage on each of the above offers, 30 cts. per year additional.
Foreign postage on each of the above offers, 60 cts. per year additional.

THE A. I. ROOT COMPANY, MEDINA, OHIO.

Gleanings in Bee Culture
PREMIUM OFFERS

CONDITIONS

The following offers are self-explanatory in most cases. Their purpose is to induce both present nd prospective subscribers to interest *others* in GLEANINGS IN BEE CULTURE.

Please Observe Carefully the Following General Rules

1. Trial subscriptions are offered only for uniform time of six months, and must in each case be a new name—that is, the name of some one who has not been a subscriber to GLEANINGS during the preceding year. One sending in a trial subscription for himself is *not* entitled to a premium.

2. Any one, whether a subscriber or not, may take advantage of the offers given on this page by complying with given conditions, except that no one is entitled to a premium for his own renewal unless he sends two or more subscriptions besides his own. It then counts the same as the name of any other renewal he may send.

NOTE.—We have, however, provided a list of CLUBBING OFFERS and COMBINATIONS, including GLEANINGS, which we are very glad to extend to our old subscribers. In those offers a renewal for oneself may be sent; and by making payment of additional postage required, a book on bee-keeping, subscription to some other paper, or something in the line of bee-keepers' supplies, may be secured for an amount only slightly in excess of the regular subscription price of GLEANINGS

3. Please note that our premiums are divided into three classes as follows: For six months' trial subscriptions (new only); for new yearly subscriptions; for yearly renewals (for some one else).

4. Premiums should be claimed when orders are sent. Please order your premium as numbered and lettered, and also specify the article or articles desired.

5. All former premium offers are canceled at this date

On all Canadian orders, add 30 cents per year to cover extra cost of postage on Gleanings.

For New Six Months' Trial Subscriptions

SEE Rule 1 given above. As many premiums may be claimed as you send subscriptions. A subscription to one of the papers will apply to either new or renewal subscription to that paper.

Premium 1C. For one trial subscription we will advance your own subscription three months.

Premium 2C. One year's subscription to Farm News and a copy of Prof. Holden's Corn Book, postpaid.

Premium 3C. Two years' subscription to the Farm Journal (Philadelphia).

Premium 4C. One year's subscription to Farm and Fireside.

Premium 5C. One copy of "Child Training," an excellent little book by one who is herself a lover of children, and whose life work has been teaching in primary grades.

(The next five premiums are books in the Swarthmore Library.)

Premium 6C. One copy of "Increase." The first of the series. Any one desiring to enlarge his apiary should learn the Swarthmore way.

Premium 7C. One copy of "Baby Nuclei." The using of little frames and a handful of bees for mating queens has created a stir in the queen-rearing business. From this booklet you get your information direct.

Premium 8C. One copy of "Commercial Queen-rearing." A complete description of the Swarthmore method of queen-rearing in regard to cell-getting.

Premium 9C. One copy of "Simplified Queen-rearing." It tells the honey-producer how to rear queens by the simplest method ever published. Good queens for little money and little trouble, giving an effective and economical plan for the bee-keeper who works for profit.

Premium 10C. One copy of "Forcing the Breeding-queen to Lay in Artificial Cell Cups." This little book is fully explained by its title; and, though it may be considered a small book by some, it contains important information of great value to a queen-breeder, which can not be obtained elsewhere. A queen-breeder must have it. It says the last word on this great subject of queens.

For New Yearly Subscriptions

ANY one of the following premiums may be selected for each new yearly subscription sent to us with $1.00. As many premiums may be claimed as you send subscriptions. If a subscription to one of the papers is selected, it will apply to either new or renewal subscriptions to that paper.

Premium 1. For one new yearly subscription sent to us with $1.00 we will send GLEANINGS to your own address one year, or one Style D. GLEANINGS binder; postage 15 cts. extra.

Premium 5. How to Keep Bees, one copy, cloth-bound, by Anna B. Comstock; postage 10 cts. extra.

Premium 6. One Doolittle's Queen-rearing, cloth-bound; postage 10 cts.

Premium 7. One Langstroth on the Honey-bee, revised; postage 15 cts.

Premium 8. One Forty Years Among the Bees, by Dr. C. C. Miller; postage 10 cts.

Premium 9. One Standard Root smoker; postage 25 cts.

Premium 10. One fountain pen, postpaid; as good as any $1.00 pen on the market.

Premium 11. One untested Italian queen, leather color, to be sent at our convenience during the season of 1908.

For Renewal Yearly Subscriptions

SEE condition under Rule 2 given above. Any one of the following premiums may be selected for each renewal yearly subscription for *some one else*, sent to us with $1.00. If a subscription to one of the papers is selected, it will apply to either new or renewal subscriptions to that paper.

Premium 11C. One copy of any of the following books, the publisher's price of which is 50 cts: Poultry-house and Fixtures; Artificial Incubating and Brooding; The Chick Book; Eggs and Egg-farming; Plymouth Rocks, Leghorns, Asiatics; Ducks and Geese, Turkeys, Bantam Fowls.

Premium 12C. Either of the following books described in our book catalog; The A B C of Strawberry Culture; The A B C of Potato Culture.

Premium 13C. One untested Italian queen, Southern bred, to be sent at our convenience in season of 1908, when we have a surplus.

Premium 14C. For a renewal yearly subscription (not your own) we will advance your own subscription six months, or send you a GLEANINGS binder, Style C, postage 10 cts. extra.

Premium 15C. One Junior Root smoker; postage 20 cts. extra.

Premium 16C. One pair cloth bee-gloves with or without fingers; postage 7 cts.

Premium 17C. One Porter honey-house escape, postpaid.

Premium 18C. One year's subscription to the American Poultry Journal.

Premium 19C. One copy of any of the following books: Fox-trapping; Mink-trapping; Deadfalls and Snares (a book on trapping); Biggle Horse Book; Biggle Berry Book; Biggle Cow Book; Biggle Pet Book; Biggle Orchard Book.

Premium 20C. One copy of "What to Do and How to be Happy while Doing It," by A. I. Root. Postpaid.

Send all subscriptions to *The* **A. I. ROOT CO., Medina, Ohio**

THE DECEMBER

Bee-keepers' Review opens with an illustrated article by Elias E. Coveyou, showing how to build and operate a tank for

Liquefying and Heating Honey

for bottling; also how to wash and dry bottles and jars very quickly in a wholesale way.

R. L. Taylor gives some very reasonable

Arguments Against Clipping

queens' wings, and tells what course he would follow instead.

A new contributor from California, Mr. H. S. Philbrook, tells how he has introduced several queens to one colony, even had several mated at once from the same hive, by

Clipping their Stings

and mandibles. You may wonder why he clipped their mandibles, but you won't after reading his article.

In the Extracted Department is an extract from a long article published some years ago, in Germany, by C. J. H. Gravenhorst, in which he considers and shows very clearly

Why Some Colonies Store So Much More Honey

than others that may even be stronger.

Among other things the editor gives a write up of the recent Chicago pure-food exposition, showing a picture of the honey display put up by the National Association; also a

Beautiful Full-page Illustration

taken from the balcony of the Coliseum, giving a birdseye view of the whole show.

E. D. Townsend has an excellent article on removing comb honey from the hive, grading, crating, preparing for market and shipping.

There isn't room to mention all of the good things that appear in this issue, but enough has been given to show the general bright, wide-awake, go ahead,

Helpful Character of the Contents;

and let me say that the *Review*, for many months, has been publishing just such practical, really useful information; and what it has done in the past it will do in the future—improving if possible.

I might add that the *Review* has lately published several articles on the

Systematic Supersedure

of queens versus that of leaving it to the bees, and several more are still on hand to be used in early issues. The man who supersedes his queens at a certain age is making money—or else losing it—which is it? Whichever plan you are following, listen to the arguments on the other side—it may mean many dollars to you.

The *Review* is only $1.00 a year, and, just at present, I will

Send all the Numbers of this Year Free

to the man who sends me $1.00 for 1908. Or I will send the *Review* for 1907 and 1908, and the book Advanced Bee Culture, for only $2.00.

W. Z. HUTCHINSON, :: :: :: FLINT, MICH.

Hunter-Trader-Trapper

Here is a magazine that will surely interest many of our readers. It does for the trapper what GLEANINGS does for the bee-keeper, and does it well. It is just the thing for the man or boy who desires to make a little money winter time by trapping fur-bearing animals. It gives all trappers' "secrets," and indicates where to sell furs to advantage.

Hunter-Trader-Trapper

is not intended for city sportsmen with fancy guns and expensive fishing-rods. It is written by real wilderness hunters who know all about the capture of wild animals. It is a monthly, containing as much real reading-matter as the great monthlies, and far more practical. For a limited period we are making the following liberal offer:

HUNTER-TRADER-TRAPPER, 12 issues a year, . .	**$1.00**
GLEANINGS, ...	**1.00**
Both to the same party and address, $1.50.	**$2.00**

If you desire to inspect a copy of HUNTER-TRADER-TRAPPER, write to the A. R. HARDING PUBLISHING COMPANY, Columbus, Ohio.

SUBURBAN LIFE
for January

is one of the most practical and attractive numbers ever issued. The building problems of early spring are taken up and discussed, as well as a number of other subjects particularly in line for the winter months.

The following is a list of the principal contents

Alice Barber Stephens' Unique Suburban Home.
By MABEL TUKE PRIESTMAN

What Kind of a House Shall I Build in the Spring?
By HENRY R. PRESTON

A Social Suburb. By J. C. ROSS

The Selection of a Piano.
By HENRY W. HART

The Commonsense Care of Dogs.
By N. NEWNHAM DAVIS

Was I Wise to Move into the Suburbs?
A Symposium

Choosing the Wallpaper for the Suburban Home.
By HELEN GRANT GOODWIN

Six Dining-Rooms Worth Studying.

Keeping Fancy Poultry as a Recreation.
By JOHN H. ROBINSON

The Fireplace in Relation to the Room.
By HARRIET WOODWARD CLARK

The Hall as a Living Room.
By MABEL R. HEINZ

The Sleigh-ride. (A Poem.)
By EDWARD HEDDINGTON

A Woman's Successful Broiler-plant.
By KATHERINE E. WILLIS

Fighting the San Jose Scale.
By DR. E. P. FELT

How to Make the Best Use of Seed Catalogs.

Special Offer:

To any reader of this magazine who is not already acquainted with **Suburban Life**, we will send a copy of Professor Bailey's **"The Practical Garden Book" and Suburban Life four months, all for $1.00.** To Canadian points add 25c extra for postage. Address all orders to

PUBLISHERS SUBURBAN LIFE
34 West 26th Street NEW YORK CITY, N. Y.

Publishers' Department

The Home of Gleanings and of the A B C of Bee Culture

This is the new concrete office building. The front building is constructed of concrete molded blocks; the rear is monolithic concrete. The stock-room, where great rolls of paper for GLEANINGS are taken directly from cars on the B. & O. tracks, is shown at the extreme right. A little further back, with the saw-tooth roof, is the printing department; 100x140 feet are the dimensions of these new buildings, entirely fire-proof.—*White's Class Advertising.*

For over a year now the publishers have been enjoying their new quarters. As previously announced, we moved "across the road" into a new fire-proof office building and saw-tooth printing-house that is modern, not only in design of the building itself, but in the general equipment. The entire structure has nearly 14,000 square feet of floor-space. The walls and floors are of concrete, and strong enough to resist even a Sanfrancisco earthquake, and so designed that a bonfire could be built almost anywhere in the building and allowed to run its course without doing any great damage. Even the private offices have abestos plaster and steel-lath construction.

The general office, the interior of which is shown on another page, occupies the entire front, about 100×30 ft. Private offices are located in either end, while the remaining central portion, about 30×70, is given up to general office work.

"But," you ask, "what is the sawtooth construction?" By reference to some of the engravings the peculiar form of the roof will be seen. On the cutting edges of the tooths, as it were, is placed the skylights facing toward the north. The result is, that at all times there is a pure white light that leaves no shadows; and even in twilight one can see inside of the building almost as well as outside. For the purpose of the "art preservative" this construction of roof and skylight is ideal.

On stepping into the printing-room, as seen in the large engraving, one is immediately struck with the beautiful soft light; and while the machinery is going galore with its clack and bang, there is no belting nor shafting in sight. Each machine is supplied with an individual electric motor, the power for which is supplied by underground cables that reach back to our power-plant in the main building, some 300 feet away. Considerable new machinery has been added, among which is one of the latest and very best Miehle book and job presses. It has nearly twice the capacity of the old press, which is retained to help out the big fellow. Besides these two book-presses there is another cylinder press and three job presses, and stitchers, folders, book-trimmers, etc.

There are no second stories, for the whole building is practically one floor on one level. Neither are there any basements. The raw stock of paper is put in a fire-proof room provided with automatic self-closing doors on the same level as the printing and publishing room. These vaults or stock-rooms are seen just at the end of the printing-room shown in the large engraving in the center of this journal.

The new building is heated by what is known as the vacuum system of exhaust steam, or the waste product from the main factory of the wood-working shop. So successful is it that it has been carried over to some of the houses in Rootville, also heated by waste steam.

There are 30 employees in the publishing department, and 20 in the office. The vari-

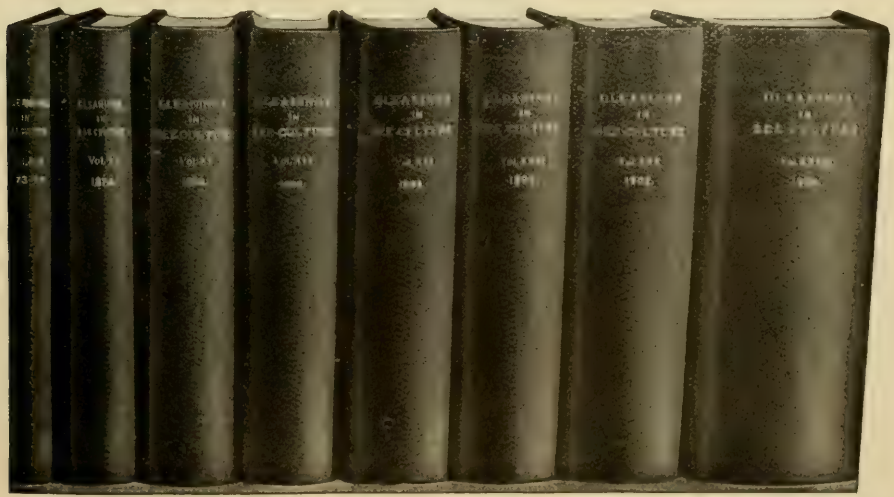
[From *White's Class Advertising.*]

One-third of an ordinary issue of GLEANINGS in Uncle Sam's mail-sacks ready to go over to the train. The building in the background is the office.

ous engravings that are here reproduced, together with the large one in the center of the journal, will give one an idea of the busy life in the publishing department of The A. I. Root Co.

Perhaps a few figures may be interesting as showing the amount of work turned out in the house that GLEANINGS built. By consulting our bills for paper we find that we have turned out something like 300,000 lbs. of printed matter this year. This does not include all the subsidiary publications devoted to bees. A single issue of GLEANINGS weighs, on an average, 7000 lbs. Weigh a regular number and figure out what the circulation is. But this Christmas issue will weigh approximately 14,000 lbs., or at least that will be the rate on which our postage will be figured.

During the last year we have printed 15,000 copies of the A B C and X Y Z of Bee Culture—the entire weight of which runs over 40,000 lbs. Besides these have been numerous small publications on bees with editions ranging from one to five thousand copies.



GLEANINGS IN BEE CULTURE is here illustrated, showing the great growth from 1873 to 1905. The volumes for 1906 and 1907 are even fatter than 1905, counting up to over sixteen hundred pages per volume. A person who is so fortunate as to own a set of these books, 35 in all, has a library on bee culture the like of which is not equaled anywhere.—From *White's Class Advertising*.

"If goods are wanted quick, send to Pouder."
Established 1889.

Emerson Hit It.

By the Bee Crank.

"If a man can write a better book, preach a better sermon, or make a better mouse-trap than his neighbor, though he builds his house in the woods, the world will make a beaten path to his door." — *Emerson.*

Emerson was right. He "hit the nail on the head."

I never have made any mouse-traps, but in the bee-supply business where I belong I've always tried mighty hard to do my work so that the word "t etter" would fittingly describe it.

The world didn't have to make any path to my door—plenty of paths were already there, connecting me by express and fast freight with everywhere. However, the world is pretty well represented in my clientele. Some bee-man in every corner of the earth has acquired the commendable habit of buying supplies from Pouder.

Best goods, best service, and best prices These are the advantages I offer.

I carry ready for immediate shipment a full line of Root's goods at Root's prices, and save you time and money in transportation.

Metal-spaced Hoffman Frames, Danzenbaker Hives, Section Honey-boxes, Weed-process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, and other standard supplies.

I allow you 30c a pound in trade for beeswax. Put your name on package. Large shipments by freight, small ones by express.

Catalog of bee-supplies mailed free.

Finest white-clover extracted honey in five-gallon cans ready for immediate shipment. Write for quotations.

Walter S. Pouder.

513-515 Massachusetts Avenue, Indianapolis, Ind.

GLEANINGS IN BEE CULTURE

Published by The A. I. Root Company, Medina, Ohio

E. R. ROOT, EDITOR — A. L. BOYDEN, ADVERTISING MGR.
H. H. ROOT, ASST. ED. — J. T. CALVERT, BUSINESS MGR.
A. I. ROOT, EDITOR OF HOME DEPARTMENT

Vol. XXXV. DECEMBER 15, 1907. No. 24

STRAY STRAWS

by Dr. C. C. MILLER

A. I. ROOT, you are not alone in your estimate of Gov. Hanly. Within a week I've seen his name mentioned as a possible candidate of the Prohibition party for president. If the Republicans would nominate him that might be better.

PROF. COOK, p. 1496, thinks it likely that if eggs of the bee-moth are laid just outside the hive "the wee larva will, as soon as it is hatched, betake itself to the combs." If Prof. Cook said he knew that to be so I'd take his word for it; but as he only says it is likely, I greatly doubt it. Has any one ever seen a young bee-moth larva of its own accord as much as ¼ inch distant from its base of supplies?

PLEASE SAY to C. A. Neal that winters are more severe here than with him, but sweet clover is perfectly hardy to stand the winter except on one condition. Have the ground nice and soft, in best condition for most crops, and sweet clover will be sure to winter-kill. Scratch the seed in on ground as hard as the roadside, or roll the ground very, very hard after the seed is in, and it will stand the severest winter.

A. SCHMIDT, *Leipz. Bztg.*, p. 164, says that foundation made in a press, besides having the advantage that it is more readily worked by the bees than mill foundation, does not stretch so much. With mill foundation he had to leave a margin of ⅛ inch at the side, and still more at the bottom, or there was trouble with buckling. With pressed foundation a margin of $\frac{1}{12}$ inch at the side and less than ¼ at the bottom was sufficient. Evidently he is talking about foundation without wires or splints. [All the samples of press foundation that we have ever seen were much heavier per square foot than that made on rolls. The experiment in question proves nothing *unless* we can have the relative weights of the two kinds of foundation. —ED.]

BEES FLEW till Nov. 10; then it came cold. When it got down to 11 degrees I was anxious. If they were to have no further flight they ought to go in at once; but would they have a further flight? Happily, Nov. 18 went up to 53, and they had a hilarious time of it. Next two days too warm to carry in; but the 21st they went into the cellar. Although comparatively warm (37 to 42 degrees) they were carried in with open entrances; not a bee stirred except three colonies which had their entrances closed with cloths dripping with cold water.

REV. J. G. DIGGES, editor *Irish Bee Journal*, took a bright way to time the flight of bees. He took three bees from each of three different hives, cycled a mile on a straight road, freed a bee from each of the hives, another trio ten minutes later, and the remaining trio ten minutes later still. Watchers at the hives, with watches set with his, noted the arrival of the bees, which were marked white, red, and green. The bees of A averaged 15 miles an hour; B, 12; C, 20. Other things being equal, C ought to store 33 to 66 per cent more than the others.

G. C. GREINER, in giving that first case of scouts, p. 1507, says, "I watched them all the afternoon and forenoon of next day." Clearly, those scouts were sent out before the swarm issued, unless it hung out over night. I am strongly of the opinion, buttressed by much observation, that bees generally send out scouts before rather than after swarming. It is a very common thing here to see scouts cleaning out empty hives, and I think they often work at it *for several days*. One set of scouts working in an apple-tree at the Hastings apiary appeared in such numbers that it took some time for us to convince ourselves that a swarm had not entered. On the next visit, a week later, they were still

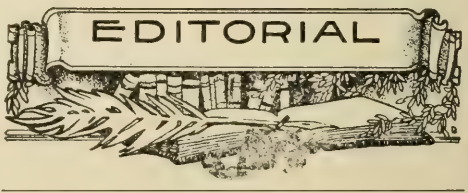
there. The thing is so common that I had not thought worth to take special notes; but seeing your interest in the matter, Mr. Editor, I may be able to give you some exact figures another summer. [It often happens that what is common knowledge on our own part is not known by the outside world. Of course, we have known for years that scouts are sent out prior to the issuing of the swarm; but it has not been known that they go in such numbers as you observed. We shall be glad to have you take note of any thing further.—ED.]

I. HOPKINS urges that every producer of extracted honey have a hydrometer, and never put any honey on the market testing less than 1 400—*Australian Bee Bulletin*, 124. Now, that is something definite for you, and the necessary outfit, hydrometer, glass, and thermometer, costs less than $2.00. [The suggestion was made at the Harrisburg convention that every extracted-honey producer, at all events every bottler of extracted honey, should own a hydrometer, and the same idea has been advanced on other occasions. It is, perhaps, proper that the suggestion be emphasized more forcibly than it has been. In this connection we would say that we should like to get matter from those who have used hydrometers for the purpose of testing the specific gravity of honey, and we should be particularly pleased to have them give their reasons for using them.—ED.]

IN AMERICA, says Editor Kramer, the important question is, how to prevent swarming. In Switzerland he says it is a solved problem—solved in the only natural way through weeding out swarmy stock. If he means, by that, that that is what *should* be done to attain the desired end, then I may say that some of us are working on the same line here. If he means that they have already reached non-swarming bees, I wish Herr Kramer would tell us the number of colonies in a hundred likely to swarm in his non-swarming stock. If not more than two or three I'd like a queen of that stock, no matter how black. [This question of swarming is very largely a matter of locality. In certain parts of Texas, California, and the West, there is no swarming after the main honey-flow sets in. What swarming there is, takes place at the preliminary flow of honey. Possibly Editor Kramer lives in a locality where there are no preliminary flows, but one heavy one, so there will be very little tendency on the part of the bees to swarm; therefore a little effort to breed out the swarming tendency might make quite a showing.

Yes, we should be very glad to get one of those queens; but we feel sure her bees would swarm in this country, at least in the white-clover regions of our Northern States, the same as other bees on which an intelligent effort has been made to breed out swarming. —ED.]

J. L. BYER, *American Bee Journal*, 722, says that, a few years ago, he prepared a number of colonies with paper for winter protection, as recommended in GLEANINGS for Oct. 1. While the bees packed in the "good old way" came through in grand condition, he says: "Bees in hives covered with paper, in different parts of the yard, nearly all perished, and what were left were mere nuclei in the early spring All I have heard of in Ontario, who tried the plan, reported somewhat similar results. [This is an interesting and timely report. Perhaps we had better not put too much dependence on paper winter cases; but inasmuch as the experience of ourselves and that of some others is not like that here given, we do not think it would be wise to abandon paper winter-cases just yet; but a mere cap of paper covering a single-wall hive is not a sufficient protection. There should be several folds of newspaper or other packing-material under the paper cap to give the hive the necessary protection. We can see no reason theoretically why such a packing-material, protected from the weather by an oiled or tarred paper, should not give just as good results as the same packing-material surrounded by a wooden case. Doubtless many of our subscribers will be testing this idea to a considerable extent this winter. We shall be glad to have them take notes and report next spring.—ED.]



MERRY Christmas and a happy New Year!

A CORRESPONDENT asks us to tell him the source of bright-red pollen found in the central part of Pennsylvania. The flora of different localities varies so that it would be impossible for us to guess. Perhaps some one in the vicinity can enlighten our friend.

THE reader's attention is called particularly to a very valuable article by E. D. Town send, giving the Coveyou method of extracting and bottling honey. We believe our young friend may be able to teach some of the Gamaliels some new tricks of the trade. At all events, we suggest that they sit for a while at his feet.

OUR CHRISTMAS ISSUE.

WE take pride in presenting this issue to our readers. It is not only rich in illustrations but in valuable matter. It will pay any of our readers to lay it aside carefully and keep it for future reading. The article by Mr. Townsend, for example, is worth a year's subscription price; and yet we run across bee-keepers every once in a while who "can not afford to take a bee-paper," and complain that their "bees don't pay."

In the *Bulletin des Societies d'Apiculture de la Savoie*, Mr. Ferrier says if you wish to get queens fecundated in a tent the drones must be unrelated to the queens. He says the latter feel an aversion to drones of their own family. W. K. M.

THE FIGHT IN CONGRESS OVER FOREST RESERVES.

There will doubtless be a vigorous fight in this session of Congress over the proposal to create two large forest reserves in the East and South; namely, the White Mountain forest reserve in New England, and the Appalachian forest reserve in the mountain regions of the South. The last named is peculiarly rich in bee-keepers' trees of all kinds, and ought to secure the undivided support of the apiarian interests. When the fight is on we expect to supply our readers with more detailed information. These forest reserves are in most cases bee-reserves as well as forest reserves. W. K. M.

TWO PROMINENT LADY WRITERS ON BEES.

Our Italian contemporary, *Corrisponden-za Apistica*, gives in its August issue a synopsis of Mrs. Comstock's article, "Bee-keeping for Women," which appeared in Gleanings some time ago. It speaks very highly of Mrs. Comstock's ability as a bee-keeper. Moreover, the editor is very gallant, for he says it is very evident the gentle Lady Botsford is a very beautiful writer as well as an accomplished bee-keeper. Over in Europe Mrs. Comstock has a rival in Madame Lucie Dennler, wife of the editor of the bee-journal published in Strassburg, the capital city of Alsace and Lorraine. She writes quaint legends about bee-keeping and bee-keepers of other days than ours. W. K. M.

THE PRODUCTION OF BEET AND CANE SUGAR.

The production of beet sugar is now equal to that from cane. The total of the world's output of cane sugar for the season of 1906–'7 was 7,146,446 tons For beet sugar the figures are 7,144,377 tons. The production of cane sugar has risen rapidly of late on account of the liberation of Cuba, which has greatly encouraged the growth of sugar-cane. The United States is now the greatest market for cane sugar, while the British Isles are by far the greatest consumer of beet sugar. The Britishers are the greatest consumers of sugar, the consumption per capita being about 10 lbs. higher than in the United States. Many are of the opinion that we eat too much sugar; but what about John Bull and his sweet tooth? W. K. M.

HONEY BREAD 700 B. C.

According to the Parisian bee-journal, *L'Apiculture Nouvelle*, honey-bread was made at least 700 years before the birth of Christ. That's a good while ago. According to Hippocratus, honey and wax were considerably used by the doctors of ancient Greece. At that date fruits were preserved by being immersed in honey. And 4000 years ago, during the reigns of the Pharaohs, the Egyptians had a proverb or saying equivalent to our "veritable hives of industry."

W. K. M.

THE PLURAL-QUEEN SYSTEM.

Reports seem to come in thick and fast, going to show that the two queen system, in connection with perforated zinc, is a success. There can be no question but that, under some conditions at least, the scheme of using two queens will increase the worker force, and that will increase the honey crop; but whether it will be practicable to use more than one queen to a colony without having them separated by excluders, we have our doubts. It can be done sometimes under some conditions, no doubt.

MARKETING EARLY, AND BOTTLING HONEY TO RELIEVE A GLUT IN THE MARKET DURING THE HOLIDAYS.

We are firmly of the opinion that more producers of extracted honey should do their own bottling and retailing, rather than glut the great markets at a time of the year when everybody is ready to unload. Unfortunately this year, as every year, there seems to be a tendency on the part of too many bee-keepers to send their honey to market in November and December instead of during the months of August and September, when prices generally rule strong.

A CORRECTION.

In our issue for Novembr 15, in giving our report of the National convention at Harrisburg, page 1430, we unwittingly did our old friend and correspondent, Mr. J. A. Green, an injustice by saying that "no program had been announced, as the secretary, Mr. J. A. Green, owing to pressure of other duties, was unable to get any program ready; but President Aspinwall, during the last week, secured a number of valuable papers," etc. We now learn that Mr. Green had written to all the parties who had prepared papers, and in some cases, at least, had secured their promise to present them to the convention.

PRICES ON HONEY FOR NEXT YEAR.

A correspondent asks whether we think the price of honey as it now stands will be as good as or better than now by June, 1908. It is not possible to make any accurate prediction; but we do not see any reason why it should not be just as high if not higher. Should the conditions next spring and early summer be favorable for a good honey flow all over the country, the market might ease up somewhat. Should it, however, be unfavorable, as it was last spring, the prices should be firmer. We are of the opinion that, if the value of other commodities continues to soar, honey will go up; but if there

should be hard times next summer, and every thing should fall in price, honey will necessarily go down with the rest.

ARE BEES REFLEX MACHINES?

WE hope to begin soon the publication of a translation of the paper by Von Buttel-Reepen, a German scientist and practical bee-keeper as well, on the question "Are Bees Reflex Machines?" The matter is all in type, and the first installment will be published as soon as the proofs are O. K'd. While this paper is scientific it is intensely interesting as well as practical, and, as we said before, we are of the opinion it will help to solve many a practical problem that confronts the bee-keeper who is after the dollars and cents as well as the pleasure he can get out of the business.

WHAT TO FEED BEES IN COLD WEATHER.

ALMOST every year, when cold weather comes on, we are asked how to feed bees in mid-winter. We advise giving a comb or combs of sealed stores, as liquid feed in cold weather excites the bees too much. We would not break the cluster to insert this comb, but, rather, lay it flatwise on the top of the brood-nest, separated by a couple of strips of wood $\frac{3}{8}$ or $\frac{1}{2}$ inch thick. Where the brood-nest will not afford sufficient room, an extra story should be put on, and some good warm packing material should be placed over the whole. When combs of sealed stores are not obtainable, wooden pie plates or wooden butter-dishes filled with Good candy may be placed on top of the brood-nest. But do not make the mistake of placing this candy directly on top of the frames, for the heat and moisture of the cluster will cause it to run down, thus killing the colony. Cakes of hard rock candy may be laid on the frames without being placed in any container; but the average person will be able to make his own Good candy by mixing powdered sugar and honey to a stiff dough easier than he can make the hard crystalline rock candy.

THE NEWSPAPERS AND BEE-STING CURES.

THE newspapers are coming to be more or less filled with stories about remarkable bee-sting cures for rheumatism. Some of them are doubtless on the fake order, because they furnish the basis of a "bee story." In times when matter is scarce, reporters seem to find the bee a splendid subject. Formerly they used to tell wonderful stories about the so-called manufactured comb honey; but since it is no longer possible to retail that kind of nonsense and have the public believe it, they are now dealing with more sober facts. But the trouble is, a large class of readers, on account of the sensational way of putting a fact, will be disgusted rather than convinced that there is any merit in the bee-sting poison as a cure for rheumatism. If the truth were stated, it is only in certain cases and under certain conditions where relief is afforded. It is too sweeping a statement to affirm that hypodermic injections of bee-poison will cure *all* forms of rheumatism; therefore in reading these sensational accounts in the papers we should make due allowance for the desire to make a sensational story regardless of fact.

THE FOUL-BROOD SITUATION IN CANADA.

A LITTLE question arose among some of our subscribers in Canada as to whether the facts were correctly given in our columns in regard to the foul-brood situation in Canada. In order that we might have the exact facts from an official source, we wrote to Mr. N. Monteith, Minister of Agriculture for the Province of Ontario. First, we enquired the number of apiaries that had been examined, and the number in which foul brood had been found. It had been further stated that the inspectors, having exceeded the limit of the funds appropriated by the legislature—namely, $1200—had been called off, leaving the work unfinished. The following letter from the Minister of Agriculture explains:

Dear Sirs:—I am in receipt of your letter of the 29th ult., in which you ask for a statement of the work performed by the Apiary Inspectors in Ontario during the past season. The expenditure for this work was approximately $2300, and the details are as follows:

Total visits paid	733
" number of apiaries examined	663
" hives in apiaries examined	14,993
" apiaries showing signs of foul brood	264

It should be borne in mind that the inspectors were, in almost every case, working in suspected districts, and the relative proportion of infected apiaries should not, therefore, be regarded as applying to the Province as a whole.

The inspection work was continued until about Nov. 1st, after which date, principally on account of the shortage of the honey crop, it was not considered advisable to prolong the work. N. MONTEITH,

Toronto, Dec. 3. Minister of Agriculture.

A WORD TO THOSE WHO HAVE WATCHED US GROW.

MANY of our readers, especially those who have been with us almost from the very beginning, and have watched us grow, will be glad to read the publisher's statement given on p. 1549 of this issue. We feel that whatever material progress GLEANINGS has made is due very largely to our subscribers who have so kindly furnished us gleanings and heads of grain from many fields. When A. I. Root, the founder of this journal, first started it he had in mind the making of a paper that would be the work of practical men, their fingers possibly daubed with bee-glue while writing on the cover of a bee-hive an article for GLEANINGS. We have tried to encourage and develop just such writers. The fact that the journal has grown from a little quarterly of 16 pages to an illustrated semi-monthly of 60 pages, with an actual circulation of 34,000, shows what has been done in all these years. The editor desires at this time to express his thanks to those of our friends who have taken such an active interest in making the journal what it is.

While A. I. Root has long since retired from the active field of apiculture and apicultural journalism, his influence is felt in a larger and more important way in the department of "Our Homes." It is true, per-

haps, that some of our apicultural readers may not care to read these lay sermons, yet we are of the opinion, judging from the correspondence that is streaming in constantly, that three-fourths of our subscribers consider A. I Root's work a very important feature of the journal—not because what he has said may have led to material prosperity, but because it has turned their attention to things far more precious than gold or silver, of a kind that fadeth not away.

BEE-KEEPERS' ASSOCIATIONS IN GERMANY.

HEREWITH we present a table showing the distribution of the bee-keepers in Germany who are members of the Bee-keepers' Association of Germany, Austria, and Hungary. We are indebted to the *Allgemeine Zeiting fur Bienenzucht* for these figures. The members outside of Germany proper are not shown; but these would bring the total up to a little over 100,000. The whole territory covered by the association is about as large as the region southeast of the Mississippi and south of the Ohio River, leaving out Florida.

1.	Allenstein Association, East Prussia	607
2.	Baden Association	8442
3.	Baltic Association	1033
4.	Brandenburg Association	4200
5.	Breslau Association, Silesia	427
6	Cassel Association	585
7.	Coburg Association	48
8.	Gumbinnen Association, East Prussia	1600
9.	Hannover Association	4439
10.	Cologne Association	135
11.	Königsberg Association	1400
12.	Mecklinburg Association	2066
13.	Mecklinburg-Strelitz Association	295
14.	Frankfort-on-Main Association	185
15.	Nürnberg Association	25
16.	Upper Hesse Assaciation	930
17.	Offenbach Association	36
18.	Oldenburg Association	1200
19.	Pomerania Association	2874
20.	Posen Association	1548
21.	Hesse-on-Rhine Association	599
22.	Thuringia Association	3100
23.	Silesia Association	6722
24.	Schleswig-Holstein Association	5400
25.	Schwabstedt Association	60
26.	Startenburg Association	812
27.	Thuringia (2) Association	2342
28.	West Prussia Association	3161
29.	Wiesbaden Association	1100
	Total	55,311

One of the reasons why bee associations flourish in Europe is because the government gives them aid and encouragement; besides this, the railroads are owned by the state. W. K. M.

OBJECT TO THE WORD "GLUCOSE."

THE following clipping from the *American Grocer* for Dec. 4 so fully explains itself that it is almost unnecessary to make any comment. It is evident, however, that now is the time for every bee-keeper in the United States to register a protest against this stuff being sold as "corn syrup." Glucose is the proper name for glucose, and every bee-keeper who reads this ought to write his Congressman or Prof. H. W. Wiley, at the Department of Agriculture, saying that you want glucose labeled under its true name and no other While you are about it you might ask other bee-keepers to write, or add their names to your letter. Here is the quotation:

> Any effort of the Department of Agriculture to enforce the use of the term "glucose" in place of "corn syrup" will meet with strenuous opposition at the hands of the National Association of Retail Grocers. Such is the substance of a letter recently sent by Secretary Green, of that organization, to Secretary Wilson. It reads as follows:
>
> HON. JAMES WILSON, SECRETARY OF AGRICULTURE—
> *Dear Sir*:—We have just been advised that Dr. Wiley and his associates have about decided to rule that "corn syrup" is to be labeled under the old "glucose" label. I am authorized by the directors of the National Association of Retail Grocers to communicate at once to you our opposition to this change.
> The obnoxious word "glucose" will materially injure or interfere with the sale of "corn syrup." If, as we suppose, corn syrup is a healthful product made from corn, then we would ask you to use your influence in leaving it under the brand of "corn syrup" rather than to change to "glucose."
> Yours very truly, JOHN A. GREEN, *Sec.*

With 350,000 retail grocers in the land it is very doubtful if the above letter in any way voices the opinion of any other than the directors. If glucose is wholesome, prejudice will disappear if it is sold for what it is. W. K. M.

FASTENING FOUNDATION; NICE WORK FOR WINTER EVENINGS.

EVIDENTLY there are many who think split sections are something new; but Samuel Simmins describes them in his *Modern Bee Farm*, published in 1887. He also supplied very clear illustrations of them, split on the top and sides. Furthermore he says, "Another plan is to make a saw-cut in the one-piece section as shown, and when folded the foundation is readily inserted in such a manner that the most perfect combs are obtained; while for packing to travel long journeys, nothing can excel those worked in this manner." That they are practical is proved by the fact that they have been sold on the English market for twenty years, it being the practice over there to attach the foundation on all four sides, or at least three sides. Sections so fixed can be handled with much greater ease and satisfaction than those having foundation left to dangle from the top-bar of the section box. Some go to the additional trouble of applying melted beeswax with a brush, handling the latter much as a cabinet-joiner handles a glue-brush; but for real satisfactory work, a Van Deusen wax-tube is the best. This is nice work for long winter evenings, and the ladies of the family can lend a hand to advantage. Supers arranged with foundation so firmly attached can be handled without extra care; whereas the hot-plate method results in section supers which have to be handled "gingerly" or the foundation will fall out.

If you have overlooked this method it might be well to look up what Mr. J. E. Hand says on this subject in one of his articles on the Hand system. There can hardly be any doubt that sections with foundation fastened securely on all four sides will result in fewer No. 2 sections and culls.

Some object, saying that it takes too much time to fasten foundation in this manner; but this is largely offset by the fact that the work is done in the dull season, and much careful handling is saved in the busiest season, when time is money.

There are other methods of fastening foundation on all sides. One is to have the sec

tions grooved, and insert the full sheet of foundation while the section is being formed in the section-press. Then the foundation may be further secured with melted beeswax applied with a tube. This may seem quite a lot of trouble to go to; but it saves even more trouble before the season is over. One point is, that it enables the bee-keeper to order his sections early, and employ his spare time in getting ready for the summer campaign. W. K. M.

THAT GREAT IRRIGATION CONGRESS AT SACRAMENTO, CAL.

WE have received a copy of the Sacramento *Bee* containing an account of the irrigation congress at Sacramento. This edition, of forty large newspaper pages, devoted to the themes of irrigation, forestry, and public lands, is well illustrated, and contains an immense amount of valuable information having to do with the work of reclaiming the arid West, and converting it into a land of fruits, flowers, bees, and peaceful contented homes for toiling millions.

Twenty thousand delegates assembled on the opening day to discuss ways and means of facilitating this great work of land redemption and home creation In some respects this work is unique. Delegates came from Europe, Asia, Australia, South and Central America to hear and see what America was doing in this work, and to take part in the deliberations.

The convention was in itself a triumph for peace, science, and industrial skill. Nothing was said about war nor about the predatory rich, but every thing hinged on the home—the rural home.

Practically every irrigation project is a bee-keeper's preserve so that the bee-keepers are vitally interested in all that is being done, either by public or private enterprise

In this connection the issue of the Sacramento *Bee* now before us contains a mass of very valuable information to the home-seeker. It gives the location of all government projects, particulars of the Carey Act, and various other measures by which arid lands are reclaimed and made useful to mankind.

Those of our readers who are interested in this great movement would do well to secure a copy of this irrigation number of the Sacramento *Bee* for Sept 3. No price is attached, but probably 10 cents would bring it.

W. K. M.

HOW TO MOVE OFF NO. 2 OR UNSALABLE COMB HONEY HAVING A GOOD FLAVOR.

As a general thing it is far easier to sell fancy and No. 1 honey at high prices than No. 2 broken and otherwise inferior-looking comb honey at a low price. It will very often happen that one side of a box of such honey will be fairly presentable while the other is damaged and leaking. A No. 2 section in a section-box somehow looks "off."

At our retail store here in Medina we put all such honey in wooden butter-dishes, first cutting it out of the sections. The best side of the comb is put uppermost, not to deceive, but, rather, to make the honey show to its full advantage. Very often a bad-looking box will contain very fine-eating honey. If we can so show off this honey that its real quality comes to the front, we are not deceiving or misrepresenting by putting the good side out; we are only telling the truth about it, that it is as good to eat as the best.

But there is something more about these butter-dishes of honey—the leakage around the under side, close to the side of the comb, is one important element in effecting a sale, for the comb appears to be floating in its crystalline sweetness. It is, therefore, suggestive of the good old days on the farm of precious memory, when chunks of comb were floating in honey. How the very sight of such honey made the mouth water! No small wonder that it does it again.

Our retailer "over across the road" says that often No. 2 honey will sell readily if the combs are cut out of the sections and put in butter-dishes; while if left in their original containers they will have a slow sale. And here is another point—No. 2 comb honey is very often No. 2 because the sections are badly travel-stained, or daubed with propolis. Remove the cause of its disqualification and it becomes No. 1.

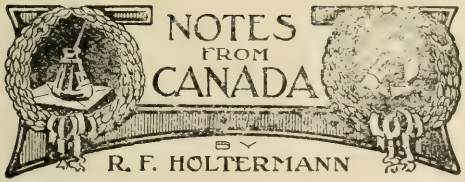
We suggest that you ask your grocer to try the experiment of setting out about a dozen butter-dishes, each containing a section of your left-over No. 2 honey with the liquid article surrounding it. Watch the result, and report to us how they sell.

Of course a large wholesaler could not fuss with any thing of this kind; but the retailer may be able, by means of butter-dishes, to clean up a lot of old slow-selling stuff. If you have customers come to the house or bee-yard, set before them butter-dishes of your "off" looking but good-eating honey. With only a cent's difference in price between this and your No. 1 you will be able to move off all of your otherwise bad-looking but good-eating honey.

PARCELS POST.

THE various accounts of the assembling of Congress agree in stating that there is little hope for action on the matter of parcels post at the present session. The representatives of the people seem afraid to act because half of them will go before the people for reëlection next year, and powerful opposition has been engendered by the country merchants.

For years the express companies have foreseen that, sooner or later, an attempt would be made to inaugurate a parcels post, and they spent money freely in creating an antagonism to the idea. Curiously enough, they have succeeded in influencing the very class who have been most hurt by the express companies—the country storekeepers. The express people have done all they could to foster mail-order houses, and yet the local merchant rushes to their ass stance. This agitation resembles the opposition to railways in early days, also to the bicycle, the steamer, the automobile, and other great benefits. Write your Congressman. W. K. M.



ONTARIO BEE KEEPERS' CONVENTION.

The history of the O. B. K. A. during the past year has been one of progress. Its membership has been increased, its influence is greater, its ideas have been more progressive, and its aims and purposes for the future are more along the lines of agricultural societies which have advanced in their methods of production and marketing.

Outwardly, at least, the action of its members has been harmonious, and there is very strong evidence that personal interests have been sunk for the welfare of the body at large. If any Canadian readers of GLEANINGS are not members of the Ontario Bee-keepers' Association I would urge them to send their membership fee of one dollar per annum to the Secretary, Mr. T. W. Hodgetts, Department of Agriculture, Toronto.

The Vice-president, F. J. Miller, London, Ont., opened the late Toronto Convention, Nov. 13. In his opening address he spoke of the past two unfavorable years, and the great decrease of colonies of bees; of the much greater prevalence of foul brood in the province than members had been led to believe; yet out of it all he thought good would come.

Second Vice-president, Wm. Couse, Streetsville, Ont., in his remarks mentioned the very great development known to him and many others in the production and demand for fruits. He felt that the increased production and demand for honey might be equally great. Honey had even a greater advantage than fruit, as it will not spoil as readily as fruit, and can pass through the various stages of marketing with less risk of loss.

W. A. Chrysler, Chatham, Ont., in his address entitled the "Distribution of Honey," appeared to strike a responsive chord when he advocated coöperation in marketing honey. He advocated selling at fair prices in the local market, and then coöperating in selling in distant markets.

R. F. Holtermann stated that a label and seal upon a package guaranteeing purity and prime quality would get the preference in the market over the individual product. A committee consisting of Mr. Chrysler and the executive of the Ontario Bee-keepers' Association was appointed which shall formulate a scheme to be given to county associations by the spring, with the idea that county associations rather than the large Ontario association shall do the coöperative marketing.

E. W. Alexander, Delanson, N. Y., sent a paper advocating keeping the brood-chamber of the hive clear of capped honey by extracting during the late spring and early summer, giving the queen greater room to lay.

A pretty lively time followed, showing that all were opposed to extracting from combs containing brood. Some, however, favored extracting any combs with only honey in about fruit bloom time. Many thought it unwise to feed honey back to the bees; some opposed stimulative feeding—among them Jas. Armstrong and H. G. Sibbald. Those favorable—McEvoy, Dickinson, and Holtermann.

Mr. Robinson, in reply to a question, gave as the best method for cleaning pollen-clogged combs to soak the combs in water for twelve days and then extract.

Miss M. Trevarrow, Meadowvale, Ont., under the subject "Foul Brood," advocated as a preventive the frequent changing of combs. With the present excellent methods of rendering wax this can be done at a profit. Keep strong colonies, feed only sugar syrup to the bees, and never feed back honey, and have colonies open for easy inspection. She stated that, during the past year, 660 apiaries had been inspected; of these, 396 apiaries had been found free from disease, and 264 diseased.

The reports of the six inspectors and the Secretary, which followed, confirmed Miss Trevarrow's work. The inspectors were also unanimous in their statement that about 75 per cent of the bees in Ontario had perished from one cause and another during the last year or two.

J. L. Byer reported having had to deal with a genuine case of European foul brood, and he stated that it was very dangerous. Mr. S. D. House, New York, made the assertion that, from various remarks made since he had come to the convention, he believed that there were more cases of European foul brood in Ontario.

Jas. Armstrong, Cheapside, who had visited not only every suspected apiary but every apiary in a large area, found, out of 212 apiaries, that 103 were diseased He advocated a law that no one in Ontario should, under existing conditions, be allowed to have the old box hive.

While, earlier in the season, some inspectors had found two-thirds of the apiaries diseased, fortunately the later records had been more favorable; but members expressed surprise that so much disease had been found by the inspectors.

A vote of thanks was unanimously passed, thanking Hon. Nelson Monteith, Minister of Agriculture, for his kindness and yet justice in dealing with the stamping-out of the disease. The sum of $2285 had been expended during the past year, and even then the demand for inspection had not been satisfied, and much more required to be done.

S. D. House, Camillus, N. Y., gave an address which created a great deal of interest. His address, "Comb-honey Production," will be dealt with at a later date. I understand that Mr. House was besieged by individual bee-keepers until the early hours next day. I suppose this was the reward for well doing.

Arthur Laing, St. Thomas, as pointers ot the "Production of Exhibition Honey," mentioned clean fresh combs, a well-crowded hive, and well-ripened honey.

Prof. H. A. Surface gave an interesting and much-appreciated address along the lines given at the late National. Resolutions were passed, asking for a more stringent enforcement of the pure-food law, and that such terms as "Pure Maple Syrup Mixture," "Pure Honey Mixture," etc., be prohibited, as it was intended to veil adulteration. A resolution was also passed, asking that demonstrations in bee-keeping and honey production, also showing forth the natural history of the bee at leading exhibitions, be encouraged and asked for. Also that the various governments in their capacities be asked to give the same help and encouragement to bee-keeping that other branches of agriculture were receiving.

There has been an increase of 115 in the membership during the past year. Some other features of the Ontario convention will be given later.

Brantford, Canada.

SELECTING A LOCATION FOR AN APIARY.

There are several points to consider when locating out-apiaries; but I have had no trouble in locating my present number of fourteen, besides getting locations for ten more apiaries which will be put in next spring.

The prerequisite with me is sufficient honey-yielding flora to warrant locating an apiary in a locality, as it is my sole purpose to produce as much honey as possible. The best location without the honey-producing flora would not profit me any thing.

Permanent water is the next important item. The bees need a goodly supply of it at all times, and during heavy brood-rearing the lack of it would most certainly show in the crop of honey secured. Besides, if water is not supplied for the bees, endless trouble often results from their going to neighboring watering-places, which can not be tolerated.

Shade is of great importance here in the South, especially — not only for the bees but for the bee-keeper as well; hence I prefer natural shade; and a grove of mesquite-trees which give a partial shade in the summer and drop their leaves in the fall is my preference, as these are most abundant here. There are many other trees suitable, however. I also prefer a slight slope of ground toward the southeast, facing the hives in this same direction, so that the noon sun strikes the hives diagonally from the upper corner of the front of the hive. The facing of the hive, however, has nothing to do with the honey stored, nor does it make a difference with the colonies.

Outyards are generally located in some owner's pasture, just far enough from his home so that the bees may be seen occasionally, but not near enough so that stinging bees may cause trouble. It is preferred to have a wire fence around the yard to prevent trouble from stock. Such locations cost me from five to ten dollars, according to the season Five dollars in money is paid annually to the owner for the privilege of leaving the bees on the location, and a quantity of honey for his family is given him at each robbing time, more or less if a good or bad year.

THE USE OF FOUNDATION.

I have just received the following, which will explain itself:

The saving to bees in time through the use of foundation is of first importance to the practical bee-man who keeps bees for the money there is in the business, and who looks to the best interest of his trade. The "lucky-go-easy man" who thinks it expensive to use foundation is usually the man who comes up at the end of the season with a lean pail of honey, and whose customers are often found wanting I have used it ever since I have had bees; and find it to my interest, many times over, to use it. It is often claimed that it is a slow tedious job to put it into the frames. This is the case, without a doubt, unless a person is fixed for it and acquires some skill in putting it in. I must say that I am no adept at this art, but Mrs Robinson is, and can put in foundation in a whirl. I do not wish the bee-folks to think I am lazy, and that my better half is making the living, when I say that Mrs. R. puts all my foundation into the frames. We use a Van-Deusen wax-tube in the work; so, to redeem myself, I must make known the fact that I bring supers of empty frames, take away the full ones, imbed the wire, keep the wax warmed to the right heat, keep foundation handy, etc. You may think this is an easy job for me to do while Mrs. R. puts in the foundation. It isn't so easy when she puts in 120 Hoffman frames per hour, or two per minute She can do this all day long, and put in some 1200 sheets of full-size brood foundation. To make the matter of more importance, she much enjoys the work.

The man who has a hundred or so of colonies of bees can at the present day get his foundation reasonably cheap if he will send his wax to a foundation-manufacturer and have it made into foundation. The beauty of having good nice straight combs to manipulate, and a scarcity of drone combs, is an item of the gravest importance to me. T. P. ROBINSON.

Bartlett, Texas, Oct. 28.

The above is quite a good record for a woman. Instead of the wax-tube we use a spoon which has had its sides pressed together to form a deep narrow bowl with a long-pointed lip from which to let the wax flow into the frames. Faster work can be done with it, and there is no trouble about the wax hardening in it and clogging of tubes.

For holding the frames a wide board three feet long is set slanting upright against some object. On this board are cleats slanting across it upon which the frames are set. There are three such about an inch further apart than the depth of the frame used. Just above each cleat is nailed a wide board just the size of the inside of the frame and half the thickness of the top-bar. This is a gauge to guide the foundation to the middle of the top-bar.

There being three sets of cleats one frame is set on to the upper one, a sheet of foundation laid against the gauge, and slipped down on

to the top-bar. A spoonful of wax poured along the slanting trough thus formed will fasten it. This frame is now left to cool while the other two frames are filled in the same manner. Then the first is removed, another filled in its place, and so on with the next ones. In this way no time is lost waiting for the wax to cool, which it does slowly in hot weather.

AWARDS AT SAN ANTONIO INTERNATIONAL FAIR.

This year's display has attracted great attention from nearly every visitor to the fair. The observatory hives have been a source of constant interest, not only to the experienced bee-keepers, but also to the curious uninitiated.

W. H. Laws and D. C. Milam were the judges who passed upon the merits of the exhibits in the bee and honey department. The number of exhibitors and exhibits this year is the largest and most varied since the fair was instituted, and as a result the judges had hard work in making their awards.

The following awards were made:

Golden Italian bees and queen in single-comb observatory hives; first, John W. Pharr, Berclair; second, Grant Anderson, Sabinal.

Three-banded Italian bees and queen in single-comb observatory hive; first, W. O. Victor, Hondo; second, Udo and Max Toepperwein, San Antonio.

Carniolan bees and queen in single-comb observatory hives; first, Grant Anderson; second, Udo and Max Toepperwein.

Caucasian bees and queens in single-comb observatory hives; first, Southwestern Bee Company, San Antonio; second Udo and Max Toepperwein.

Cyprian bees and queens in single-comb observatory hives; first, Udo and Max Toepperwein.

Holy Land bees and queens in single-comb observatory hives; first, Udo and Max Toepperwein; second, Southwestern Bee Company.

Banat bees and queen in single-comb observatory hives; first, Grant Anderson; second, Udo and Max Toepperwein.

Black queen and bees in single-comb observatory hives; first, Southwestern Bee Company.

Best display of bumble-bees; first, F. L. Aten, Round Rock.

Best and largest display of bees of various races in observatory hives; first Southwestern Bee Company; second, Udo and Max Toepperwein.

Best and largest display of queens of various races in mailing-cages; first, Southwestern Bee Company; second, John W. Pharr.

Best case of white section comb honey, twelve pounds or more; first, W. O. Victor; second, Wald C. Conrads, New Braunfels.

Best case of light-amber section comb honey; first, Southwestern Bee Company; second, W. O. Victor.

Best and largest display of section comb honey; first, W. O. Victor; second Udo and Max Toepperwein.

Best display of special designs of comb honey; first, Udo and Max Toepperwein; second, Frank Kraut, Leon Springs.

Best twelve pounds friction-top pails white bulk comb honey; first, L. H. Scholl, New Braunfels; second, L. Jones, Uvalde.

Best six pounds friction-top pail white bulk comb honey; first, L. H. Scholl; second, L. Jones.

Best three pounds friction-top pail white bulk comb honey; first, J. W. Pharr; second, L. H. Scholl.

Best display of bulk comb honey; first, L. H. Scholl, both prizes.

Best dozen jars white extracted honey; first, Southwestern Bee Co.; second, Udo and Max Toepperwein.

Best dozen jars light-amber extracted honey; first, Otto Sueltenfuss; second, Southwestern Bee Co.

Best display extracted honey, granulated form; first, W. O. Victor; second, L. H. Scholl.

Best sample cake of bright yellow beeswax, not less than two pounds; first, A. Fourmer; second, L. C. Rosseau, Waxahachee.

Best and largest display of beeswax; first, L. H. Scholl; second, Udo and Max Toepperwein.

Best display in special designs in beeswax; first, Southwestern Bee Company; second, L. H. Scholl.

Best display of fruit preserved in honey; first, Southwestern Bee Company, both prizes.

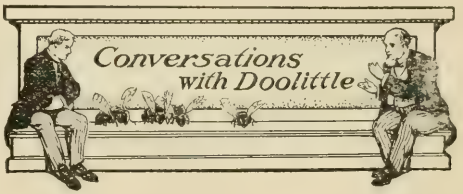
Best honey vinegar; first, Moritz Rompel, Bulverde; second, Southwestern Bee Company.

Best instructive display in apiarian products and of the various uses made of honey and beeswax; first, Louis H. Scholl; second, Southwestern Bee Company.

Best and largest display of bee-keepers' supplies; first diploma to Southwestern Bee Company.

Best collection of Texas honey-yielding plants, pressed and mounted; first, L. H. Scholl; second, Miss Meta Hilje, Alvin, Texas.

It is already planned to have a still larger show of bee-keepers' products at this fair as well as at the State Fair at Dallas next year, and we hope that our bee-keepers will keep this in mind and save every thing worthy for these exhibits. Such exhibits are advertising our industry.



BEE-KEEPING AS AN AVOCATION.

"Say, Doolittle, I want a little talk with you about turning my whole attention to apiculture. In other words, I want to make bee-keeping an avocation."

"But you have got several colonies of bees at the present time, have you not?"

"Yes, I worked 31 colonies last summer, but I wish to get enough so as to let all other things go—enough to make a business of bee-keeping—in other words, an avocation."

"But you have got the wrong word in *avocation*, have you not?"

"No. Avocation means that which you make a business of, does it not?"

"Well, that is not my understanding of the matter; but perhaps I may be wrong."

"I think you are. Have you a dictionary?"

"Yes. Here is the Student's Standard."

"Avocation. '1. An irregular occupation; side interests; diversion.' That looks as if I had made a mistake But, hold on; here is under 2. 'One's business or vocation.' There, what do you say now?"

"I say, read the rest of the sentence."

"'A common but improper usage.' I give it up."

"Now, turn to *vocation* and see what you find there."

"'Vocation. Any occupation for which one qualifies himself, or to which one devotes his time; a calling; a business.'"

"Then the word you wish to use is *vocation*."

"Yes, it would seem so. What do you think of my making a business of bee-keeping? is what I want to ask you. I wish to drop the chicken business, my team work,

and the like, and turn my whole attention to bee-keeping. Do you think one could make a success in that way?"

"Have you a thorough knowledge of your location?"

"Fairly so. But what has that to do with my success?"

"Quite a little, I should judge. What would you expect if a man told you he was going to spend his whole time catching fish for market, and then settled down by Donnavan's pond to carry out his chosen vocation where there are only minnows from one to four inches long? or if he should take up the growing of corn on Ripley Hill, where it is so cold that only flax can thrive? Such would only parallel your success in bee-keeping in a location where little or no honey is to be had. Of course, you *must have* a location that is fairly well adapted to your business if you are to make the production of honey your vocation."

"I guess you are right there. Perhaps I have not given this part of the matter the attention I should. However, I think my location will warrant the keeping of 300 to 400 colonies."

"Well, if it will you have a good one. But even with a good location you might not succeed in producing honey from your 400 colonies so as to make the business a success any more than the man down at Donavan's pond could make a success at the vocation of producing fish for market if that pond were full of trout or bass."

"What are you aiming at now? Couldn't the man catch the trout or black bass?"

"Not unless he knew how to catch trout or bass. He might catch bullheads or minnows by sitting on the bank right in plain sight, and throwing in his hook baited with worms; but if that were all he knew of the business of fishing, his chosen vocation would never give him success in a market which called for only trout and bass. So you might secure some honey from your 31 colonies of bees, and think you were having success when you added what came from the bees with that from your chickens, teaming, etc.; but unless you understand the bee business sufficiently to be a success with 400 colonies, my advice would be to hold on to the others for a year or two till your knowledge of your location and the working of the bees would enable you to become a success at bee-keeping as a vocation. It is no uncommon thing to find men who fail in all callings in life, because they enter into these callings before they are skilled in the little kinks and minutiæ which enter into the great whole which is needed to make a success; and I want to impress on your mind that, to make a full *success* at bee-keeping as a vocation, it requires fully as much skill and general knowledge of the pursuit as do any of the other callings of life."

"Well, I am glad of this talk, for I had not thought as deeply on the subject before; and I guess it will be better for me to go a little slower than I had thought to do, holding on to my other issues till the bees gain in numbers, and my knowledge accordingly. But you would advise me to increase the bees year by year till I reach the 400 or 600 I had intended to start with next spring, would you not?"

"Yes, if you think the bee business is to be the vocation for you as soon as you can master it. But there is another thought I wish you to carry away with you when you go."

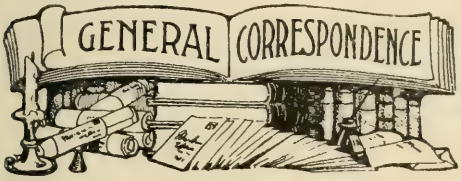
"What is that?"

"Can you hold out under discouraging circumstances? I do not wish you to answer this question right here and now, but I do want you to consider this part of the matter before you fully enter into your project. The farmer, the poultry-keeper, or the merchant, has his poor years when it almost seems that one can not live at his business, or when, to put it in the homely phrase we often hear, they all almost or quite fail to make both ends meet, and the same is true with bee-keeping. If such a turn of affairs would discourage you, after you have your 400 or 600 colonies, and two or three poor years cause you to give up the whole thing in disgust, my advice would be for you to keep on as you are, for it rarely occurs that a person keeping a few bees, a small poultry-yard, a small dairy, does some team work, and catches a few fish for market, will meet with the same extremes as will the man who has his eggs all in one basket."

"Ah! there is a thought there, surely."

"Yes. But persistency generally wins; and if you will stick to any vocation in life, any thing which is a pleasure to work at, rather than a drudgery, or something you work at, not for the dollars and cents there are in it, but for the *love* you have for the vocation, success is almost sure to crown your efforts. The one who sees nothing but the money a thing will bring, or the one who is easily discouraged, seldom accomplishes much. When you look at any business from the point of the *love* you have for it, and take a broad and wide view of the matter, you will see that *any* business is profitable. Look at those barren hills over yonder! You and I see nothing to love in them. The miner comes along and turns those hills, through his love for such things, into a very paradise, not only to himself, but gives something to brighten and cheer the world, for he brings out of those hills something the world can love and appreciate. Just so with the bee-keeper who loves the bees, and through such a love brings out honey from them to sweeten and enrich the lives of others who appreciate that best of all sweets, *honey*. I know it is true that somes lines of business pay better than others; but all are profitable to the one who loves them and persists till profit comes from them. The thought I wish you to take with you especially is this: It is the *man* behind the business who makes the business profitable; and it is the *love for the business* which is behind the man that enables him to endure reverses and hold out until success is attained. Now, if you can put on this coat, start out for your 400 to 600 colonies and

bee-keeping as your *vocation;* but if you can not put on the coat, better stay where you are with your 31 to 50 colonies as a side issue, together with your chickens and teaming, or use bee-keeping as an avocation."



CONSUMPTION OF WINTER STORES.

A Study of the Conditions Governing the Amounts of Honey Used by Various Colonies During the Winter; Some Outdoor Colonies that Consumed but a Small Amount of Stores.

BY ALLEN LATHAM.

How many bee-keepers know by actual trial how much their colonies consume of winter stores in the four months of inactivity? For one I had allowed the matter to rest upon guesswork till I had kept bees over twenty years. But during the fall of 1905 I determined to find out the actual truth, not that one season will tell the story of all seasons, but that I might have at least some data upon which I could rely. So I weighed thirty colonies December 1, 1905, and on April 2, 1906. These four months are the actual months of confinement in this locality, since the bees have frequent flights well up to the close of November, and by April 1st are starting in to breed, again being able to fly every few days.

These data will not, of course, cover the six weeks of consumption of stores immediately subsequent to the last fall gathering, nor do they bring into account the great drain upon the stores by the early brood-rearing previous to the first honey-flows of spring

The table given shows the actual weights of these colonies before and after.

Permit me to call your attention to certain details in this table. It will be noticed at once how frequently the loss in weight approximates 7 pounds, and the actual average is a little under 8 for the 30 colonies. The time being four months, it follows that, under the conditions to which my apiary is subjected, an average colony consumes about 2 pounds of honey per month during the quiescent period.

Numbers 2 and 12 consumed 10 pounds or over, while several consumed 9 pounds. I believe that, in every case of large consumption, it was a strong colony, or else a colony which had started to breed strongly before April 1. No. 12 was an especially strong colony, yet there were instances of strong colonies which came under the average. These were quiet colonies which did not breed till the warmth of April brought new pollen.

Numbers 6 and 17 are noteworthy. Each of these was a weak colony, and had its entrance much diminished. Thus weakness in numbers and smallness of entrance economize on stores—on *stores*, I say, not on the balance-sheet.

No. 20 offers a most abnormal loss—one pound only. This colony took upon itself the robbing-out of a nucleus during the last week in March, and so actually came out in April with as much honey as it had in the fall; for at the time of the weighing it was strong in brood and young bees.

Lest some may be puzzled at the large weight of my hives right through, I will state that these colonies were all in my air-spaced double-walled hives with paroid covering.

The chief motive that prompted me to go to the trouble of weighing my hives thus was the frequent statements in our bee-papers to the effect that out-of-door wintering and large entrances were very costly in stores. I was wondering how much I lost by wintering my bees as I do I have even seen it stated that colonies consumed 17 pounds of stores outside against 8 inside.

Number of Colony.	Weight in Fall.	Weight in Spring.	Loss of Weight.
1	69.5	64	5.5
2	81 5	71.5	10
3	79	72	7
4	84	76	8
5	82	75.5	6.5
6	82	78	4
7	82	74.5	7.5
8	79.5	70.5	9
9	80	73.5	6.5
10	80	73	7
11	85	77.5	7 5
12	85	74.5	10.5
13	81.5	72	9.5
14	79	69.5	9.5
15	86	77	9
16	84.5	77.5	7
17	77.5	73	4.5
18	81.5	74	7.5
19	86 5	77.5	9
20	78.5	77.5	1
21	86	78	8
22	82	75	7
23	83.5	77.5	6
24	81	74	7
25	77.5	68	9.5
26	88	80.5	7.5
27	80.5	72	8 5
28	84.5	77	7.5
29	86.5	77	9.5
30	94	84.5	9.5

These 30 colonies, with the exception of 6 and 17, were all with full entrances—one inch deep by the width of the hive, 13 inches —entrances offering 13 square inches of open doorway. It will be seen that, in spite of these large entrances, and in spite of the out-of-door wintering, these colonies consumed an average of less than 8 pounds in the four months of December, January, February, and March. It is almost fair to say that out-of-door wintering and cellar-wintering are on a par with the first of December, and after the first of April, at least here. In this locality we put our colonies into the cellar about November 26 and take them out the last week in March, rarely later than April 1.

It is not my purpose in writing this article to persuade others to adopt my methods of wintering, but, rather, to show that out-of-door wintering need not be expensive so far as winter stores are concerned. In my case I can not say that I should save enough and more in stores by cellaring my bees to pay for the labor of setting them in and out of the cellar.

It is obvious to me that I save by leaving the bees out; and I absolutely know that I save in bee-mortality by my method of wintering. My out colonies get through the spring with less dwindling than do the cellar colonies. I am not yet sure that this strength of my bees is due to the plentiful supply of air or to some other cause. I use large entrances more to save moldiness and dampness in the hive, thus ensuring rapid building-up in spring, than I do for the health of the bees. Still I have a strong impression that bees wintered with a plentiful supply of fresh air (not exposed to drafts) are more vigorous than are those wintered in the damp close atmosphere of a hive with a small entrance. The small entrance with ample space under the frames, thus ensuring a free circulation, goes far to produce the same effect as a large entrance. It is the small entrance combined with frames coming down close to the bottom-board which causes winter losses.

Another lesson the experiment taught was this: Quiet colonies consume less stores in winter (and, we might add as a corollary, that they do the same all the time) than do restless colonies. It pays, therefore, to keep quiet bees—bees which store honey all right, but which do not waste it in riotous living. No. 2 in the list above was a restless colony right through the winter, and owed its large consumption of stores to this fact rather than to early breeding. Numbers 12, 29, and 30 were especially good early breeders, filling the hives with brood before the close of April. No. 12 filled about 130 sections that season. If No. 2 did good work in the sections it has wholly escaped my memory.

Norwich, Conn., Nov. 5.

[By consulting the map we find that Norwich is only some twelve or fifteen miles from Long Island Sound. Long Island and this region generally has the reputation of being comparatively mild. Besides, it necessarily has a humid atmosphere with more or less fog, and this might make it necessary to use a wide deep entrance.

Speaking about the size of entrances, we have tried time and again *in our locality* an entrance one inch deep by the width of the hive, and the loss in bees and stores is almost invariably excessive. We were forced to reduce the entrance to ⅝×8 inches maximum; then the mortality was noticeably decreased. In the average locality where bees are wintered outdoors we believe it would be a serious mistake to have an entrance one inch deep by the width of the hive; and we are of the opinion that our correspondent even in his locality could make a better showing if he would try half of his colonies next winter with an entrance ⅝×8, and the other half full size. But it should be remembered that whenever an entrance is reduced it must be kept clear of dead bees.

The data furnished by our correspondent are very interesting and valuable, and we should be glad to hear from others who have any thing to offer on this subject.—ED.]

COLOR OF HEARTSEASE HONEY.

A Report to Show that it is Always Amber.

BY G. T. WILLIS.

On page 1428, Dr. C. C. Miller says, "But this year a large part of the my surplus was other than white clover, sweet clover, or cucumber. It was whiter than either. I *think* it was from heartsease." In your footnote you ask, "Is there anybody else among our subscribers who is able to report beyond doubt that heartsease honey may be light-colored? We are of the opinion that there have been reports to that effect."

Now, let me say that, if any one has ever made any such report, he is surely mistaken unless it can be shown that heartsease will yield some years white honey. And I can positively assert that, in this locality at least, heartsease honey is always of an amber or golden color. About 25 years ago white clover bloomed very abundantly here; but on account of excessive rains while it was in bloom I got no surplus; but in August and September following, the heartsease came on in abundance all over the cornfields and uncultivated places, and yielded the largest surplus I ever obtained from any source. That year, from 7 colonies, spring count, I increased to 21, and from heartsease I extracted between 1200 and 1500 pounds of amber honey. I am certain of this, because there was no other source from which the bees could gather honey. This season I got very little from white clover; a better yield from sweet clover; and later, when the sweet clover was comb honey, and after the sweet clover ceased to yield, the heartsease came on in abundance, and from this source I received about as large a yield as I did from the sweet clover of an amber or light golden color, and of a good flavor, and it sells readily in this market.

Hoopeston, Ill.

HEARTSEASE HONEY WHITE.

You can tell Dr. Miller that he is right about heartsease or smartweed honey being white with a slightly pinkish tinge. Spanish needle generally grows where heartsease abounds, and it comes into bloom just before heartsease begins to fail, and it is what gives heartsease honey the amber color that makes most persons think heartsease honey is amber in color, as it generally is on account of the mixture. You can depend on this, for I have extracted tons of both kinds in the past. E. T. FLANAGAN.

Belleville, Ill., Nov. 29.

BEE-KEEPING IN CALIFORNIA.

M. H. Mendleson and his Apiaries; Power-driven Extractors; Melting up the Cappings as Fast as they are Shaved off the Combs.

BY E. R. ROOT.

During the last few months I have adopted in these columns the plural pronoun *we*, for the very reason that often, after talking with my associates, I give a composite view of our whole staff; but for the purpose of this article I propose to go back to the singular pronoun *I*.

It was in 1901, along about the middle of June, that I bunked with Mr. M. H. Mendleson in his ranch house in Rattlesnake Canyon, located some twenty odd miles from Los Angeles, in one of the most picturesque spots in all California. I regret that no photo, nor painting either, for that matter, can give a correct idea of the various tints of the mountains towering up to great heights from all sides. But I took one picture (see Fig. 1) and the same has appeared in several editions of the A B C of Bee Culture, and as here reproduced it gives one a faint idea of the beauties of this mountain scenery.

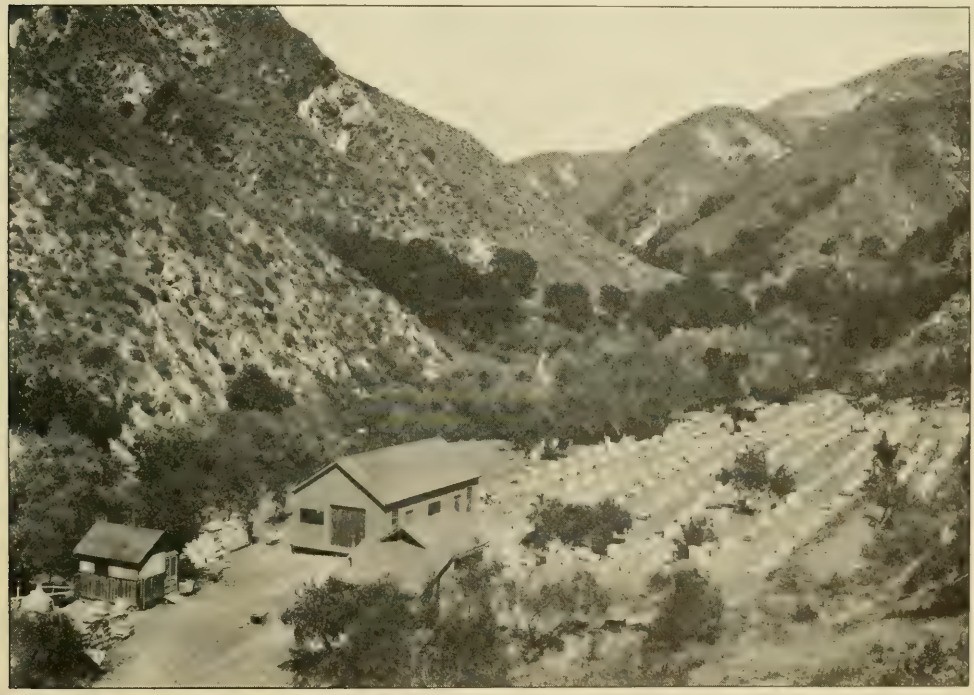


FIG. 1.—APIARY OF M. H. MENDLESON.

When I called on Mr. Mendleson, I said that I desired to spend several days with him, and that, if he were short of help, as, fortunately, he was, I should like to turn in and get some first-handed California experience in extracting honey in a wholesale way. He was delighted with the proposition, because, he explained with a twinkle, there were some things he wished to impress on a certain editor in Ohio which he could not very well do on the written page. Yes, he would put me at turning the crank of a Root Company's six-frame extractor; that would be nice *easy* work. "Oh, yes!" I said, "I shall be very glad to do that. A little exercise will do me good." But I little realized then that there was "method in his madness." My hands were tender; and if ever in my life I was impressed with the fact that I *was* a "tenderfoot" I knew it then. I turned the crank while the sweat poured off my brow. The boys also appeared to be in league with the boss, for they piled the combs on to me at a hot pace. I had agreed that, with an extractor of our own make, I could extract the combs as fast as they could be uncapped. But how bitterly did I repent of my bargain! But I would not give up, and at the end of half a day I was ready to sit down to a dinner of bacon, eggs, and fried potato that Mr. Mendleson served up for us. Say—did any thing else ever taste half so good? That mountain air, the exercise, were a wonderful bracer.

I saw the game on the part of Mr. Mendleson and his boys was to impress on me the fact that a six-frame extractor was too large for man power, and that we ought to get up

something that would have to be driven by steam. Well, after I had been put through the "mill" for another hour or two I promised to develop the idea when I arrived home.

Some days later I called on Mr. J. F. McIntyre and saw how easily he propelled his extractor with a little water-motor, and this made me the more anxious to develop the idea. But it took longer than I supposed; and Mr. Mendleson, becoming impatient at the delay, finally worked out a scheme of his own, using a gasoline-engine with an overhead countershaft, etc.

His arrangement will be seen in the large engraving (Fig. 3) showing the interior of the extracting-house. I judge from what I can see that he uses a water-cooled gasoline-engine to drive an eight-frame extractor. With this outfit he is able, doubtless, to dispense with the services of one man, and I am impossible to do the work of uncapping when I was there had it not been for heating the knives in hot water; for the sage honey which he was then extracting was very thick.

Just back of the knife-heater, to the right of the extractor (Fig. 3), is a large galvanized uncapping-box. Without going into details I may state that this outfit not only receives the cappings but melts them up as fast as they drop down, the wax and honey running out together. At the end of a day's extracting, there will be no accumulation of cappings, but a layer of wax and a layer of honey. Just how Mr. Mendleson melts these cappings I am not at liberty to divulge just now; but I may state in this connection that two or three California bee-keepers have been working on a similar plan. One or two have applied for patents. Just who will secure Uncle Sam's protection it is hard just now

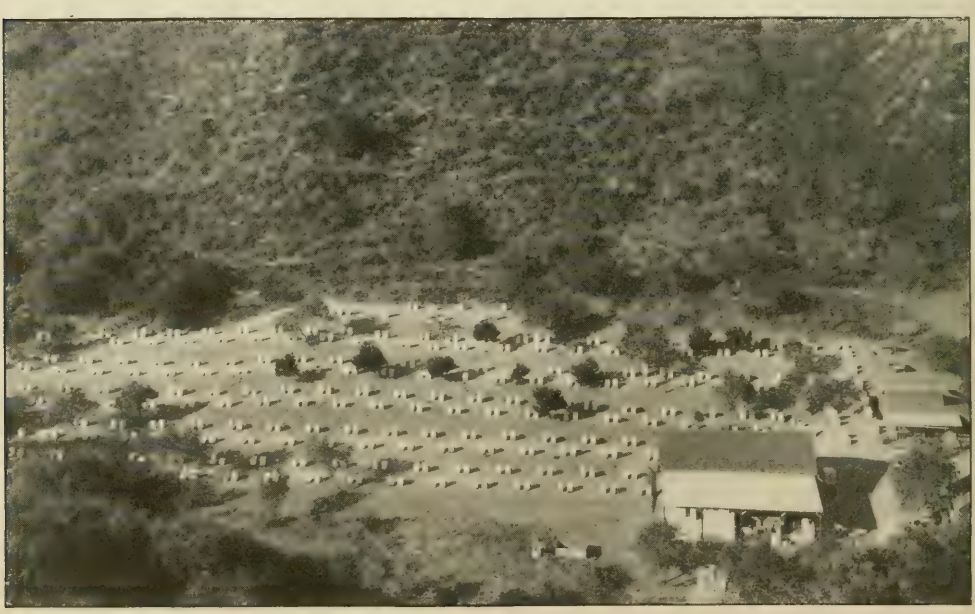


FIG. 2.—MENDLESON'S RATTLESNAKE APIARY.

of the opinion it has already paid for itself, and that he now has a power outfit good for ten or perhaps twenty years, ready to work for nothing and board itself except for a few quarts of gasoline and a little lubricating oil.

But the picture shows something else. In the foreground between the engine and extractor appear to be some metal comb-cases (with tight-closing lids to keep out robbers) in which combs are gathered and brought into the extracting-house.

A little to the right, again, will be seen the uncapping-knife heater, the same being kept warm by means of a gasoline-burner

When I visited Mr. Mendleson he had the same arrangement except that the pan was not covered; but, instead of a gasoline-burner he used a small kerosene-stove if I remember rightly. It would have been practically to say; but I am convinced that the plan of melting cappings as fast as they fall from the knife is perfectly feasible; and it is probable that in California, at least, the general principle will become universal in all up-to-date extracting-houses.

Referring again to the power-driven extractor, I may say that the Root Company's development of this principle was due to the suggestions received from Mr. Mendleson and Mr. McIntyre; and now the power-driven idea is getting to be quite general with large extracted-honey producers. In every case but one, so far as I know, a small gasoline-engine is used to furnish the power. Mr. McIntyre uses a water-motor; and when water under pressure is available it is probably the nicest and cheapest power. An electric motor would, of course, be excellent; but it

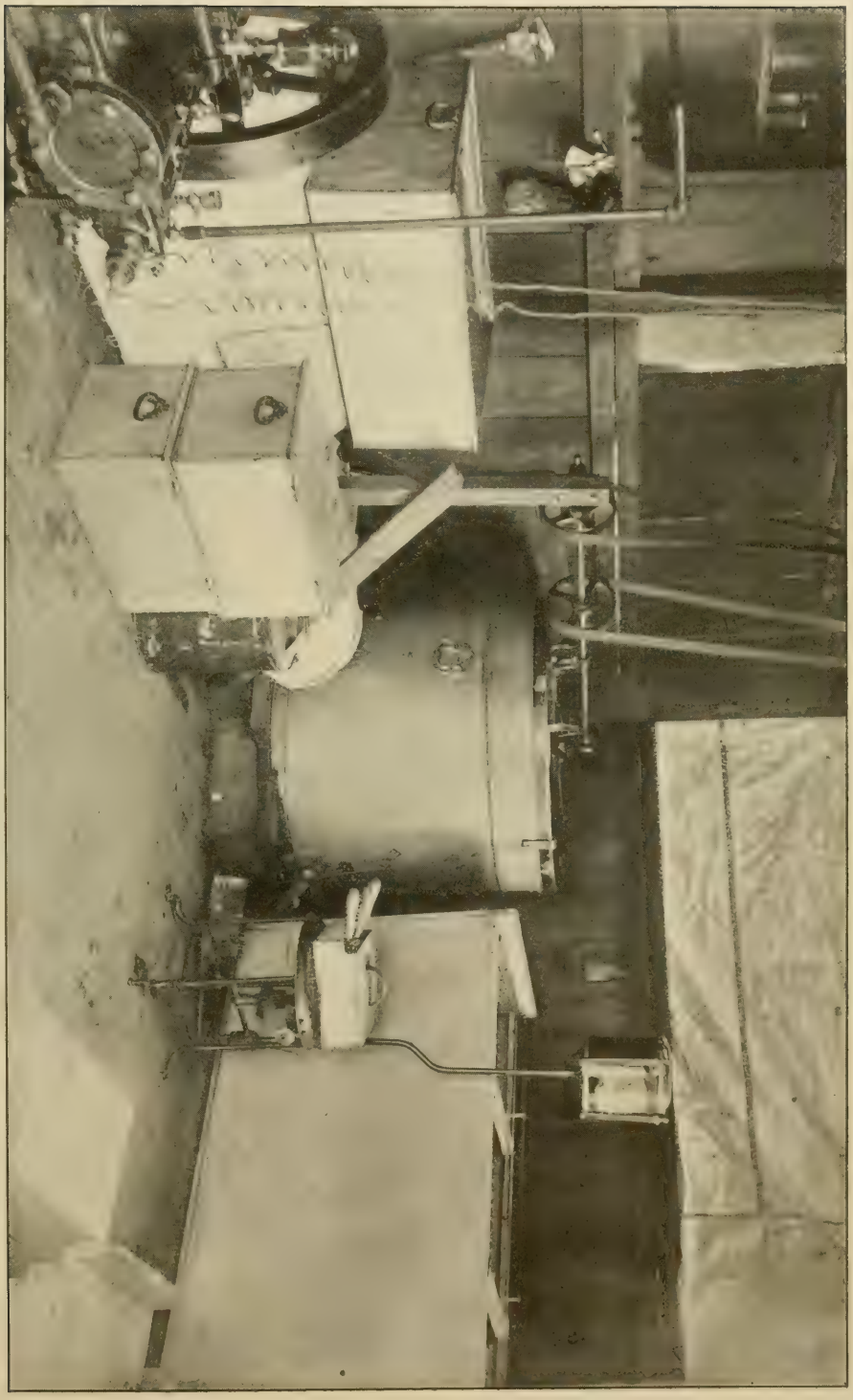


FIG. 3.—INTERIOR OF MENDLESON'S EXTRACTING-ROOM, SHOWING POWER-DRIVEN EXTRACTOR, ETC.

is seldom that either electricity or water under pressure is obtainable in a bee-yard, and hence a gasoline-engine is the cheapest and only available power.

Fig. 2 shows another view of the apiary in Rattlesnake Canyon. Evidently the camera stood on the opposite side of the canyon to where I stood when my view was taken as seen in Fig. 1.

The question may be asked, "Why called Rattlesnake Canyon?" I will explain: I was strictly cautioned, while posing my camera on the mountain-sides, to beware of rattlesnakes, and you may be sure that I did, for several rattlers had been killed in that vicinity just prior to my visit.

This apiary, as will be noted, has all the hives arranged on terraces, for the yard had to be on a sort of side hill. Without these terraces it would be difficult to run a hive-cart to and from the extracting-house or to level up the hives. At the time of my visit the ground was nicely leveled off in steps, and the effect was very pretty.

It will be noticed that Mr. Mendleson works his hives in pairs or groups. The same general principle applies at the other yard here shown (Fig. 4) — namely, the Canulos apiary, located near the scenes of Ramona, of literary fame. In speaking of this yard Mr Mendleson says the hives are placed two or three in a group, facing diagonally down hill so as to keep the rains from running in at the entrance, for the end of the apiary toward the observer is on very much higher ground, although it would hardly be noticed from the photo.

In the very front foreground one sees the blossoms of what I take to be the button or black sage, from which most of the so-called black-sage honey is obtained. While there is a plant known as white sage, it furnishes comparatively little of the honey bearing that name. This Canulos or Ramona yard is likewise terraced; but it does not show up quite so clearly as in the other apiary.

It will be noted, also, that this yard is located at the junction of a couple of mountains so that the honey can be hauled through the canyon down into the valley below, without climbing the mountain sides. By looking over the mountains one will see what I take to be black and button sage bushes. These are little clumps that dot the sides of the mountains.

PARALYSIS OR DYSENTERY?

An Interesting Case.

BY A. L. YOUNGMAN.

I have been in the bee business for over 40 years. Until recently I thought I knew something about bees, etc. Since last June I have had experience that has taken the conceit all out of me. About June first I had over 250 colonies, in as good condition as bees ever get — hives full, many colonies working in boxes, some having filled full sets of 2-lb. sections. About this time we had about two weeks of cold bad weather which kept the bees confined much of the time. When good weather came around, the bees (every hive more or less affected), were diseased with something like a chronic diarrhea. They were swollen, and looked as if they were gorged with honey. They congregated in large numbers about the entrances of hives, and had a peculiar quivering of their wings. Stir them up and but few if any would fly. Every now and then one or more would rush out (they could not fly), bent on seeing how far they could get before dying. In three weeks fully a half of the working force of nearly every colony lay dead in and about the hives. On opening a hive, dead and dying bees were found wedged into every crevice and corner, around the ends of frames and between frames and cover. The brood was more or less affected also, some of the larvæ being dead and of a dark or nearly black color. In but few instances could I find any thing like a ropy nature about the dead larvæ. One of my neighbors, interested somewhat in bees, brought over several old copies of the *American Bee Journal*. I saw by the reports of many bee-keepers to that journal that this disease is not a new thing; in fact, I myself have had it in a mild form several times before, always near the last of June or first of July. I do not remember having lost any colonies outright before.

Out of over 250 colonies I now have nearly 100 left. Some of these are only three-frame nuclei. Barring the limited number of bees now present, I doubt if an expert could detect any signs of the trouble that the bees have passed through. Apparently the bees that are left are now all right. The question is, will the trouble return?

Glen Ellen, Cal.

[The case described here is a very interesting one, and we have to confess that we are not able to diagnose it accurately. From the description given, one would infer that it might be bee-paralysis, for bees affected with that disease will behave very much as here described; but the fact that the malady disappeared on the return of warm weather would seem to lend color to the theory that the trouble, whatever it was, was in the nature of dysentery. We know this: In the height of the honey-flow if a colony be confined for a couple of weeks the bees will be affected with dysentery. In the case that you cite, the bees were gathering stores very rapidly, and consuming them, as they would not do while confined in winter quarters in our Northern States. The effect of such a large consumption of stores, especially of fresh stores not ripened, would seem to indicate that the bees were suffering from a severe case of dysentery, and that, as soon as good weather came on, they recovered just as they would ordinarily do when suffering from this malady in the spring on the return of good weather.

We shall be glad to hear from many of our subscribers who have noticed the same thing; for among our nearly 35,000 patrons there

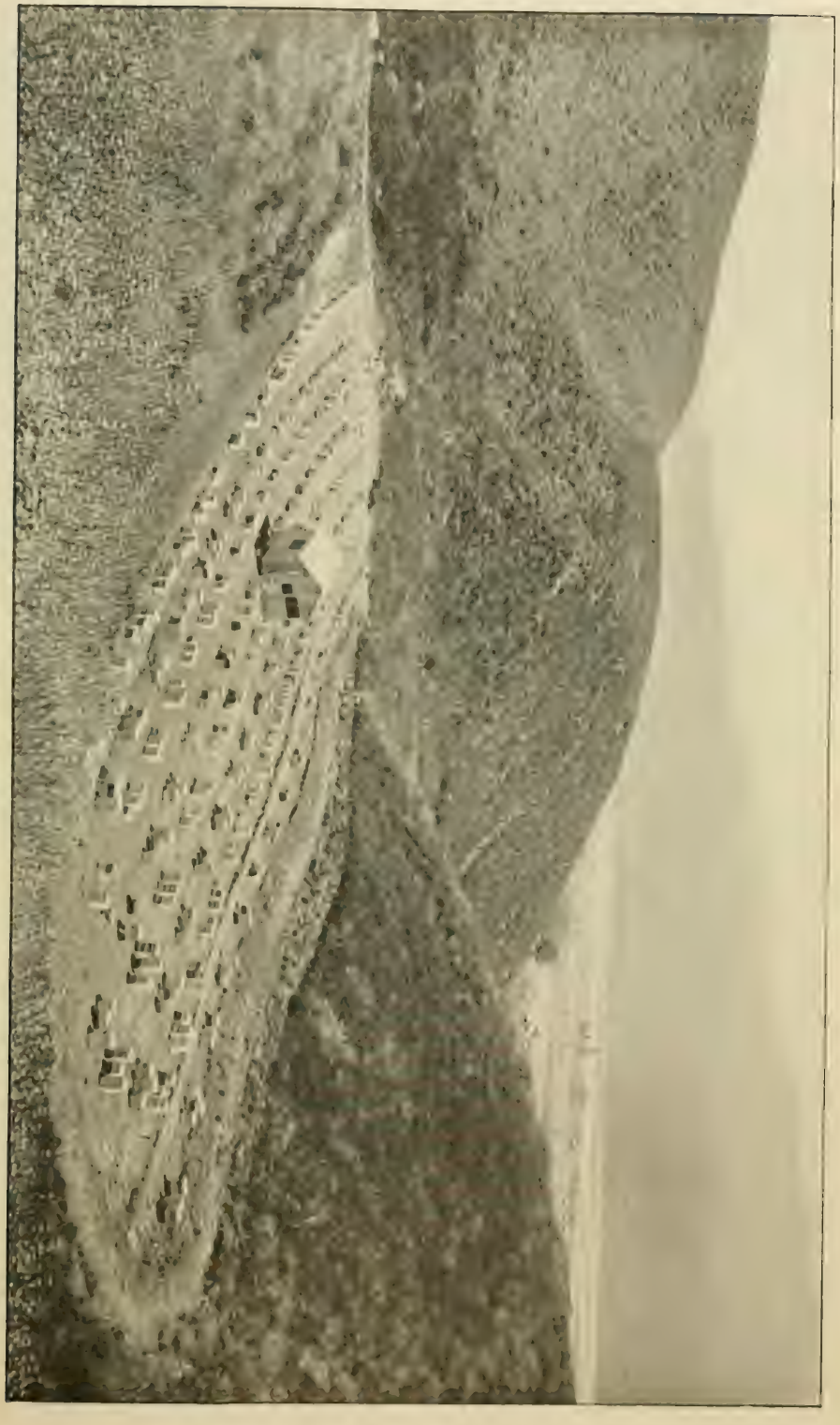


FIG. 1.—MENDLESON'S RAMONA APIARY.

must have been some one among the number who has observed something similar and who will be able to give an accurate diagnosis of the trouble.—Ed.]

BOTTLING HONEY.

How an Enterprising Young Bee-keeper in Michigan Cuts down Time and Expense by Using Machinery in Place of Hand Work; Labeling Glasses without Handling the Labels.

BY E. D. TOWNSEND.

We all like success, like to talk success, and talk of successful people; and the successful person in the bee-keeping line I wish to talk about is none other than Mr. E. E. Coveyou, of Petoskey, Mich., whom I visited on the 15th of last August. Mr. Coveyou is less than 30 years old, and is the owner of four bee-yards, a fine residence, and a bee-hive and honey-bottling factory; and if it were not for the fact that the bees paid for it all in these few years I would not be writing this letter.

E. E. COVEYOU, PETOSKEY, MICH.

Bee-keeperlike I was soon looking over the Coveyou bee-hive factory and honey-bottling works. He makes every thing needed in the bee-keeping line except sections and foundation, thinking it cheaper to buy these two articles than to make them. But what I was the most interested in was his bottling methods, which are the best, in my judgment, to which I have had my attention called. Here it is that 100 barrels of glass packages are used every year for putting up his own and his neighbors' honey for the retail trade.

I have asked Mr Coveyou to describe his method of putting up honey for the retail trade, and he has consented; and, with the assistance of some half-tone cuts, he explains as follows:

"Fig. 1 shows at the right the boiler and pipe leading to the different tanks. Next is the filling-tank in front of which are the glasses ready to be filled with the hose hanging at the bottom of the tank. At the left the glasses are piled up with galvanized wire screen between each tier. This makes a very good way to dry.

"Fig 2 shows our liquefying-tank partly filled with 60-lb. cans of honey. There is a partition through the center, so that 1000 lbs. of honey can be heated in each side. A lower temperature can be maintained in one side than the other, should it be thought advantageous to heat the honey slowly for the first twelve hours.

"The steam-pipe in the middle is divided with valves close to the partition, so that the steam can be turned on or off to keep the temperature uniform. I am standing with a thermometer in my hand, noting the temperature. This should be done quite frequently until the right degree of heat is reached, when the valve practically does the work.

"In Fig. 3 the lady at the right is my sister, Mary Coveyou, filling glasses with what Mr. Townsend has named our "wild-goose bill." This is attached to a hose, and fills the glasses right in the cases, which saves handling. We find this is one of the very best methods we have ever tried. One person can fill 4000 half-pound glasses with honey in less than a day's time, in this way.

"The lady in the center is my wife, showing our new way of labeling glasses. In the first place the labels are not gummed. We take one end of the package of labels and paste it, which keeps the pile together. Then the bunch of labels is also pasted upon the table, face down, which holds them securely in place. The young lady to the left does the pasting. As soon as the top label is pasted, the glass is simply rolled over it, which picks it up and at the same time presses it firmly in place. Thus the work is done without any handling of sticky labels. By this method we can label with the ungummed papers just as fast as we could with the gummed.

"Fig. 4 shows our plan of rendering wax. The tank at the left is a large galvanized arrangement that we use for taking the honey from the uncappings. It is fitted with steam-pipes, and live steam is run through it until the proper temperature is reached to remove the honey without injuring the flavor or color. The cappings are placed in large shallow trays, and the honey and wax run out when sufficiently hot. The apparatus on the stove with the cover slightly lifted is for heating wax. The machine in front of the stove is our make of a wax-press. The 4×4 upright pieces of the frame we find to be

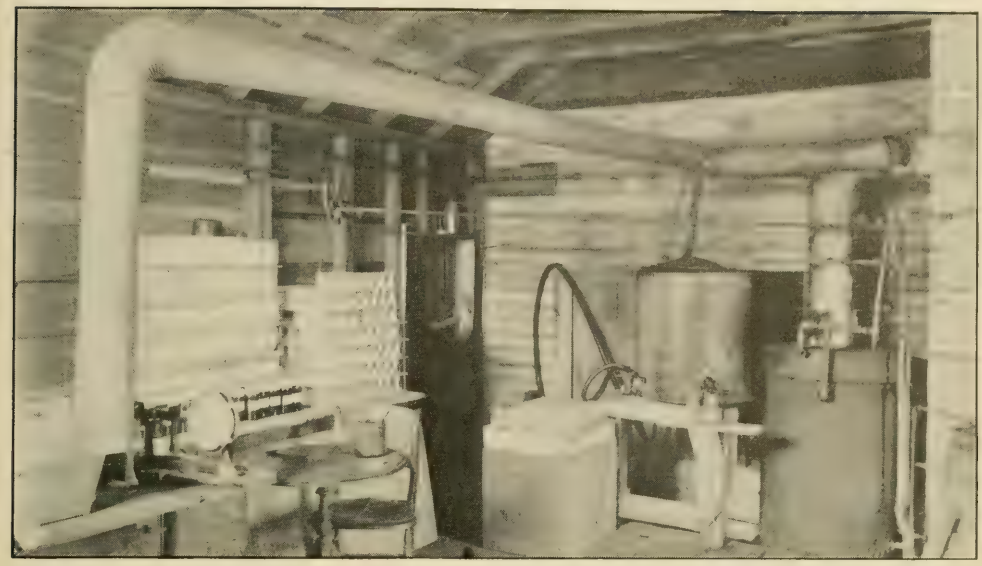


FIG. 1.—E. E. COVEYOU'S HONEY-BOTTLING ROOM.

The bottles are filled by means of a short piece of hose connected to the honey-tank. A quick-working stop at the end controls the flow of honey into the bottles.

much stronger and more practical than braces.

"The tub in front is a common lard-firkin. We find that wood is the best thing to run wax into, as it can be kept warm; and, when the wax is cool, it lifts out perfectly free from cracks. We have a hole in the bottom of each tub where we can draw off any water that might be there before emptying the wax out, doing away with the muss which would

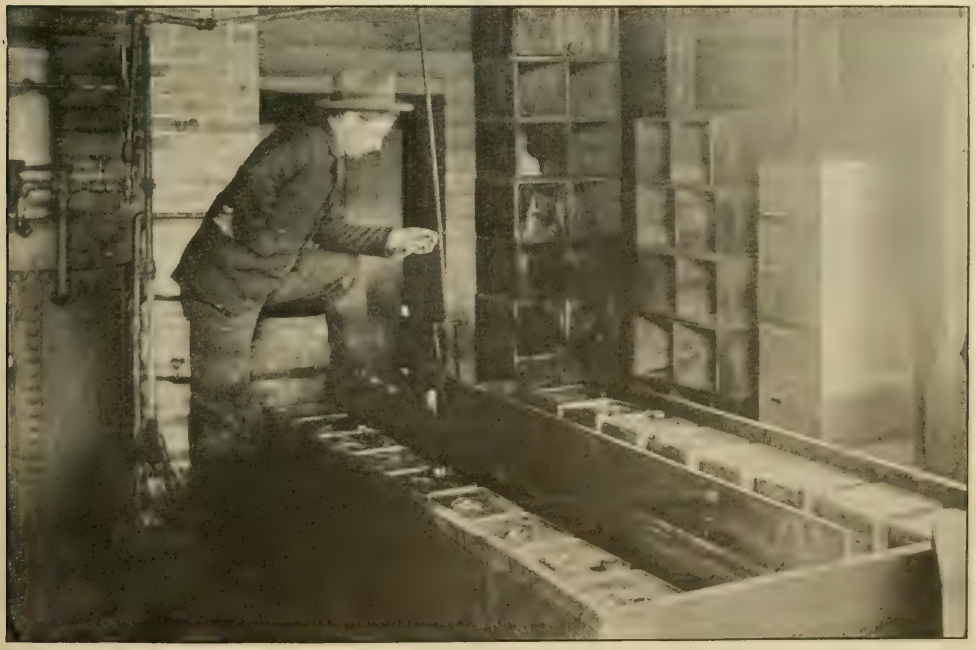


FIG. 2.—COVEYOU'S LIQUEFYING-TANK.

This is divided into two parts, each of which will hold a thousand pounds of honey. The temperature of the water in each part is controlled by a separate steam-pipe.

naturally be made should water not be drawn off.

"An automatic eight-frame honey-extractor and gasoline-engine, ready to run, are shown in Fig. 5. The belt-shifter is shown bolted to the base of the honey-extractor. One hand can be placed on this and the other on the automatic reverse, and honey can be reversed in the least possible time. We extracted 3000 lbs. in less than two hours last season. One man tends to the machine, fills cans, and fills and moves the combs from the extractor. The gasoline-engine is manufactured by our local firm here. It is a two-horse-power machine, and does the work well. In former years we had extractors at each apiary; but now we have disposed of all other extractors and bought this machine, and we are more than pleased with the results. Any one, even though he has never ridden a bicycle, can ride this machine safely, with a little care at the start, as this railroad attachment holds the whole rigidly in place. All the operator has to do is to propel it. I have used this machine for six years, and find it better than a horse or an automobile; in fact, were it not for this I would have to take a tie ticket to go to my apiaries.

"The out-apiaries are located higher than Boyne Falls, which is about 16 miles from Petoskey. I am able to coast nearly half this distance. All I have to do is to put my foot on the coaster brake occasionally to avoid going too fast. I have two of these machines at the present time.

"Fig. 6 shows our home. My oldest boy, Johnny, and I are ready to start with the wheel and railroad attachment for the out-

FIG. 3.—FILLING AND LABELING BOTTLES.

The method of filling the bottles is here shown. The top label in the bunch is pasted, and the bottle rolled over it. Thus the labels are put on without being handled at all.

We never could think of going back to the hand machines now, any more than farmers would think of going back to the flail for thrashing their grain.

"We think this method of extracting honey in our apiaries the cheapest and most satisfactory way, as the extracting can be done much better. Practically all of the honey can be removed from the combs; and one thing which we were surprised to learn was that we never broke a comb in doing it.

"My method of going to the out-apiaries which are located along the railroads is shown in Fig. 7. Twelve to sixteen miles per hour can be traveled with perfect ease. apiaries. All of our bees are kept in out-apiaries."

Unlike most arrangements for filling glasses for the retail trade is the device constructed and used by Mr. Coveyou. It is very simple—just a rubber hose about four feet long, with one end fastened at the bottom of his filling-tank, in place of the usual gate. The other end is provided with an arrangement similar to the covers on syrup-pitchers, for cutting off the flow when the desired quantity is turned out, only this arrangement is held so closely together with a spring that it not only cuts off the stream when the tumbler is full, but holds the honey so there is

no drip when moving to the next tumbler. And now I come to the valuable part of my story, viz., that one does not have to move a tumbler at a time (or other receptacle) under the gate, as almost all do. Four dozen or so, as the engraving shows, are placed on a carrying-tray, or, as Mr. Coveyou says, placed directly into the case that they are to be shipped in; then the hose arrangement is moved along down one row of glasses, then the next, and so on until the whole case is full. This is much better and faster than placing one glass at a time under a gate to be filled. To let the honey flow, a lever is pressed, when the spring does the closing.

If one has ever tried to lift a 60-lb. can of hot honey from the melting-tank, to climb up on a scaffold, and empty it into a large tank, to be drawn off into smaller receptacles, he will appreciate what Mr. Coveyou has to say along this line. He writes:

"I have put in a new boiler, a wax-rendering heater, which is described in Fig. 4, and a two-cylinder Westinghouse steam-engine, which is not shown in the picture. It is a two-horse-power size, and I use it for pumping water, washing and brushing glasses, to clean them ready for honey, etc. I have also put in a pump for pumping honey right from the cans in the liquefying-tank to the filling-tank. While this pump is not much larger than a watch, it will pump a 60-lb. can of honey dry in one minute. I have the pump fastened to the liquefying-tank, and I use a rubber hose for a suction pipe. I place this hose into the mouth of the 60-lb. can of melted honey, and pump it into the filling-tank. This has relieved me of one of the most disagreeable operations connected with bottling honey. Just think of the old way of carrying sixty-pound cans of honey to the tank, lifting them up, then holding them until empty! now I can be unscrewing the next can, carrying away the filled cases of glassed honey, or

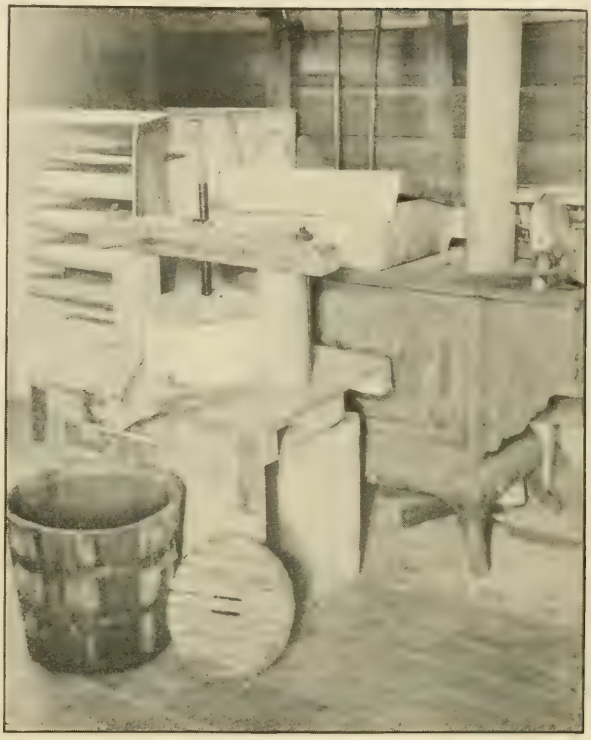


FIG. 4.—MR. COVEYOU'S WAX-RENDERING APPARATUS.

The open form of press is used. The combs are melted in another tank, and then dipped into the press where the wax is forced out.

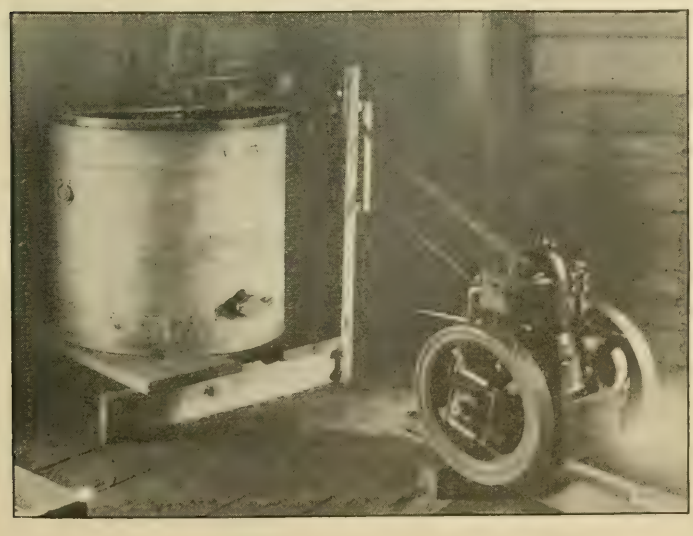


FIG. 5.—A CORNER OF THE EXTRACTING-ROOM.

A gasolene-engine furnishes the power for turning the extractor. The engine is allowed to run all the time, the extractor being stopped and started by shifting the belt on or off a loose pulley.

wheeling the filled cases of honey away on trucks that will carry a thousand pounds at a load, etc."

Remus, Mich.

FIG. 6.—STARTING FOR AN OUT-APIARY.

An ordinary bicycle is used; and when the railroad is reached, a third wheel, which is flanged, is attached.

[We regard this as a contribution of exceptional value, and we hope every one of our readers will take pains to read it carefully, because there are several ideas in it that are not only novel but practical as well. Mr. Coveyou is a comparatively new correspondent for the bee-papers; but apparently he has been quietly jumping ahead of some of us. The illustrations show something of his genius at getting up devices and short cuts.

Very often we run across men of an inventive turn of mind, but who do not seem to be able to turn their inventiveness into dollars and cents. Mr. Coveyou certainly does not belong to this class, for he makes his talent count for something. In the first place, he has worked out a practical and unique system of bottling honey and of rendering wax; and right in this connection his method of melting up old combs is precisely the same as the one we have adopted—melting up the combs in a large hot-water boiler, and dipping the slumgum out in a press and squeezing it. We were surprised that Mr. Townsend as well as Mr. Hatch had each settled upon practically the same method, each without the knowledge of what the other was doing.

Mr. Coveyou's method of filling his bottles by means of a long hose, or, as Mr. Townsend calls it, a "wild-goose bill," is certainly excellent. This latter, as we understand it, is nothing more nor less than the same principle employed in a self-closing molasses-pitcher that chops off all the drip after one is through pouring. The same thing is attached to a hose, and it is perfectly conceivable that one could fill bottles standing in the crates with far greater rapidity and convenience than can be done by the old plan of picking up a bottle, adjusting it exactly in position under the molasses-gate, and then filling, shutting off the honey, and putting the bottle back and picking up another. Why, one with this simple device could easily put the other fellow clear behind in the race.

Whether this idea was original with Mr. Coveyou or not we can not say; if so, we should pronounce it well worthy of a patent; at all events it would seem that the idea is valuable enough to warrant dealers in offering them for sale on the basis of a royalty.

Mr. Coveyou emphasizes another important thing that is possibly too often overlooked; and that is, the convenience and value of a large oblong tank of hot water. Various feed-cookers are on the market, in cost running all the way from $2.00 to $3.00 up to $10.00 or $12.00. In looking over the catalogs of Montgomery Ward & Co., and Sears, Roebuck & Co., we find one that we think just right for the use of the bee-keeper, called the "Farmer's Choice," listed at only $8.95. This is the No. 3 size, having an oblong tank 4 feet long, 24 inches wide, and a foot deep, with a capacity of 60 gallons

FIG. 7.—A QUICK AND EASY METHOD OF GOING TO OUTYARDS LOCATED ALONG A RAILROAD TRACK.

Any one, whether he be able to ride a wheel or not, can easily make 15 miles an hour on this machine.

—just right for eight 60-lb. square cans. There are larger sizes; but this, in our judgment, will be ample for the need of most bee-keepers. In the Sears & Roebuck catalog apparently the same thing is called the "Handy" feed- cooker, and sells for a dollar or more.

The water in a cooker of this sort can be brought to a boil, or heated to any temperature desired, making the fire in the stove to meet required conditions.

There are other feed-cookers that are cheaper, but circular in form; and while these would be all right for rendering up old combs in hot water, their shape is such that they will not take more than one or two square cans of honey at a time, and hence we would not regard them as economical, even if they did cost a less sum of money. The oblong tank feed-cookers first described can be used either for rendering wax and melting up honey, or heating water for any purpose on the farm, and that, of course, includes the general cooking of feed for live stock.

We are not running a free advertisement for the catalog houses, but we are only endeavoring to help out bee-keepers who may wish to carry out some of the practices suggested in this article. But we would say that any bee-keeper who has as many as 300 colonies, especially if he does any bottling of honey, would necessarily have to have one of these cookers. It is a shame to use the good wife's stove, and mess up the whole kitchen; and we desire to suggest to the "man of the house" that he will save money if he does his bottling in a scientific way with the right kind of apparatus and at the same time win the everlasting gratitude of his wife.

But perhaps one may desire to use a small steam-boiler. We have looked through several lists, but do not find any thing cheaper than that offered by Sears, Roebuck & Co., called the "Hercules," listed at $20.85. These are not large enough to run an engine, but would answer for generating steam to use for heating water around a large tank of honey.

In this connection the novice should clearly understand that honey should never be heated except over a body of water, and never hotter than 160 degrees Fahrenheit. Just note that Mr. Coveyou finds it necessary to keep track of this temperature by means of a thermometer; and right here is one of the secrets of his success. Nothing will ruin the bottling business quicker than an overheated honey.

We have before explained that a large power-driven honey-extractor has a great advantage over one driven by hand. The engine is not only cheaper than a man, but it will do quicker and cleaner work. One can not begin to extract combs as clean by hand power as he can with an engine. We find the small gasoline-engines offered to the public quite satisfactory for the purpose. But one should be careful to get a standard make from some standard company. Some of the newer engines, especially of the bicycle type, offered at cut-throat prices, one will do well to avoid. Mr. Coveyou's method of going to his apiaries is certainly unique. Why, it would be just fun to run a bicycle on a steel track. We do not know whether he made the third-wheel attachment or whether he bought the outfit from a bicycle concern; but in either case he shows his up-to-dateness by adopting this rapid means of locomotion to his outyards. The only objection to it is that he can not very well carry any stuff with him. We are, therefore, inclined to believe that, in the near future, we shall see him going to and from the yards with an automobile. We have used the horseless carriage just enough to know it can be relied on, providing one gets hold of a standard reliable make of machine. We would avoid a high-priced outfit, one which is nothing more nor less than a gigantic locomotive. Better get a single-cylinder machine like the Reo, Olds, or Cadillac, any one of which can be bought for between six and seven hundred dollars. Many times a second-hand machine can be obtained for half these figures; but be sure to have a practical automobile man look the machine over to see that it is not a junk-heap.

We note by our advertising columns that Bro. Hutchinson has engaged Mr. Coveyou to write a series of articles, the first one appearing in the November issue of the *Bee-keepers' Review*. We congratulate our contemporary on having secured such a genius. Doubtless many of our readers will be glad to follow up this apicultural star.—ED.]

THE CAUSE OF BEE FEVER.

An Interesting Account of an Amateur's Success.

BY GEORGE HOWARD.

Last April I bought two colonies of bees for $10.00, and brought them home one night after dark. The frames in the old hives were nailed fast.

May 30, hive No. 1 swarmed. June 1, hive No. 2 did likewise. June 10, hive No. 1 threw out a very small swarm — about two quarts of bees. I thought they might build up for winter and make a good colony for another year, so I hived them. All my swarms were put in new Danzenbaker hives and numbered 3, 4, and 5.

June 12 I went to work to transfer the two old colonies to new Danzenbaker hives. Each one had five or six queen-cells. I transferred No. 1 first, and cut out all cells but one; then as I was working at No. 2 one of the queen-cells opened up and out walked a queen! For fear of losing her I picked her up and let her run into No. 1. Then I cut out and destroyed all the rest of the cells but one and finished transferring.

The next day I noticed that nearly all of the bees were going in and out of No. 1 with only an occasional bee going into No. 2. Ac-

cordingly, that evening, I interchanged the locations of the two hives, as they sat side by side only 15 inches apart. The next morning I watched to see the result, and found that the field bees as they came back would dance up and down in front of No. 2, and then many of them would go in. But in two days No. 1 was doing all the business again.

I had other work to do, and I didn't want to bother them any more, so I left them that way all summer.

June 25 I put a super of 32 Danzenbaker sections on each of the five hives. Nos. 1, 3, and 4 went right to work in them.

On July 20 No. 3 threw out a very large swarm which lodged on an apple-tree about ten feet from the hive.

While I was getting the hive ready they left and went into the top of a willow ten rods north, so I got a ladder and cut the limb and shook the bees into the hive. I saw the queen, picked her up, and let her run into the hive. I then went to work, thinking that every thing was all right. That evening I went out to bring the swarm into the yard; but somebody had taken the cover from the hive, and the bees were all gone. That swarm coming from No. 3 stopped its work in the sections, and they haven't done any thing since that time.

In the meantime I took a peek into No. 5, and was surprised to see the super almost full, so I raised it up and put an empty one under it; and the way the bees went to work, it did me good to stand and look at them. There was a constant stream of bees coming and going, falling over each other, trying to get in and out of the hive.

As for results, that little despised second swarm that I thought would hardly build up for winter has done the best of any of them. I have taken off two full supers of white clover and 21 full sections of amber honey, besides 11 sections that were not finished. In all I had 85 lbs. from No. 5; 25 lbs. from No. 3; 64 lbs. from No. 4; 32 lbs. from No. 1, or 206 lbs. in all. Besides these, there were about 20 partly filled sections.

I opened No. 2 about Sept. 1 and found they had no queen and only about a pint of bees, so I put the hive on top of No. 1, but the next morning I found the pint of bees all dead in front of the hive.

Now I have four swarms of bees that are fairly strong, and I hope to winter them all right. I am going to get some drygoods-boxes and set over them and fill with chaff.

I have sold my honey so far for 15 cts. I have sold 8 boxes of 20 sections each, amounting to $24.00. I also gave away some to the neighbors, and have a lot left for pancakes this winter.

Schenectady, N. Y., Sept. 29.

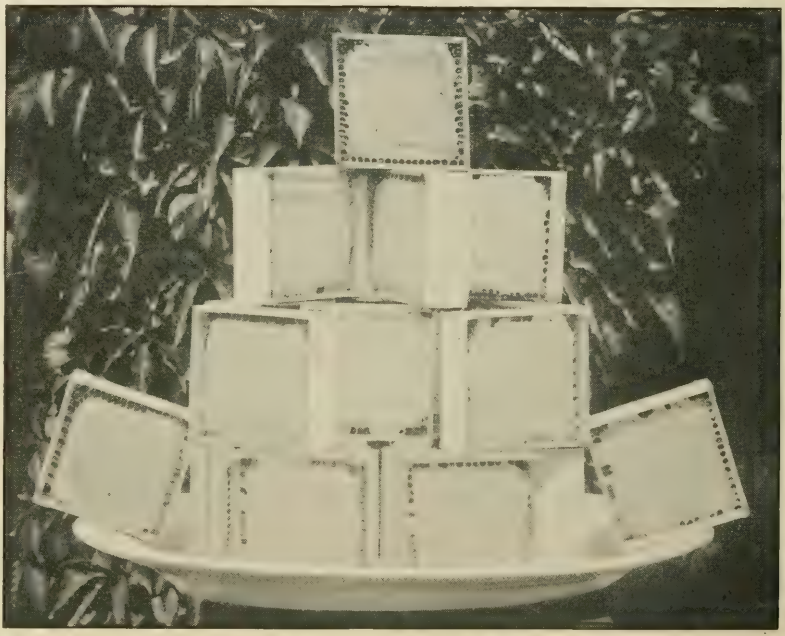


FIG. 1.—SOME FANCY HONEY FROM THE APIARY AT A CANADIAN EMIGRATION BRANCH OF IRISH ORPHANAGES, HESPELER, ONT., CANADA.

BEE-KEEPING AT AN ORPHANAGE.

A Good Honey Average in the Apiary at a Canadian Emigration Branch of Irish Orphanages.

BY G. W. TEBBS,
Superintendent.

I started bee-keeping with the purchase of one colony, and finished up the season with three, which I ran for comb honey. I wintered them out of doors, putting over the hives rough wooden cases, and packing in between with dry maple leaves. All of them came out in good condition.

The first year, of course, I made some silly blunders, such as putting the sections upside down in which I had placed full sheets of comb foundation. But during the winter

FIG. 2.—ORPHAN CHILDREN PAINTING AND PREPARING HIVES FOR USE.

I made a study of bee-keeping, becoming *theoretically* perfect, but I needed the past summer's work to teach me that practice too is necessary.

This year I have had a good surplus—an average of 50 lbs. of comb honey per hive. Most of the sections were as fine as those shown in the engraving. It was taken off the hives as soon as the clover season was past. We have had an exceedingly late spring and dry summer that has been against us, but my ten colonies are in good condition for the winter, having plenty of stores.

Another engraving represents our boys

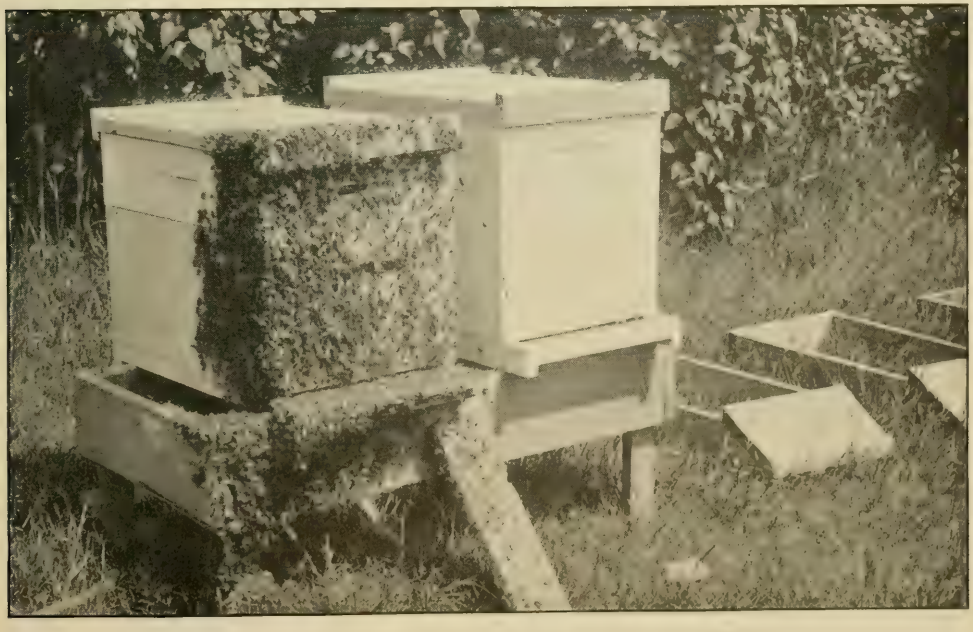


FIG. 3.—A COLONY CAUGHT IN THE ACT OF SWARMING.

(this is a Canadian emigration branch of Irish orphanages) painting hives after putting them together. The third one shows one of my colonies just in the act of swarming. My apiary is on a southern slope, and is screened from the wind on the north and west by low lilac bushes. All my swarms have hitherto gone to these bushes, most of them being more than 20 yards from the apiary or 5 feet from the ground.

Hespeler, Ont.

[Bee-keeping would serve a very useful purpose at any orphanage or home, as it would give the inmates some useful work as well as recreation. We know of several charitable institutions that are taking up apiculture with this very end in view. Many of these are raising their own garden truck as well as general farm produce, and why not honey? Mr. Tebbs has, in this case, given us a splendid demonstration of the possibilities in this line.—ED.]

extracted honey; first on specimen of extract-honey; first on best display of extracted honey in granulated form.

The exhibit was of my individual effort, but you may see by my banner in the photo that I made the exhibit in the interest of all Northern Michigan red-raspberry-honey producers.

Rapid City, Mich.

THE PLURAL-QUEEN SYSTEM.

The Colonies more Uniformly Strong at the Beginning of the Honey-flow; Swarming Easier to Control; Why Only One Queen is Left when Excluders are Removed.

BY HAROLD DAVENES.

For the last three years I have been keeping the majority of my colonies in the shallow divisible-brood-chamber hives, two to

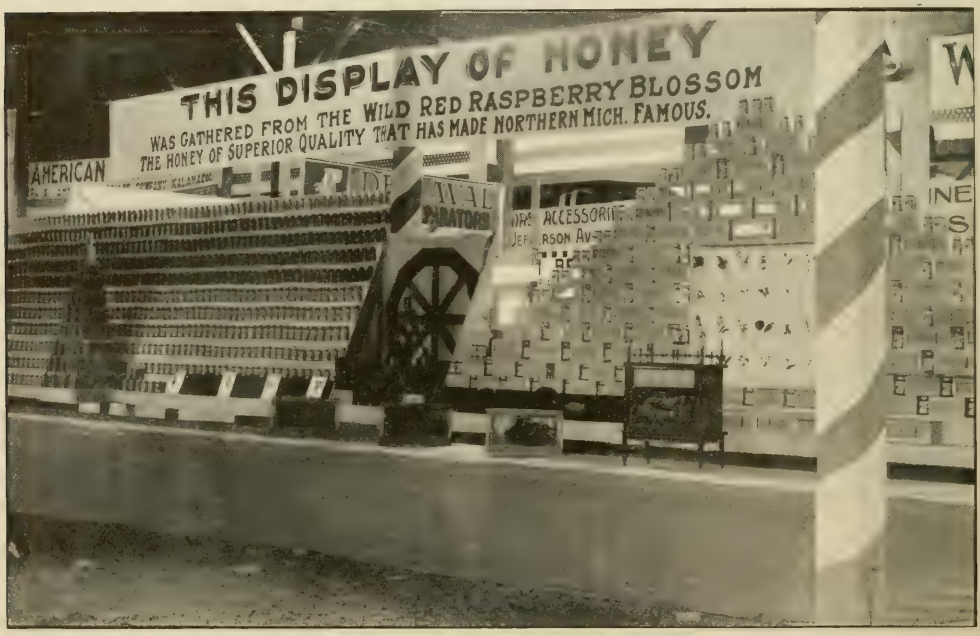


EXHIBIT OF RASPBERRY HONEY AT THE WEST MICHIGAN STATE FAIR, GRAND RAPIDS.

HONEY EXHIBITS.

A Display of Fine Raspberry Honey at the West Michigan State Fair.

BY GEO. H. KIRKPATRICK.

I mail a photo of my recent exhibit of bees and honey at the West Michigan State Fair, Grand Rapids. You will notice one more point has been scored in favor of red-raspberry honey, it having received a majority of the first prizes as follows:

Second on display of comb honey; first on best case of comb honey, first on display of

three stories, with a queen in each super, separated by an excluder. By working the plural-queen system I gain three valuable points: 1. A hive packed with brood, and overflowing with bees by the first week in March, just at the opening of the orange bloom; 2. A better average of surplus honey per colony. Some daughters of my best breeder, when worked on the single-queen plan, fall far behind in the production of honey from some of their sisters in the same apiary. Two or three queens in one colony will overcome the defects of the less productive queen; 3. Better swarm control. While it

does not absolutely control swarming in my locality, I get fewer swarms.

I introduce my queens in the fall. Hardly any honey is coming in at that time, and brood-rearing is at a low ebb. If mated queens are given they are introduced two days after the old queens are removed. Each queen is put in a spiral cage, and, instead of the tin cap, a thick piece of paper the same dimensions as the tin cap is put in its place. Our cage is put into each super with an excluder between. If no queens are on hand I use grafted cells. Care must be taken that only one super is left open at a time to allow the queen her flight.

I have just read Mr. Alexander's article. I wish he would give me some information through GLEANINGS. When I remove the excluders I find only one queen in the hive shortly after the operation; while by using excluders I am able to keep as many queens as there are supers, *right through the winter*. Remember, it is in the fall of the year. Have I committed a breach of etiquette by not formally introducing the queens to each other in a little boxful of pampered bees? Why is it they disappear? and who does the killing? My experience has been the same as yours, Mr. Editor. One queen has nearly always turned up living; but I know for a fact that the bees don't always do the killing.

QUEENS WITH THEIR STINGS CLIPPED.

For this operation I use an anesthetic. Take a quart Mason jar and drop in a piece of sponge the size of a walnut saturated with chloroform. Close the jar by stuffing a piece of cloth in the opening, so as to make it perfectly tight, and let it stand for about three minutes. Catch your queens and put each one in a small wire cage, and feed them all with a drop of honey on the wire. Now with a piece of string lower the cage in the jar and replace the cloth. It will be for only a moment, for the *instant* you see the queen falling, pull out the cage and at once remove the queen; grasp her with the thumb and first finger of the left hand, and press gently at the top of the abdomen. When the right amount of chloroform is given it causes a spasmodic contraction; the sting protrudes, and is easily cut with a pair of scissors. The queen will soon revive, but care should be taken not to give an overdose, for it always kills. Two of those sting-cut queens were introduced into a hive, and were not molested at all through the winter.

I have just concluded an interesting experiment with a friend on the plurality of virgin queens in one colony. There is a case where the queens were balled by the bees, and they got black eyes in fights between themselves. Fifteen queens were raised in a queenless hive from grafted cells, and each in a cage. Five of the queens were sacrificed in fights and on the operating-table. Two virgin queens, sting-cut, were put in a small cage. Immediately there was a mix-up, each queen continually jabbing its pointless sting into her opponent's neck. Biting with all their might, they fought only to become exhausted and break away for rest. This fighting continued at intervals for half an hour. As no hurts were given or received, five sting-cut virgins were introduced to the *parent* hive in spiral cages. On examining the hive four days later, four of the queens were on the frames, four minus legs and wings. All were crippled; these were removed, and five more introduced. This time only three were left. The bees seemed to have picked a favorite. The other two were a sorry sight. This one queen looks to be perfect, and after a long period has just started to lay. I was beginning to think that the sting of a virgin queen came into play on her drone in the act of copulation. The eggs look natural, so I do not think the queen is a drone-layer.

If I can get the bees to accept a plurality of virgin queens in a hive by Mr. Alexander's method I feel sure that several queens can be mated at one time from a single hive. I have a batch of queens due to hatch in a few days, when the experiment will be tried.

Sierra Madre, Cal.

[This was referred to Mr. Alexander, who replies:]

In connection with the experience of Mr. Davenes there are some comments I should like to make. First, I can not see why it is best to have only one super open at a time when a surplus of virgin queens is hatched in the hive. I have always had an entrance to each super open several days previous to their maturing, so the bees could become acquainted with their new entrance; and with us the young queens are less likely to be balled or injured with the bees, as they appear to work more like separate colonies than when they have only one entrance until the young queens are ready to fly.

In regard to surplus queens being stung when the excluders were taken out so as to allow the queens to meet each other, I will say I have never had a case of this kind; but I am inclined to think that the queens are stung by young bees about a week old, as bees about that age always seem to be more inclined to sting a queen than at any other time during their lives. I have many times known bees of about that age to grab and sting their mother queen, simply because their hive was suddenly disturbed. I have never had a case of laying queens stinging each other during the summer season.

Now as to the practicability of clipping off the stings of our queens, I don't think the average bee-keeper would be likely to make it a success. There are many who can not clip the wing of a queen without injuring her for life; and I am sure that there would be a large per cent of good queens killed if they attempted to clip their stings. I think there are other ways much safer by which the desired results could be obtained. As I have written before, I have but little faith in keeping a plurality of virgins in a colony unless they are separated with queen-excluders. We think it safer to keep them separated from each other ten days or more after they com-

INTERIOR VIEW SHOWING ONE END OF THE PUBLISHING-ROOM OF GLEANINGS IN BEE CULTURE AND OF THE A B C AND X Y Z OF BEE CULTURE.

This one room is 60 x 100 feet; is lighted by the modern saw-tooth skylights; is fire-proof being built of concrete and steel. The machinery is of the very latest, being driven by individual electric motors.

mence to lay than to remove the excluders as soon as a few eggs are found. We must all be careful in introducing and trying to keep several queens in one colony. One important part seems to be that the bees and queens must become well acquainted with each other; under certain conditions that neither the queens nor the bees have any desire to sting one another. This part of our business is only in its infancy, and it will require some time to work out a perfect method that can be relied on under all circumstances. E. W. Alexander.

Delanson, N. Y.

[At first sight this scheme of clipping queens' stings looked ridiculous; and while, as Mr. Alexander says, the average person may not be able to work it, there may be something in it to determine whether the bees or the queens do the stinging. From a scientific point it may be worth developing. Practically there would not be much in it; as, if the queens can not sting each other, they could bite and worry each other to death just as Mr. Davenes reports they did do in one experiment. To change the subject, it is interesting to note that Mr. D. says that, with the use of excluders, he is "able to keep as many queens as there are supers, *right through the winter*"—italics ours. This is something important, and we should be glad to hear more in detail how he does it. —Ed.]

DOUBLE-QUEEN COLONIES.

More than Two Queens in One Hive Not a Success, and these Two Must be Kept Separate.

BY J. E. CHAMBERS.

Mr. Editor:—After reading your footnote to my article I decided to write an article describing my way of using two queens for getting colony strength, especially when the time is too short for one queen to accomplish the work. I have read Mr. Titoff's strictures on the plural-queen system, page 1328, but I do not think his arguments against the use of two queens very conclusive, for the reason that two of the important factors mentioned, namely, food and heat, are both present; but the third one, the ability of the queen to put in the requisite number of eggs in the shortest limit of time, is seldom or never to be relied upon in this climate. To illustrate, during the last half of June and all of July we have a dearth of both pollen and honey, more or less complete; and, though the hives are well stocked with supplies, the queens, even those of Carniolan stock, lay only about two-thirds as many eggs as they should to insure a good strong force for the August flow from sumac. I suspect that this condition is common elsewhere, and it is under just such conditions that I use two queens with complete and gratifying success. But in my practice I do not try to introduce more than two queens to a colony. In fact, it is really the use of two colonies as well as of two queens. As will be recalled, perhaps, I mentioned in my article on p. 1146, Sept. 1, that means to keep the queens apart are necessary in order to insure success; and in your footnote you emphasize the words *means to keep them apart*, and ask whether I refer to separating bees or queens. I refer to both bees and queens, but to queens in particular. The bees are not the main cause of the trouble.

My plan of using two queens contemplates the employment of a device to separate entirely the queens and to keep the bees in an isolated condition. This secures for the apiarist all of the advantages claimed for the two-queen plan, without the fuss and uncertainty of a long process of preparation and introduction of queens. Briefly described, it consists of a board, the size of the top of a hive, with a large opening in the middle. This opening is 14 inches long and 10 wide, and is covered top and bottom with wire cloth. There is also a one-inch hole covered with excluding zinc in each corner of the board, and a flight-hole in the rear. This completes the device. When using, it is laid over the main hive, and another body is placed on it. A set of empty combs is put in, and a young laying queen in a cage is given. The cover is then put on and the operation is complete. Soon quite a few bees come up through the holes in the corners that are covered with zinc. These soon take up with the caged queen and gnaw her out. A new entrance is established through the flight-hole in the rear, and in a few days another colony is established; but the severance is never complete, and they can never be reunited. After a start is made, brood-rearing goes on quite fast, for, even though the number of bees with the upper queen is not great, the heat coming up through the wire cloth furnishes all the warmth needed. I run for extracted honey only; and when the flow is once on I remove the board; and the colony, now grown very powerful, is all together.

Though this plan has its defects I know it gives me good results. With the ordinary deep hive-bodies it would have some serious faults; but with mine that are only six inches deep, two bodies below and one above, with two extra bodies for surplus room, it is ideal. It is no trouble to establish a colony in this way, as it takes only a hive, a queen, and a set of combs, and the bees do the rest; and just think what colonies—180 lbs. of honey in the short space of fourteen days tells the tale.

San Angelo, Texas.

BOTTOM STARTERS IN SECTIONS.

Some Unsatisfactory Results; Why the Uneven Comb Honey was Produced.

BY W. A. PRYAL.

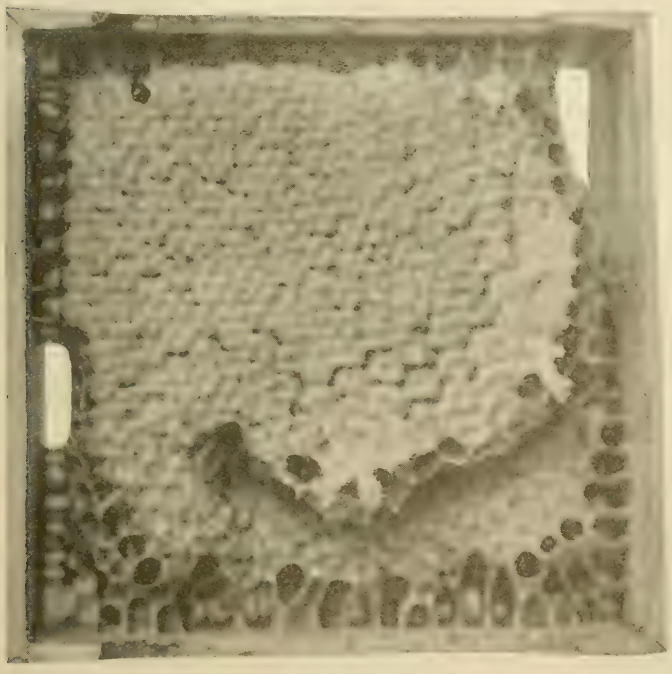
The past season I tried Dr. Miller's method of placing two starters in a section, as described by that eminent apiarist in his fascinating book, "Forty Years Among the Bees."

To those unacquainted with his method I will state that he places one starter, the larger one, at the top of the section after the usual manner; at the bottom he sets another that stands upright to the height of about one-half inch. In the doctor's location this plan may work to a charm, but with me it is a failure. About half the sections would be finished in the freakish way shown in the accompanying photograph.

It would seem that the bees working upward would swing their comb off to one side so as to allow the descending workers to take the other tack. Perhaps they believed "in keeping to the right," as the law of the road directs. At any rate, such sections are undesirable. Aside from their odd and unsightly appearance, they also are often marred by being broken, as the comb is too often fastened to the separator from which it has to be torn asunder.

Oakland, Cal.

[Dr. Miller was asked to explain this difficulty if possible. His reply follows.—ED.]



AN ODD RESULT FOLLOWING THE USE OF BOTTOM STARTERS.

Dr. Miller believes that the space between the two starters in this case was too great, thus accounting for the separate combs.

As the bottom-starter in sections is my "baby," I am very thankful for the opportunity of saying how failures might happen. I have not seen the photo from which the photo-engraving in this number was made, but I have seen two others taken by Mr. Pryal, which I have studied with much interest, and from them I think I can make a pretty fair diagnosis.

Mr. Pryal says, "In the doctor's location this plan may work to a charm, but with me it is a failure," and the pictures show it to be a very dismal failure. The only thing I can think of that should make any difference between his locality and mine is that he is in a warmer locality, and the higher the temperature the softer the wax becomes, and so the more likely a bottom-starter would be to topple over. But the bees have a way of equalizing the temperature in the hive, so that the heat in the super will be no greater on the hottest day than in a cooler one, so I don't believe temperature is the culprit. I am very strong in the belief that the plan will work in one locality as well as in another, and that the next time Mr. Pryal tries it he will find it "works to a charm" in like manner as it does here.

The importance of having a section well built down to the bottom-bar—and that's what a bottom-starter accomplishes—is so great that it is well worth while to canvas the different things from which failure might result. It is easy to see that with a bottom-starter cut $\frac{5}{8}$ deep, and standing up $\frac{1}{2}$ inch after being fastened in, if the foundation were $\frac{1}{2}$ inch in thickness it could not possibly topple over, but *if thin enough* it would most certainly topple over with its own weight. Whether "extra thin" foundation would stand up always I'm not sure. I use "thin super," and it works all right.

One person, after considering the case, suggested that either the top or bottom starter had not been put in the center of the section. That could allow the upper and the lower force of workers to pass without meeting, but even a novice would hardly fail to put starters in centrally, and Mr. Pryal is no novice.

To another, who had had experience in putting in thousands of such starters, I submitted the case, and asked, "What's the trouble?"

Promptly came the answer, "Plain case; the hives were not level. We level our stands with a spirit-level. Of course, if the hive leans over to one side, the upper starter will lean over just as much, and will not meet the lower starter."

"I don't think that's the right answer," said I. "Unless I amgreatly mistaken, Mr. Pryal doesn't do things slovenly, but always has things in apple-pie order. Now please look at this picture again. Look at the capping in that section just a little below the

center. Are those worker-cells or drone-cells?"

"Drone."

"And what are those a little higher up?"

"Worker."

"And what does that tell you?"

"That says that the upper starter came down only half way; and I see now that that accounts for the trouble."

Of course I can't be sworn that in all cases Mr. Pryal uses upper starters only half depth, but I can take my "affydavy" that in this one case, either because the upper starter was short when first put in, or because in some way the bees tore down some of it afterward, the foundation came down no further than to the place where the drone-cells began. With a space of 1½ inches or so between the two starters, the bees would lengthen each starter, the upper one downward and the lower one upward, and when the lower one became high enough why should it not lean over?

Some one may reply, "But I had bees build upward once, and although the comb was built up more than 2 inches high it was strictly perpendicular."

Yes, that's true, too. If you want to see bees build upward, put on an upper story at the beginning of the honey-harvest, with no frames in this upper story—entirely empty. Instead of clustering up against the cover and beginning to build there you will most likely find that the bees will think it too remote a business to begin 9 or 10 inches above, but will start to build up from the top-bars. But in every case that I have ever seen, the bees never built a comb in a straight line—always in a circular form. The wise little creatures seem to know that a straight comb built upward would not be stable, so they build in a curve. Not slightly curving, but curving enough to make a circle no larger than the top of a bowl or a tea-cup. With a straight bottom-starter there is no chance for a curve, and so when the bottom-starter is high enough, over it goes.

One of the difficult things is to follow out in minute detail any heretofore untried plan, and sometimes what may appear to be an entirely unimportant detail may make all the difference between success and failure. When so bright a man as W. A. Pryal makes a slip in this direction, it becomes the rest of us to take warning. At the same time, he is to be thanked that he has told us of his failure, and if this were oftener done the fraternity at large would be the gainer.

Reference to the first paragraph on p. 142 of "Forty Years Among the Bees" will give the missing link that, I think, accounts for our friend's failure. It there gives the depth of the top-starter as 3¼ inches, and the bottom-starter ⅝. Add the two together and you have 3⅞, and with 4 inches as the inside depth of the section there is left a space of ⅛ inch between the two starters. Always the space will be in reality a little more than that, the hot plate melting down each starter a trifle.

When a section is given to the bees, the space between starters is so small that one of the first things they do is to connect together the two starters. Even if a bottom-starter should occasionally topple over, the upper starter is so near the bottom-bar of the section that in the finished product no balk is seen.

One statement in the paragraph quoted I must repudiate, and excuse it on the ground that when I wrote it I was younger and less experienced than now. It is this: "Moreover, I think the deeper the bottom-starter the more promptly the two starters are fastened together." According to that, if the bottom-starter were 3 inches deep the two starters would be fastened together with exceeding promptness; whereas the lower starter would be sure to fall over before the bees could have time to knit the two together. Any one so inexperienced as to write such nonsense as that should not undertake to write a book. I should have said, "The smaller the space, the prompter the fastening."

Mr. Pryal, in closing, speaks of the comb being fastened to the separator. Instead of causing this, the bottom-starter, rightly used, is a sure preventive. When I used no bottom-starter, the comb was swung over and fastened to the separator with unpleasant frequency when honey was coming in slowly. There is no possibility of such a thing happening when the two starters are fastened together.

I earnestly hope Mr. Pryal may find the plan work "to a charm" if he will give it another trial.

Marengo, Ill.

THE NATIONAL BEE-KEEPERS' ASSOCIATION.

How Should the Officers be Chosen? the Harrisburg Convention.

BY R. F. HOLTERMANN.

Taking the train at 4:50 A.M., Oct. 29, and with a run all the afternoon among the Allegheny Mountains, and crossing and recrossing the Susquehanna River and its tributaries, I reached Harrisburg, Pa., about 5:30 P.M. The season of the year added to the beauty of the mountain scenery, and reminded me of the days of my childhood spent in the county of Renfrew, Ontario, and my trip was thoroughly enjoyed.

It has been my privilege and pleasure to see the National Association pass through many stages, also to be its secretary, vice-president, and president, and to attend its conventions, among them Rochester, Detroit, Columbus, Chicago (twice), Albany, Washington, Toronto, Brantford, St. Joseph, and now Harrisburg.

As to membership, influence, and progress it stands, in my estimation, higher to-day than ever. I believe, too, that the Harrisburg convention in some ways sounded a loftier note than ever before, and yet it was felt that the method of nominating its officers for the coming year was defective. To re-

alize this is much easier than to provide a remedy.

Realizing that one suggestion may lead to what is more valuable, allow me to offer the foundation for a plan.

Why not have the election of officers the first month of the year? State and provincial societies generally meet, or could readily meet, during the last months of the year. If they did not, they could act at any time during the year if they so desire. Why not allow every State or even every society covering a larger area, which affiliates with the National, to nominate, by election at its annual meeting, in no local spirit, either from among its own members or outside men for the various offices in the National? Let such nominations go before the electors with perhaps one added name selected, as before, being the one receiving the largest number of nominations as large as before. There may be a clause giving this privilege only to the society having a membership not to be less than a set amount, and, of course, the society would have to be in affiliation with the National. It was shown by Mr. N. E. France, the General Manager, that there was very little interest taken in the nominations by the members, and a great many did not take part in the election of officers because those running for office were unknown to them. A state nomination, while not always a guarantee of a wise selection, would be more likely to be so than when made by an individual; and I believe that, by this method, local interest and local pride would be stimulated and the National convention would grow in membership and influence

In some of the breeders' and other associations there has been a clause inserted restricting the membership to those interested, so that they could not afford to vote for any thing which might be contrary to the interests of the industry with which they were allied. While we know of men of good judgment and good faith keeping but few bees, and having but little at stake in the industry, who would be and have been good directors along general lines, we want men first of good judgment, th n interested in the success of the industry and with wide experience to represent us.

This, in my estimation, should be the fitness for office kept in view rather than some of the distinctions which have been suggested.

Let, with the nomination, the qualification be named—say John Smith, 20 years a bee-keeper; has 100 colonies, or has 100 colonies of bees and edits *Bee-keepers' Paradise*, etc.

The National Bee-keepers' Association at the Harrisburg Convention was pursuing, in my estimation, not only a legitimate but a wise policy when it asked that every Federal, State, Dominion, and Provincial government be asked to get into shape proper machinery to carry on apicultural investigation and to bring bees and honey before the people.

Pennsylvania bee-keepers realized the value of field demonstrations as they had them last summer to draw attention to the product of the bee; and in the no distant future we may look forward to the development of the valuable asset which bee-keepers have in the interesting demonstrations that bee-keepers can make in connection with the natural history of the bee and the way in which bees can be handled.

Prof. Phillips, of the Department of Agriculture, gave an address containing many valuable practical points for bee-keepers upon the production and care of extracted honey. Dr. Phillips, if he is careful to confine himself to the proper work of his department, especially with growing experience, added years, and proper equipment, should be able to do valuable work for the bee-keeping industry of the United States and other countries.

President Aspinwall justly said in his address, "Bee-keeping is the greatest of all agricultural subjects when we consider the various branches of agriculture which are involved. When we consider the need of knowing the life history of the bee, its work, the methods of producing wax, a bee-keeper should be a botanist and an entomologist." Father Langstroth said that bee-keeping is the most beautiful science in the whole rural economy.

Let the actions and demands of the National Association be in harmony with the importance and dignity of such a calling.

Brantford, Canada.

WINDBREAKS.

How to Make Canvas Shields when there are No Trees or Shrubbery to Shelter the Apiary.

BY A. J. HALTER.

When the forest is being deprived of its foliage it behooves the bee-keeper to make final preparations for wintering bees, especially those located in the northern regions.

A great many bees are placed in cellars, and some in trenches, while a large part are left on their summer stands, in which case windbreaks are of great value. However, for some reason these windbreaks are greatly neglected, lumber and labor at times being quite an item.

The past two seasons I have used canvas, such as is used on harvester machinery or straw-carriers, and find it quite durable. It is from 4 to 5 ft. in width. A great many binders or farm machinery are yearly sent out on trial, and are returned, slightly used, to their respective agencies. The canvas, however, is generally replaced before the machine is again offered for sale. This canvas can be purchased at a reasonable price, and by giving it a coat of oil it is made waterproof.

When the bees are all packed for winter, drive a few fence-posts and tack the canvas against the posts for several hours, and the work is done. During summer remove the canvas and roll it up until again needed for future use.

Bees wintered in cellars by all means should be protected by windbreaks when set out in spring. During March and April, bees that fly out in search of pollen or water become chilled by the cool winds, and are lost in great numbers within a few feet of their hives. This has a tendency to weaken the colonies, causing what is known as "spring dwindling." When windbreaks are provided, bees do not come in contact with these cool currents of air unless they venture a certain distance; and when returning home they are apt to arrive more safely when once within the boundary limits of windbreaks.

The past season has certainly proven the value of protection against wind and chilly weather.

A few dollars spent in this direction will be a great benefit to the bees. Now is the time to make preparations.

Akron, O., Nov. 11.

QUEEN-REARING.

Alley Plan for Obtaining Cells Preferred; Queens Mated from Nuclei over Strong Colonies; Advantages of Sectional Hives for this System; How to Requeen without Having them Queenless at any Moment.

BY J. E. HAND.

In an article in GLEANINGS for May 15 I made the statement that not the least of the influences that produce swarming is an aged queen, and that requeening the entire apiary prior to the main honey-flow would go far toward preventing swarming. I am convinced that a great deal of *my* swarming troubles have resulted from a desire on the part of the bees to supersede their queen. Since the article above referred to appeared in print I have been asked to give a detailed description of my method of requeening the entire apiary in the spring, hence this article.

As soon in the spring as our colonies are strong enough to occupy three sections of our brood-chamber we will begin operations by getting our cells started in strong colonies made queenless for this purpose. I will not go into detail to describe our method of securing queen-cells. Suffice it to say we prefer the Alley plan, believing that, as a rule, better queens can be reared by this plan of getting cells started than where the larva is transferred with a spoon, especially by the novice in queen-rearing; for I have noticed that, whenever a larva is disturbed and placed in a bed of royal jelly in a prepared cell, by the bungling hand of the novice, the bees will invariably lick up the feed, leaving the transferred larva high and dry, and the future queen will be injured in proportion to the length of her fast while in this state.

Having secured a bunch of natural queen-cells built over larvæ from our choicest breeder, the next thing to do is to prepare our nuclei for the hatching and mating of our queens; so we will go to each colony that we wish to requeen, and remove the top brood-section containing bees, brood, and honey, being careful not to get the queen, and place over the top of the next lower brood-section a wire-cloth screen, and on the top of the screen we will place a queen-excluding honey-board having a slot cut out of the upper edge of the rim $\frac{1}{4}\times 2$ inches, near the corner furthest from the entrance to the hive, and on this honey-board we will place the top brood-section. The slot cut in the rim of the honey-board is for an entrance to the top brood-section, which is to be used for a nucleus.

We are now ready to insert our queen-cells. This is done by enclosing the cell in a cell-protector and pushing it down between the combs in the center of the nucleus. As soon as the young queen hatches out and begins to lay nicely the wire cloth is removed and the bees are allowed free access to both queens through the honey-board. The young queen is now given the two lower brood-sections, while the old one is allowed to continue operations in the top one until time to put on the supers, when she is promptly killed.

By this method good queens can be reared much earlier in the season than by the methods in common use with the full-depth frame hives, since the heat arising from the colony below will keep the nucleus warm. Since nearly if not all the honey will usually be in the top brood-section in early spring it will be necessary to feed the colony below unless there happens to be a honey-flow.

When we used the honey-board alone between the hive and nucleus a good many of our young queens would all at once be missing; but since we combined the wire cloth with the honey-board we have had no further trouble along this line. By this method the entire apiary can be requeened without any loss or inconvenience to the colonies treated, and no expense for mating-nuclei or other traps.

Birmingham, Ohio.

[This plan of requeening so as not to interrupt egg-laying in a colony we believe to be excellent. But we think our correspondent overestimates the danger done to a larva after it has been transferred to an artificial cell cup. Of course it is *possible* a bungling manipulator in a cold atmosphere might do harm. But if one follows carefully the directions that are given no bad effect should follow.—ED.]

NAIL-BOXES.

BY DR. C. C. MILLER.

A bee-keeper is likely to use a good many nails, and a good many kinds of them. It makes a difference what he keeps them in when not using them — also what he keeps them in when using them. One of the most inconvenient ways I can think of is to have them tied up in a paper, untying the paper and picking each nail out of the paper till he has used all he wants, and then tying up the paper again, putting it along with a lot of

other papers of nails, so that each time he wants to use any he can open paper after paper till he finds what he wants.

Instead of picking each nail out of the paper it's an improvement to take a mouthful at a time, or to scatter a small quantity at a time on the bench, or put them on a plate; handier to pick up when a little scattered; but when on the bench they have a way of scattering more than you like, and a plate has a way of landing on the floor upside down.

Now look at the two nail-boxes in the picture. I got the idea from seeing, at a tinner's, boxes made on the same principle, only made of tin. I hardly think I need tell how they are made. The picture tells that. But it may be no harm to give measurement of parts, although one can make boxes larger or smaller. Quarter inch stuff is used, and

CONVENIENT BOXES FOR HOLDING NAILS.

the different pieces measure: $10\frac{1}{2}\times4\frac{1}{4}$; $4\frac{3}{4}\times4\frac{1}{4}$; $4\frac{3}{4}\times3$; $4\frac{3}{4}\times1\frac{1}{2}$; and each side is $8\times4\frac{1}{4}$, cut out as you see.

Take down a box that is hanging up; lay it on its back and give it a few shakes, and you have the nails scattered out nicely in the shallow part, unless the box is too full. The box hanging up is too full, but I wanted the nails to show in the picture. When through using, hang the box up on its nail on the wall, and it's there without any danger of tumbling down and taking up the least possible room.

I made a dozen such boxes, hung them up on the wall of the shop in two rows, one row above the other, each box marked to show the kind of nail in it, with a corresponding mark at its nail on the wall, and was happy. Alack and alas! my happiness didn't continue Some one took a box from the shop and didn't return it to its place. Then some nails of the wrong size were thrown into the box rather than throw them away. Then another box was similarly maltreated, and thus it went till the boxes were scattered to all points of the compass with all sorts of nails, and some things that were not nails in them.

Moral: Shoot the first man that meddles with your nail-boxes.

Marengo, Ill.

IS PARTHENOGENESIS A MYTH?

Some of our readers may not know what the Dickel theory is, so that, by way of a preface to what here follows, it may be stated in as few words as possible thus: Fertile queens only lay fertile eggs. The worker-bee alone determines the sex. The worker-bee *makes the sex* by means of a glandular secretion which is supplied at a certain stage of the larva, and this is continued till the latter is sealed up. He admits that the eggs of laying workers and drone-laying queens are from unfertile eggs, but he holds drones from these are lacking the procreative powers.

The article which follows is a translation of a criticism of Prof. Kuckuck's new book entitled "There is No Parthenogenesis," a work that defends the Dickel theory. This criticism of the book appeared in *Bienenzeitung* (Leipsic). It is evidently the work of an expert on the subject.—W. K. M.

With zeal worthy of acknowledgment Dickel tries to obtain support from the scientific world for his opinion that all eggs laid by an impregnated queen are also impregnated, and that the salivation through the bee not only starts life in the impregnated egg but also influences the sex; which means that parthenogenesis, in the sense established through investigation by von Siebold, is untenable. The Russian physician, M. Kuckuck, with his present pamphlet, wants not only to prove the correctness of Dickel's opinion, but wants also to refute fully parthenogenesis. He wants to prove that also the drone eggs laid by bees must be impregnated, and that with male sperm derived from the drone, because the development of these drone-eggs shows all the characteristics of impregnated eggs. Unfortunately neither Dr. Kuckuck nor F. Dickel furnishes the proof nor even the slightest intimation how the impregnation of these eggs is or could be done.

This doctrine at present is only an analogical conclusion from generalized laws as observed by different scholars on other organisms, and it is up to the reader to form his own opinion as to the possibility of these laws to be applied also to the bee. But even if any such possibility must be considered as out of the question for other (anatomical) reasons, that does not matter to the two authors; they simply say, "According to our opinion, which is confirmed by results from researches, the drone-egg must be impregnated."

This is the weak point in their conclusion. The direct scientific proof of how the male sperm comes into the bee-laid egg, whether through impregnation of the bee by the drone or through impregnation of the egg with

sperm, is not furnished nor is any attempt made to furnish it. All these details condensed form the following by no means scientifically confirmed assertion:

Drone-eggs laid by bees show exactly the development which has been universally accepted as the rule with impregnated eggs of other organisms; consequently drone eggs also must be impregnated, and parthenogenesis is nonsense.

This is a similar analogical conclusion; as, freezing water expands, forming crystals; crystallizing honey also expands; consequently honey must be water.

We want to state right here that Dr. Kuckuck opposes a perception of parthenogenesis which originally could not have been existing, because every supposition for such a perception is missing. Hitherto under "parthenogenesis" was understood the origin of animalcules from female eggs not impregnated with male sperm.

This doctrine he believes to have been fully refuted by proving what nobody denied; viz., that every egg, even from an unimpregnated mother, contains some remainder of male-sperm substance; wherefore it is not possible to speak of unimpregnated female eggs, since the same, according to their origin, must be hermaphroditic. We bee-masters have the same idea always expressed with a sentence perhaps less scientific but more intelligible—drones have no fathers, but grandfathers, and just for that reason we take them to be of virgin birth; viz., parthenogenetically begotten.

We believe that Dr. Kuckuck's argument, in the first part of his pamphlet, has changed nothing of this fact, as he himself must confess that life can be produced even through physic-chemical processes from non-impregnated (i. e., not with sperm-fertilized eggs of the barnacle.

Whether from this artificial impregnation perfect or imperfect animalcules originate is of no importance whatever so far as our question is concerned.

That development commences at all—that cell-parting begins—is a parthenogenetic occurrence.

Dr. Kuckuck's demonstrations finally return to Wiesmann's doctrine of the continuance of the germ-plasms, and offer little new to men well acquainted with this subject. The following are the main points of our question: Every female egg and every male sperm is hermaphroditic; i. e., consists originally of female and male generating substance. The female egg-cell forms in her future development either one or two pole-bodies, the last one being nothing else than the originally male substance If the egg-cell forms both pole-bodies before the impregation, it will be lost without artificial influence. Under normal conditions the egg-cell will be impregnated after forming the first pole-body. The new male sperm causes the forming of the second pole-body; i. e., it expels the old male germ, but also egg-cells exist which do not expel the second pole-body, which also do not receive any sperm, but which notwithstanding are developing. These eggs have retained the old male germ, and are, consequently, if we may say so, old impregnated, and usually develop into females. (Kuckuck declares that such eggs are only erroneously named "parthenogenetic.") Evidently he is referring to an absolutely different conception of parthenogenesis. First he constructs a new conception of parthenogenesis only to refute it afterward.

The female substance is always charged negative-electric, the male substance positive-electric; thus causing the attraction of both (the mutual searching and finding by egg and sperm).

The stronger electric energy decides the development of the sex; i. e., so far as bee-eggs are concerned. If the sperm is more strongly charged than the egg, a drone will originate, and, in inverted order, a bee or queen will be developed.

Now, from these facts should be concluded that drones by drone-mothers must originate from sperm-impregnated eggs, otherwise not drones but females would be developed. But simultaneously this would be a direct refutation of Dickel's doctrine that the male germ-substance is the bearer of the female sex-tendency, and *vice versa*. This is not mentioned at all in the present pamphlet. Does Dickel now disown this, his previous pet idea?

Sentences 26 and 27 on page 34 of the book contain a sharp refutation but not a proof of the original Dickel doctrine.

Dr. Kuckuck, in the second part of this book, treats Professor von Siebold and Dr. Petrunkewitsch very harshly.

We admit there is many a thing to say against the research methods and results; but against Dr. Kuckuck-Dickel's observations it must be objected that they lack impartiality.

Note only this: "The dogma of parthenogenesis in its entire extent is based only and alone on illusions of two investigators."

When Professor von Siebold, in consequence of a defective method, could not obtain any results, and when Dr. Petrunkewitsch, in consequence of the wrong application of a better research-method, arrived at false deductions, these are human errors to which certainly Dickel and Dr. Kuckuck are also subject. Should not Dickel and Dr. Kuckuck perhaps also have every reason to ask themselves how their doctrine of the eternal and unchangeable law (page 43) stands to reason: The negative (female) attracts always the positive (male); the positive repulses the positive; the negative repulses the negative," considering that the female queen and the female brood-bees attract themselves strongly, whereas, charged with identical electric energy, they should repulse each other? Right here this "eternal, the whole organic governing law" falls to pieces, and with it the greater part of the conclusive force of the whole book which is almost exclusively based on this law.

Not being experts we can not discuss the

microscopic-technical questions; but we hope that acknowledged authorities, such as the renowned cell-investigators Professor Th. Boveri and O. Hertwig, will not withold their opinion.

In the third part Dr. Kuckuck tries to prove directly the "being impregnated" of the drone eggs. Our layman's understanding judges this part to be the weakest, the conclusive force of the same being absolutely null. Dr. Kuckuck has only ascertained that, in the state of progressed development (*Blastulastadium*) the nucleus of the cell of the embryo of the bee, the queen-drone and the drone are equal in size, consequently also equal in number of chromosomen, and that this, according to Professor Boveri's doctrine, furnishes the best proof for the equality and the being impregnated with sperm of the three kinds of eggs.

This singular assertion suppresses, however, that under "being impregnated" could be understood either old impregnation (i. e., parthenogenesis as hitherto conceived), or new impregnation (impregnation of the queen by a drone, and, consequently, impregnation of the eggs with sperm).

By no means has this research ascertained what really must be expected in case it should be proved that parthenogenesis does not exist; to wit, that the drone-eggs are without exception new impregnated; that means with the sperm from a drone-impregnated queen or from a bee; because nobody has ever seriously claimed that every drone egg also contains male substance from the grandfather (old impregnation), even if it were not known, that the last remainder of it in the female egg cell is either expelled in the second polebody or, when not expelled—can result in parthenogenetic development of the egg, in the original sense of the word. This is the only news which we can find in this book; but the news itself is only an heirloom from Weissmann's germ-plasma theory, which, as is well known, is not generally accepted.

The forming of two pole-bodies by the drone egg has not been personally observed or above all doubt ascertained by Dr. Kuckuck himself, but he bases this assumption on firm assertions by Dr. Petrunkewitsch, whom he so thoroughly refuted, as well as on assertions by Dr. F. Blochmann. But he himself has pointed out how uncertain and difficult egg-researches are, and how easy wrong-seeing, and, still easier, wrong conclusions occur.*

Therefore, when Dr. Kuckuck, notwithstanding the great uncertainty of such research methods, from the equal size of the cell-nucleus of the bees' blastoderm cells concludes the reception of sperm by all, even by bee-laid drone-eggs, this conclusion is without force inasmuch as the proof is not furnished how the sperm came in contact with the drone-egg, which is maturing in the bee.

The discussion of this most important question certainly should have been taken in consideration; and since this has not been done, really the entire demonstration lacks proof; because, if the drone-egg expels only one pole-body, the development can proceed in exactly the same manner either through old impregnation or through new impregnation (page 31, sentence 10); in other words, the result of this research is null.

Every thing remains unchanged, and only Dickel's own principle of the forming of the sex, according to which the female egg should be the bearer of male qualities, and the sperm the bearer of female qualities, has been thoroughly refuted by Dickel-Kuckuck.

Finally, we want to emphasize that Dr. Kuckuck finished thoroughly the doctrine of the "arbitrary" sex determination, because, according to him, the sex-tendency is influenced through the greater or less electric charge of the female or male nucleus-substance, and nobody can consider electricity to be an intellectual power which arbitrarily determines the sex of the bee-eggs according to the needs of the stock.

The electric charge is probably only the consequence of chemic-physiological causes; and here we arrive at the much disputed, because so little understood, question of the food-juice doctrine.

Who would have expected this? Every thing brought forward, which shows conclusive force, only confirms our own ideas regarding the organism of the bee; yet these ideas, according to certain judgments, can not be taken seriously.

For this support we are obliged to Kuckuck-Dickel.

*By the way, from the point of view of a practical bee-observer we should like to propose the following question, which evidently did not occur to Dr. Kuckuck for lack of knowledge of the bee-life, but which Dickel, the bee expert, could have considered very well: Why is it that a drone-brooding bee-stock does not resort to its last resource to change to a queen a drone-egg which, according to Dr. Kuckuck, is homogeneous to any bee-egg? Why do they perish, when they can save themselves by the simple and certain Kuckuck-Dickel' method?

WINTERING.

How do Bees Pass that State of Inactivity, or Rest, during Winter, Described by Dr. Dzierzon in Allgem. Zeitung fur Bienenzucht?

BY F. GREINER.

Honey-bees, like other creatures, have their time of activity and inactivity. They rest when vegetation comes to a standstill, when no more blossoms are found, the pollenizing of which is their principal mission. A few cleansing flights excepted, bees remain quiet, although the weather may seem warm. When cold weather comes they behave much like other creatures. They pull in their extremities in order to expose as little of their body as possible, so that but little warmth may be lost When it becomes extremely cold, the bees not only occupy the spaces between the combs, but also fill up the cells, which is so natural that hardly a word need be said to affirm this. It would not be a compact cluster if only the half-inch spaces

were filled with bees and the inch-thick combs stood empty. A cluster thus divided by spaces would freeze in a little while during extreme cold. As simple and as easy as it is to find out this matter, there are still some who do not hesitate to contradict, unreasonable as it seems, these facts. They even assert that, at the last moment before death occurs, they will crawl into the cells, when it is well known that all animals, when dying from cold or starvation, remain in the position they last occupied. As the combs would give room for twice as many bees as the space contains, these spaces would have to be entirely empty of bees if they had crawled into cells at the last moment. On the other hand, if one examines a starved and chilled colony, not only will the cells be found full of bees but also the spaces between the combs to the extent of the cluster. This is an unmistakable proof that the bees must have taken their position in the combs and in the spaces when all were in full possession of strength. I am not assuming any thing, but I have time and again taken colonies apart during cold weather and found them just in this condition. One may then plainly see that there are more bees in the cells than there are in the spaces.

It is of importance to know this behavior of our bees during cold weather. The reason why late-fed bees (with liquid food) usually winter poorly is, therefore, apparent. If the late-fed syrup is not consumed before winter comes, the bees have a cold seat, for they can not crawl into the cells as they would if that honey were not there. The same is true when there is an excess of pollen stored in the brood-nest as is often the case with such colonies that have been queenless long.

An American (Heddon) advanced the idea that pollen is the cause of diarrhea in bees. This must be a mistake, for bee-bread is strengthening in itself. Not the eating of pollen may have caused the propounder of this theory to come to such a conclusion, but the position that the pollen was in, causing a cold seat and thus the diseased condition of the bees.

It is a dangerous practice to try to winter a colony with pollen in the brood-nest. The combs must be empty. If necessary they must be removed.

The next question is, "In what manner shall we feed the bees in mid-winter?" When no more open unsealed honey is at hand inside of the cluster the bees provide themselves with honey according to the temperature, either by bringing it from distant combs, particularly from the lower edges of combs, or when too cold for that from the sealed honey-cells at the upper edge of the cluster. Some have an idea that there is a gradual working-up of the bees—a sort of rotary movement; but I incline to the belief that the food is passed down by the bees that are at the honey, to the hungry sisters. The question might be asked, "How much honey may a bee take at a time?" Probably only very little, for its body is always slender and short unless its contains an undue amount of fecal matter; and when this is the case it can not possibly take a very large amount of honey. There is not room.

Naples, N. Y.

IMBEDDING WIRES IN FOUNDATION.

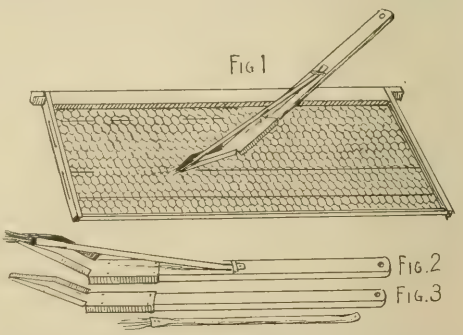
Waxing the Wires with a Brush and Spoon Combined.

BY E. F. ATWATER.

When full sheets of foundation are used in wired frames it is always desirable to put the frames in use soon after the imbedding is done, or the wires are likely to cleave away from the sheet of foundation, and this is especially likely to occur when such frames of foundation are hauled to outyards.

As the spur wire-imbedder comes so near to cutting the sheet of foundation in two, we have, in the past, found it better to use the old Easterday rocker wire-imbedder to avoid occasional trouble from the sheets breaking or pulling apart where the imbedding had been done.

Now we find it safe to use the spur imbedder, and the sheet of foundation will never pull apart at the wires. It is now our practice to wax the wires in place after imbedding them into the sheet of foundation. This



insures that they will stay imbedded, whether used this year or next; aids in preventing sagging along the wires, making that line (usually the weakest) the strongest place on the sheet of foundation. Frames with sheets of foundation so prepared are especially good for hauling to outyards and over bad roads.

Our older methods of waxing the wires in place were faulty. With a brush the brush would not carry enough wax; with a sharp-nosed tin spoon with a small notch in the end it was difficult to follow the wire and to regulate the flow of wax. During the spring of 1906, Mr. H. E. Crowther and myself originated the plan of combining the spoon and brush, as illustrated herewith.

The sheet of foundation, with wires imbedded, should be supported on a slant, then with the combined spoon and brush it is an easy matter to wax the wires in place; easy to follow the wires; easy to regulate the flow of wax, and the spoon easily carries enough wax to finish one or more wires without

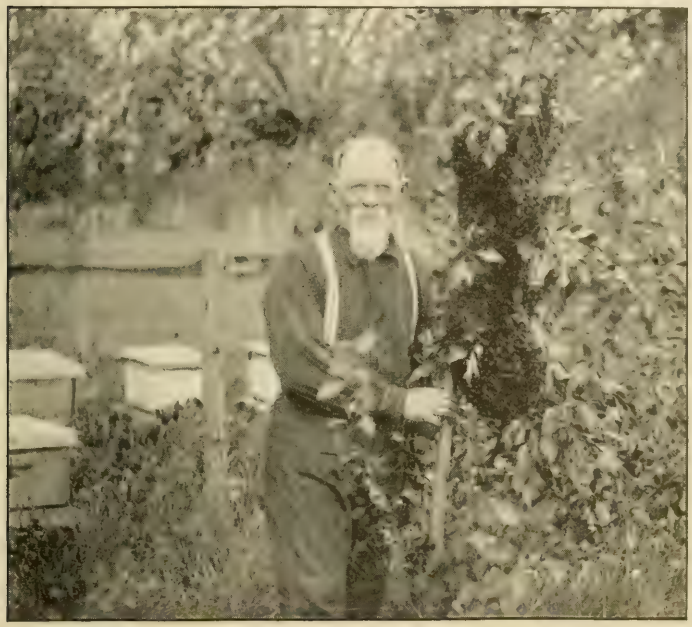
stopping to dip again. Don't imagine that an exceedingly light coating of wax is required, neither should it be used lavishly.

This little tool is easily made, and should be on the list of supplies. Perhaps the brush can be combined with the Van Deusen wax-tube, though we prefer the pointed spoon as shown.

Fig. 1 shows the complete spoon and brush combined, ready for use. Fig. 2 shows the parts—the brush and the spoon.

The spoon without the brush is the simplest tool to use when we want to attach either starters or full sheets of foundation to plain top-bars. It is the "Onderdonk spoon," as described in the *American Bee Journal* years ago. It is also perhaps the best tool to use when we fill sections with foundation fastened on three or four sides—a plan that I discarded after years of trial and experiment.

Meridian, Idaho.



THOMAS C. CRAGUN, OF UTAH, AND THE SWARM HE CAPTURED.

This shows only a corner of an apiary of 146 colonies which is surrounded by dwellinghouses. It is interesting to know that none of the neighbors have ever been stung.

A UTAH APIARY SURROUNDED BY DWELLINGHOUSES.

An Extensive Producer who Manages his Bees in Such a Way that No One is Stung.

BY T. C. CRAGUN.

My apiary of 146 colonies, a part of which is shown in the engraving, is located in Smithfield. I have kept bees on this ground (8×20 rods) for 25 years with families living on three sides, and one side, eight rods, fronting the road, and one man's barn less than four rods from where I stand, and never yet has there been any complaint about the bees, and no person or animal has ever had a sting from a bee.

I produce several tons of comb honey every season, of a good quality, and which finds a ready sale at good prices. I make a specialty of comb honey. Many times it has been placed on exhibition at our State fairs, and in every case it was awarded the first prize. I also produced the 125 lbs. of comb honey that Utah had on exhibition at the World's Fair at St. Louis.

WHY MY BEES DO NOT MOLEST NEAR NEIGHBORS.

I have handled bees most of my life, and never had them get angry and attack people or animals that come near or pass by. I never work with them in the heat of the day. In every case I put on supers in the evening. I use the Porter bee-escape; and when a super is full and another is to be put on I place a bee-escape on an empty super, remove the full one, put on an empty one, then put back the full one on top of the bee-escape, and bees will pass down through the bee-escape into the empty super, and go right to work, and no time lost.

Right here let me make one suggestion to beginners. As a rule their yards number from one to six colonies; and when their honey is to be taken away it is done in such a way, and in the heat of the day, that bees get fighting mad and remain so for days; and any person or animal that comes within reach they attack; and in some cases we read of horses being stung to death, and on inquiry we find in every case it is done by such bees or yards as I describe. I believe if we study the bees well, and handle them carefully, it would save us time, save bees and honey, and avert lots of stings.

Smithfield, Utah.

[We wish particularly to indorse the suggestions of Mr. Cragun on how to prevent bees from making trouble to neighbors. If more bee-keepers practiced what he preaches here we should hear less about bees and neighbors.

Mr. Cragun writes further that he has considered giving a demonstration with bees at the next State fair in Utah. Our experience shows that this plan proves to be a great attraction at any fair, and is, therefore, a good advertisement. Many will buy more honey if the general subject of bees is clearly brought to their attention.—Ed.]

INTRODUCING QUEENS.

A Modification of the Alexander Method.

BY CLARENCE A. HALL.

I think the plan of introducing one or more queens in a colony of bees, as given by E. W. Alexander, Sept. 1, is a great advance in bee-keeping. I shall never try again to introduce a queen by the directions that are tacked on the queen-cages. When Gleanings for Sept. 1 came to hand, I received at the same time two queens. After reading the article by Mr. Alexander I determined to introduce my two queens by his plan.

Mr. Alexander says, "It will not do to omit any part." Now, when we only requeen in this way I claim we can make some changes, for I did, and yet the plan worked like a charm; and this is the part of the plan I violated: I left all combs of honey and brood in the hive, took nothing away but the old queen and the bees in the introducing-box. I then, of course, could not set the introducing-box with its bees and queen in the hive, so they were just run in at the entrance. This act was timed to come after dark, because of robbers; for the same reason a bee-tent was used when hunting for the old queen. Two colonies were requeened in this way. They are the crossest hybrids I ever saw.

It is the best plan I ever used, for we can requeen at any time of the year without fear of weakening our colonies, because the bees are queenless only a few hours at most, and they work like new swarms the next day.

Covert, Kan.

[Upon receiving the above letter we sent it to Mr. Alexander for any comment he might wish to make. His reply follows.—Ed.]

In connection with the success Mr. Hall has had in introducing queens as he describes in the above, a few words of explanation from me may not be out of place. Yes, it saves some time and labor to let the combs and brood remain in the hive and simply allow the queen or queens with the bees from the introducing-box to run in at the entrance; but with us it was not always a success. When we practiced that way we lost about a tenth of the queens. That was why, one year ago, I wanted to test the introducing of a plurality of strange queens to a colony another season before making our method public. When we have a surplus of ordinary queens we take our chances and leave the brood in the hive, and let two or more queens run in at the entrance with the bees from the box; but with valuable queens I should much rather remove the brood as recommended in Gleanings for Sept. 1. In that way we have never lost a queen; and if I had one that had cost me $100 I would not hesitate to introduce her as I there advised. There certainly is a great difference whether we attempt to introduce a strange queen to bees that have gorged themselves with honey, or whether they are somewhat hungry; therefore when introducing as friend Hall did I think it will be much better to give the colony a few puffs of smoke and jar the hive somewhat so the bees will fill themselves with honey before letting them and the queen or queens run in from the introducing-box. We found this to be much the safest way when the brood had been left in the hive. Although it is now late in the season I frequently receive letters speaking of introducing a plurality of queens with marked success, as recommended in the Sept. 1st issue.

The main and most vital part of this method seems to be in introducing the strange queen to about a quart of bees that are well filled with honey after they have been taken from their parent colony a few hours, and keeping them a few hours longer with the queen you wish to give to the colony. This gives the queen the odor of the colony, and the bees don't seem to realize but that it is their mother queen. All the rest is but secondary to this main part.

E. W. Alexander.

Delanson, N. Y., Oct. 14.

PLURALITY OF QUEENS.

Another Plan for Introducing Two or More Queens to a Colony.

BY "CRUADH."

Ever since Mr. Alexander's article, p. 473, I have watched your columns carefully with the expectation of seeing his promised subsequent article. Others, too, at your request, have given their experiences, but, like Mr. Alexander, all have refrained from detailing their methods. The writer far from wishes to "tread on the tail of Mr. A.'s coat," as they say in Ireland; but as the season is advanced I am to-day giving a method — the best of the many possible ways by which this object may be attained, so that it may be tested at the Home of the Honey-bees.

We are daily using this "Cruadh" (so called) method of introducing, which is an infallible means of introducing any queen to any colony, and that, too, in a way which not only embodies all Mr. Alexander claims, but more also, for the introductions, even in plurality, never fail. There is no necessity for removing the old queen; the work of the colony is in no way impeded, and the new queen or queens will be laying in just about the 18 hours mentioned. The whole is so painfully simple that no one could make it

fail—indeed, one feels almost ashamed, and inclined to apologize for its simplicity.

Get an empty ordinary full-depth top-story and bore a ½ or ⅝ hole in the middle of the lower front to serve as an entrance. Get out two wooden division-boards ⅛ in. deeper than your ordinary brood-frame, and cut to length to slip into the top story, and yet not allow room for a bee to pass around the ends. Cut a piece of wire-screen cloth the same length as the division-boards by, say, 3½ or 4 in. wide, and tack it on to the lower edges of the two boards, thus forming a species of cage.

Put a *laying* queen into a transfer-cage in your pocket, and take with you a small common wire introducing-cage, say 2 inches square, with one side open to press on to a comb. Go to any colony working in a full-depth top-story for extracted honey. Take off this top story, set it aside, and substitute the prepared one, with cage fitted, which you brought. Transfer to the latter as many of the extracting-combs, bees and all, as it will hold, leaving the cage empty, of course; then select one comb of just-hatching bees, and place it, bees and all, in the cage, together with another comb, either empty or full of honey or hatching brood. Let your new queen on to this, and cover her with the small cage (over food), pressing well into the comb, and then put the frame, etc., into the cage. Cover the division-board cage, containing these two frames, with a piece of cloth so as to prevent other bees from getting in; but leave the hole in front open so that the *old bees* can get out. Close the lower hive and put on the prepared top story and cover. The first thing next morning, let out the queen. See that she is received. In doing so, do not be in too much of a hurry about replacing the cloth, for your object is to get rid of any flying bees that may still remain. Close the hive again. In another six hours or so she will be laying, and, *if so*, remove the top story, hunt the old queen, pick up the new queen, and place her on the same frame, watching the result for a minute or two, when the frame with the two queens may be put down below. Your cage in the top story is now ready to take another queen, to be let out twelve hours later, and so on.

In the whole business there is but one *don't;* and that is, *don't* put the new queen down below until she is laying, and then you need have no fears. Also, instead of replacing the two queens on the one frame we would put one on each of the outside combs, thus being as far apart as possible when first put down among the bees. Of course, try them together, as first suggested.

I can and do considerably shorten the time and details required for introduction, but have given here the whole *modus operandi* so there may be no accident with a test case. Once your queen has the colony odor, and is laying, she will always be received instantaneously. Unfortunately, this is really nucleus-forming on a temporary scale, and also requires a little furniture. This latter, however, is not useless; indeed, these division-board cages are just about the most useful articles we have in our yards, where they are in constant requirement for many other purposes. Four or more queens may be put down at once by tacking screen cloth right over the bottom of a top story, dividing with division-boards, and holes for the required number, and going ahead as before. As previously mentioned, if you mate from top stories, as you should do, no introduction is necessary. In requeening by this method your new queen is laying before the old one is removed, so no time is lost. One caution: Be sure your division-board cage is bee-tight all over—sides, top, and bottom.

Ballyvarra, Ireland, Aug. 5.

THE PLURAL-QUEEN SYSTEM.

More Honey than from the One-queen System.

BY JOHN SHERROD.

When I saw Mr. Alexander's article last spring on the subject of a plurality of queens in one hive I was very anxious to know how it was done; so I went at the problem myself, and succeeded in putting two queens in each of ten colonies. I got them in about June 15. There was no honey-flow here until about July 15. Five of the two-queen colonies are in ten-frame hives and five in eight-frame sectional hives, similar to those described by Mr. J. E. Hand. Queen-excluders are between the two sections of the latter.

In getting two queens in the ten-frame hives I follow this method: When a swarm comes out I put the frames and bees left in a hive, five combs on each side of a division-board. Entrances are made at opposite ends of the hive.

As soon as there is a laying-queen from the queen-cells on each side, I take out the division-board and substitute one made of queen-excluding zinc. When the colony becomes strong I put on a ten-frame hive with full sheets of foundation.

Each colony commences to work on the outside frames, and gradually works to the center, when, I suppose, they make friends, as I put on supers after that, and they commence in the center, as all colonies do. They make more honey than one-queen colonies with the same showing.

Now, those queens could get together, if they wished, before I put on supers. One did get around the division-board, and both queens were on one side. The bees on the other side had started a queen-cell, and it was nearly ready to hatch when I found it. I put the queen back, and in two hours I saw the young queen from the cell lying in front of the hive.

I intended to divide these double-queen colonies and make two colonies about Sept. 15.

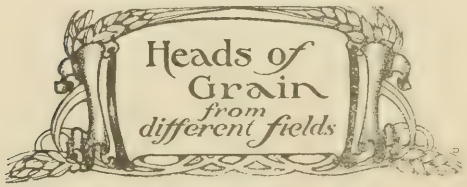
Later.—In one or two cases I put a virgin queen on each side in the ten-frame hives. As soon as they were fertile I replaced the division-board with a queen-excluder.

In one other hive, after the division-board had been in place two days I put the old queen on one side. Cells had been started on the other side, and these I removed and allowed a newly hatched virgin to run in. After she became fertile I took out the board and put in the queen-excluder. I notice that the old queen is now missing, but both of them worked together all summer.

On Sept. 15th I divided three of the ten-frame colonies and made six, each having a queen.

Fruita, Colo.

[The plan here described is one that we have worked in our queen-rearing yards a good many times. The same principle has been used by Mr. Alexander, and is, in fact, used by several others; but instead of a perforated zinc division-board in one brood-nest, two stories are used with a perforated honey-board between. There is no trouble in working the two-queen system in connection with perforated zinc; but the problem is not so easy of solution when it is not used. —ED.]



GOVERNMENT CONTROL OF BEE TERRITORY.

Dr. Miller's Stray Straw on control of territory, in GLEANINGS for Sept. 15, it seems to me, is a *stray* Straw indeed. The case of the stock-raiser, which he instances, is not a parallel one. The stock-raiser either owns the pasturage, rents it, or is a trespasser, and liable to ejectment. He does not by legislative enactment occupy territory owned by another without the owner's consent. If the doctor can manage in some way to hopple his bees, by clipping their wings or otherwise, so that they may be kept within his own boundary, or if he can manage in some way to grow wings on the stock-raiser's cattle, so they may roam indefinitely, he will have produced a parallelism.

Looking at the "bread and butter" side of the question, how about the poultry specialist and fruit-grower specialist, as well as every other specialist? Let us have a "square deal," and ask for legislative protection for Mrs. Wigg's cabbage-patch, Pat's potato-patch, and every other special patch for the production of "bread and butter" which may be, in some way, adversely affected by the farm production of the same article of commerce. Why not? On reflection, there are so many objections to thus paternalizing the government that I believe after all we'd better not do it.

Just one thing more which I can not allow to pass unnoticed; viz., "pastime bee-keeping." I can not think (or, rather, may I not say I *know?*) that brother Miller does not mean to insinuate that my conclusions on the subject of control of territory are the result of "pastime bee-keeping;" but if "bread and butter" were the object I'd reason differently. It may be that that's the way of the world; but it suits me to be a little odd in that respect. WM. M. WHITNEY.

Lake Geneva, Wis.

THE MASSACHUSETTS BEE-KEEPERS' ASSOCIATION; THE FIRST MEETING OF THE SEASON.

We held our first meeting for this season in the Ford Building, Boston, Nov. 21. President Farmer presided. Our secretary read the reports from the former secretary, Mr. Fogg, which were very pleasant to hear, giving an account of the field meeting which was held at Mr. Adams' place in Byfield last August, at which there was a good attendance, and which was enjoyed by all present. Mr. Farmer was chosen president of the society for the ensuing year at this field meeting, and a new lady secretary was also chosen. Our next regular meeting will be the first Saturday in December in the *evening*. As there are to be only six meetings, the society, or its members, voted to have half of them in the evening. This society has quite a number of members; and, with its good constitution, it is hoped there will be an increase. There were fifteen present at our first meeting, and the time passed very pleasantly, several members relating their experience the past summer. This was interesting, as it takes in all parts of the State during the honey season. A nice collation was served by our president, and the meeting closed at about 5 o'clock.

Belmont, Mass. X. A. REED.

ALEXANDER'S SCHEME OF EXTRACTING AND FEEDING BACK TO STIMULATE BROOD-REARING.

In GLEANINGS, p. 1377, Mr. E. W. Alexander says: "We commenced to extract all capped honey from the brood-nest about May 1, and in its place, *when necessary*, we feed a little thin honey or sugar syrup daily for about a month. This is, no doubt, a sound theory; but what puzzles me is the phrase *when necessary*. Surely it is necessary to replace the food when taken out, especially at such time of the season. By such word must we understand that we have to feed a little every day until the colony finding nectar ceases to go to the feeder? FRS. BENOIT.

Notre-Dame-des-Neiges, Q., Can.

[Mr. Alexander feeds practically all of his colonies; that is to say, he takes away their stores and then feeds them back to them. This may seem like a queer procedure; but he is working on the theory that stores that the bees manipulate cause them to rear brood when they would not rear it if it were sealed in the combs. If you leave out the words "when necessary" you will be able to understand better what is meant.

We may state that Mr. Alexander is running counter to the theory and practice of the great majority of bee-keepers in this country, who perhaps would consider such excessive stimulation expensive, and that more brood would be reared than is necessary or wise. Too much brood-rearing at the wrong time of the year has a tendency to drain the resources of the colony, and, what is worse, some of the brood will be neglected. Again, when bees take feed out of a feeder and store it in the combs there is a considerable loss. If ten pounds of feed be given in a feeder the sealed comb probably will not show more than 50 per cent of that feed, for the reason that much of it would be lost by the bees actually consuming it.

But Mr. Alexander undoubtedly makes this plan of stimulating brood-rearing a success, as he does all of his various practices; but what he, a practical bee-keeper of many years' experience, is able to do, others probably would not. We would advise the beginner to proceed very slowly with this plan of taking away the stores and feeding them back again.—ED.]

MATING OF QUEENS; HOW NATURE STRIVES TO IMPROVE STOCK.

In order to strengthen the conclusion come to by Professor Cook in the May 1st issue, page 621, I wish to say that, many years ago in England, I found, in an apiary of black bees, two queens that had been mated with an Italian drone. As this was a section well known to me, and in which I knew every hive of bees for a circuit of ten miles I was convinced that the nearest Italian drones were not nearer than four miles. Since locating here we had, six years ago, an apiary of black bees two miles in a direct line south from our home yard, which yard had the nearest Italian bees; yet several young queens in the yard of black bees were hybrids, and several virgin Italians introduced into that yard were purely mated. The special point I wish you to note is that, both in the English queens and those here, the ones mated from a distance were the best honey-gatherers in the yard, and I have often thought that perhaps the credit given by some to hybrids as honey-gatherers was from the vigorous strain injected by long-distance mating.

Wetumpka, Ala. H. FITZ HART.

[All through nature we see the principle of "the survival of the fittest" as first enunciated by Darwin. This is exemplified very strikingly in bee culture. For example, the swiftest-winged and strongest drones are the only successful suitors, for a young queen on the wing is very swift of flight. It may be, as stated by our correspondent, that she endeavors to give her consort a long chase. If that be the case he must be *her equal* and *superior* to any of the strongest *rivals*. The effect of this competition, and the rule of "the survival of the fittest," would be to keep the race from deterioration, and perhaps improve it.

If any one else has any evidence bearing on this question we should be glad to hear from him; for if we attempt artificial fertilization in a large mating-cage we may to a certain extent defeat the very object designed by nature—namely, the development of strong-winged, hardy bees.—ED.]

TWO QUEENS IN A HIVE.

With reference to two queens in one hive, page 259, a year ago last spring I reported that I had two queens winter in one hive, and when I was clipping I found these two, apparently mother and daughter, depositing eggs on the same comb. They continued to do business in this manner, the old clipped queen growing weaker all the while, until in the middle of the summer, when she succumbed to old age.

Last spring at clipping time I found two *young* queens in one hive depositing eggs on the same comb as contentedly as though each reigned supreme. I clipped them both and removed one, and used her to supersede a black one. They were both very prolific, and built up strong colonies. These were reared the previous season, and were wintered together. ELIAS FOX.

Hillsboro, Wis.

ARE SNAKES HARMFUL IN AN APIARY?

In the Aug. 15th issue, p. 1079, Mr. Alexander thinks it best to keep snakes, skunks, etc., out of the apiary. I keep a large snake under the hive to keep away toads. What harm can a snake do to bees? I thougbt it was just the thing to keep away mice. I notice it stays there most of the time, and is contented, and so was I. I thought I would get another one and put there.

PHARO MILLER.

Salina, Kan., Aug. 30, 1907.

[Ordinarily it is thought that snakes kill the bees; but if you have never noticed any such tendency this may be a mistaken notion on the part of bee-keepers in general. All bees seem to have a natural dislike for snakes; but it is uncertain just how much harm is done. We should be glad to hear from any who have had experience.—ED]

A SWARM THAT TRAVELED THIRTY MILES.

Before I kept bees a Mr. Malone, who lives near here, had a swarm of bees come to his place. We are thirty miles from the railroad, and there are no bees nearer than that road; so the bees must have come from near the Platte bottom, about North Platte, Neb.

Gandy, Neb. F. R. HOGEBOOM.

BOX HIVE STRUCK BY LIGHTNING.

I have a hive under an apple-tree. The lightning struck the tree and hit the bottom-board, and knocked off the south side and west end of the hive. The bees were not hurt, and they are doing well now on the old stand, and appear to be happy and contented with a two-sided hive only.

Marshall, Mo. A. M. O'DONNELL.

CAUCASIANS NOT EXCESSIVE SWARMERS.

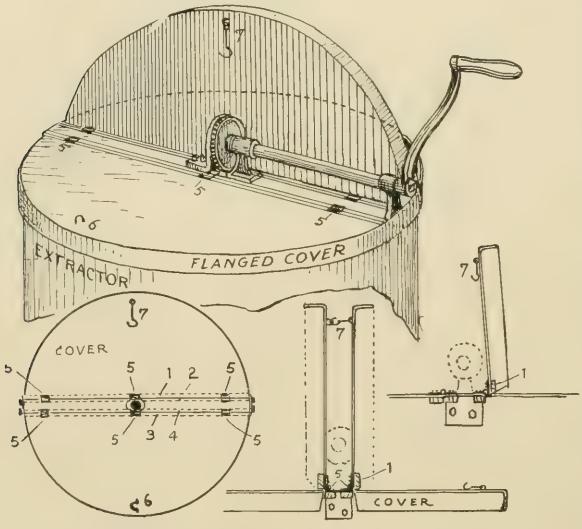
I bought an untested Caucasian queen last year, but I think she was mated with an Italian. They are fine workers. They did not swarm, although the Italians were crazy on swarming. They are the bees for our cold windy Aprils. J. S. PATTON.

Havana, Ala., Sept. 26.

[There have been very conflicting reports regarding the Caucasian bees. Apparently some of the strains imported last year have not been equal to some of those imported two or three years ago. As there must be a good many of these bees in the hands of bee-keepers we should be glad to get brief reports. Tell the bad as well as the good qualities; and if they have nothing in particular to recommend them, let us know the fact as early as possible.—ED.]

COVERS FOR HONEY-EXTRACTORS.

I am sending you a drawing of a cover for a honey-extractor. The illustration shows the idea clearly. It takes three pairs of hinges at 3 cts. a pair, with screws complete, and about half a sheet of galvanized iron, costing about 50 cts.



Such a cover is always ready in an instant; is dust-proof, mouse-proof, and bee-proof. It is not in the way when both sides are turned up and hooked together with a string. It can be closed while running when extracting outdoors in the wind. ELAM MOYER.

Blandford Station, Ont.

[Usually a cloth hood with a rubber cord inserted in the edge is just as good and much cheaper. This is what most bee-keepers use. —ED.]

HERMAPHRODITE BEES.

I am anxious to know something about the bees of a queen I have. They do not look very much like goldens, for that is what I wanted. One of them had a fair golden color, but the other was the color of a queen of the three-banded strain of Italians.

I have read various articles in GLEANINGS about goldens not being very hardy, but we have had them for the last four years and have found them as hardy as any we have ever had in our yard.

I have noticed some queer freaks among the goldens. Among these are bees with worker heads and thorax and abdomen of a drone, and *vice versa*. They are always from young queens. I should like to know what you call these freaks.

Boonville, Mo. CHAS. H. MAYER.

[In rare cases a queen will rear hermaphrodite bees—that is, bees with drone heads and drones with worker heads. They are very interesting curiosities to show bee-keeping friends. Their presence, however, in the hive does not appear to interfere with the general work of the colony.—ED.]

GUAJILLA—DERIVATION OF THE WORD.

Mr. Root:—In reply to your request in your Nov. 1st issue I would say that the word *guajilla* or *huajilla* is evidently meant for a Mexican word; but having made a great many inquiries here among the natives I can't find any one who has ever heard it. I have come to the conclusion that it is one of those half-breed words so common along the border—neither English nor Spanish.

The bush you mention is very common here and all through the southern parts, but is called "uñas de gato," meaning cat-claws. It is very similar to the mesquite, only it has these hooks all over the limbs and even small twigs.

L. H. MORRISON.

Nacazari, Mex., Nov. 10.

[In reference to the spelling of the word "guajilla," the matter was laid before the publishers of *El Comercio* (Spanish) who say:]

Mr. Root:—We would say that we would not hesitate to choose *guajilla* as the proper word to use—that is, the word so spelled is just as we would spell it if we had occasion to do so.

J. SHEPHERD CLARK CO.

New York, Sept. 24.

Mr. Root:—Referring to an article on page 1370, entitled "That Bee Paradise in Texas," and to your footnote, I will say the word is spelled "*guajilla*," commonly pronounced "wah-*he*-ah," the *ll* being an entirely separate and distinct letter. The *h* is always silent in Spanish, so that the written *hua* would be pronounced *wah*, and the entire word *wah-heel-yah*.

MRS. J. A. PRUITT.

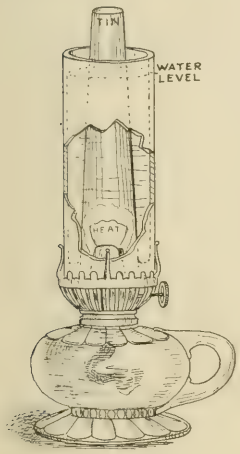
Vancourt, Texas, Nov. 6.

[From this it appears that "guajilla" is the proper spelling of a word variously pro-

nounced in Mexico and the southwestern parts of the United States.—ED.]

AN UNCAPPING-KNIFE HEATER.

Regarding plans for heating a honey-knife in hot water, I find a double lamp-chimney made of tin answers well and requires very little oil. The inside tube is 10 or 12 in. long, 2¼ in diameter at bottom over the burner, and 1½ at the top. The outside tube is 3 inches in diameter. A thin wooden or cloth ring is required around the top of the 3-inch tube on the inside to prevent dulling the knife on the tin, or the outside tube may be made of wood ½ inch thick, and is safer to handle. A small blaze will keep the water boiling, which should be occasionally renewed. A low medium-burner glass hand lamp is convenient to carry to outyards.



Little Britain, Ont. R. F. WHITESIDE.

DANDELION HONEY.

It gave me much pleasure to see the articles in favor of the dandelion in your issue of June 15th. The dandelion is a very important honey-plant in this locality This year ten hives gave me over 200 lbs of dandelion honey, about one half being comb. For the last three years the dandelions have given us surplus honey. The best hives ran from 20 to 30 lbs. each. The honey is yellow, thick, and has a fine flavor. The only objection is that the wax is always heavy. This year I got an extractor and ran some hives for extracted honey, as we prefer the dandelion honey extracted on account of the heavy comb. Bees are doing finely in this locality this year. R. T. HAWLEY.

Milltown, Wash.

CLEANING SECTIONS; A REPORT FROM AN 1800-COLONY PRODUCER.

Mr Root:—As I am not a writer, as are Mr. Gill, Dr. Miller, and others, I will introduce myself. I am a young man 54 years of age; have taken GLEANINGS since it first started as a quarterly, without missing a number. I have about 1800 stands of bees in three States (California, Utah, and Colorado), all run for comb honey. The early close of the honey season in California left me free to ramble. I have been visiting Mr. M. A. Gill, of Longmont, who is running 1600 stands for comb honey.

Some time ago I read of a certain doctor in California who was talking seriously of changing from the section-holder super to the T super on account of Miss Wilson's record of cleaning honey from the T super. While I was at Mr. Gill's their daughter, Mrs. Marian Fuller, of Beloit, Wis., cleaned and cased 125 cases from 7 to 5 o'clock with half an hour for noon. She had the double-tier case, 24 sections, 1⅞×4½. She had to wipe the glass, place 8 strips of wood in position, and put paper in, and she had to carry a good deal of it into the next room; also had to wait for cases part of the time. I think she could clean and case 150 in 10 hours with the single-tier case, and no waits to make and no sticks to space.

Longmont, Col. F. J. FARR.

HONEY FROM ALFALFA; SOUR HONEY IN A BEE-TREE.

I have noticed the subject of alfalfa producing honey in different localities. I watched this somewhat last summer; and when it was extremely dry there were no bees on the alfalfa; and as soon as we got a shower the bees went to work (or very soon after) on the same field. This was on bottom land, when there were dews at night.

What is the cause of soured honey in the hive? I cut a tree last summer with about 100 lbs of honey, all soured. Would this be good to feed back? I mixed it about ½ syrup, ¼ honey, ¼ water. I could see no bad effects.

Portis, Kas W. J. GARRETT.

BLEACHING COMB HONEY; WILL THE USE OF SULPHUR BE A VIOLATION OF THE PURE-FOOD LAW?

In *Orange Judd Farmer* of Aug. 31 is an article on sulphuring fruit. What effect will that law have on sulphuring comb honey for the purpose of bleaching and killing the wax-moth? It seems to me that the effect of the law would be the same on both. Let's have your opinion. J. A. RUFF.

Fort McKavett, Texas.

[We are not prepared to give you any information on whether the sulphuring of honey-combs to bleach them would be a violation of the pure-food laws or not. We hardly think it would, as the amount of sulphur that would be used to bleach a comb surface would necessarily be very much less than that which is used to bleach dried fruits. A delicate white comb will not stand very much sulphur without getting the surface covered with a yellow deposit. We have seen the process of bleaching fruit in California, and it is our opinion that the amount of sulphur used is excessive as compared with what would be used to bleach comb honey.—ED.]

SUCCESS WITH THE DANZENBAKER HIVE.

I had 23 colonies this spring, and now have 27, having had but four swarms. Swarming was held in check mainly by the tiering-up plan. One-third of the colonies

was first-class; one-third second-class, and the rest nothing more than nuclei. They gave me over one ton of honey, part being comb and part extracted. One colony gave me 204 lbs. of comb honey, and another colony 202 of extracted. I ran my weakest colonies for extracted. The comb-honey hive gave 147 lbs. of white clover, and 57 of buckwheat. The one for extracted gave 120 lbs. of white-clover and 82 of buckwheat honey. I use the Danzenbaker hive and super, and for comb honey or extracted there is not a better hive on the market. I exhibited honey at our State fair in Trenton in 1905, and took first prize on comb honey, but since then I have not had the time to exhibit it.

All colonies are heavy with honey, having had a flow of honey from fall flowers since I removed the supers. Levi K. Cole.

Stanton, N. J., Sept. 28.

MORE THAN ONE QUEEN TOLERATED IF THE BEES ARE GENTLE.

I would suggest that those who are not able to keep two or more laying queens in a hive without perforated zinc, as Mr. Alexander does, should get gentle stock; then they would be able to succeed. They will also have better success in putting a weak colony over a strong one in the spring, if the bees are gentle.

Hudson, S. D. Henning Anderson.

PLURALITY OF QUEENS IN ONE HIVE; WHAT ARE THE ADVANTAGES?

We have been reading with the greatest interest all that has been said on the plural-queen question, or a large part of it, and will venture a say on the subject. I am one of those apiculturists who keep bees for what there is in the business, as well as the pleasure of being close to nature; therefore the practical side of the question will naturally appeal to me first, and this leads my mind to a variety of questions, such as, Is this a natural condition of the colony of bees? Is the apiarist paid for his trouble? Will five queens give their keeper more money value in one hive than they will in five separate hives, and pay the trouble of raising and introduction additional?

We will notice, in the first place, that more than one queen in a hive is an unnatural state except a few days at the time of supersedure. I am a successful apiarist of over 20 years' standing and practice, and have never run across two queens being wintered in the same hive, therefore I am skeptical on the possibility of such a trick. Almost any sort of trick can be worked on bees when they are tumbling head over heels after honey during a big honey-flow, while, on the other hand, with adverse conditions we are often put to our wits' ends in trying to persuade them to accede to even their natural domestic traits. Any first-class queen will overflow a two-story ten-frame hive with bees in due time if the combs are ready for eggs and she has plenty of nurses and food for the larvæ; therefore, where is the use in fussing with a cupful of queens in one hive? We are not especially pessimistic on this subject, but believe that some good results can be had in the saving of hives, or, rather, making each hive a sure producer of honey by the introduction of a second queen. The question then naturally arises, "Will the apiarist get sufficient pay in dollars and cents to justify such a procedure?" It costs a neat little sum to produce 100 queens to double the queens in 100 colonies of bees with value of work added. If these queens are given separate colonies of their own, the benefit in dollars and cents to the apiarist will be of great importance.

T. P. Robinson.

Bartlett, Tex., Nov. 12.

[We do not believe it practicable to have more than two queens to a colony, and even then they must be separated by perforated zinc. We have had reports already from some who claim that they are able to increase the honey crop by the dual-queen system, for the reason that it is easier to raise two mediocre queens than it is one high-class queen that you speak of. Then, moreover, there is the advantage that if one of the queens is lost the colony is not hopelessly stranded, provided the owner should not discover the loss.—Ed.]

HOW FAR A SWARM TRAVELS.

On page 1070 you ask for data on how far a swarm of bees will go. About 35 years ago a man by the name of Girard found a swarm of Italian bees hanging on a bush, and sold them to Joseph C. Stewart, a bee-keeper of this place. At that time there were no Italians in Brown Co.; but the year before, a man by the name of Hart had imported some Italians. He lived at Appleton, 25 miles away. It was decided by the bee-men here that the swarm must have come from Mr. Hart's. In later years I found a bee-tree 8 miles from here, all circumstances pointing directly to the fact that they had left here. They were within a few rods of a large buckwheat-field nearly ripe when I found the tree. The first young bees were just hatching when I cut the tree, and the swarm left here 25 days before I cut the tree, and they flew in a direct line to where I found them. They were hybrids.

West Depere, Wis. Paul Scheuring.

HOW TO USE METAL COVERS WITHOUT DANGER OF MELTING THE COMBS.

In the March 15th issue, page 402, I notice the caution against the use of metal covers on account of the danger of melting the combs in the hot sun. I am sure this is a very good precaution. My covers are nearly all covered with galvanized iron, which I believe is the cheapest cover in use. In very hot weather I lift one end of the cover and place under it a strip about an inch square. This

allows a circulation of air under it, and removes all danger. F. H. CYRENIUS.
Oswego, N. Y.

CAUCASIANS NOT ALWAYS GENTLE.

I have just read in the March 1st GLEANINGS, page 337, Mr. J. G. Baumgaertner's experience with Caucasian bees. I have been surprised that so many recommended them last year for gentleness. It may be, as Mr. Baumgaertner says, that the cross with Italians makes them irritable. I found them very treacherous. One day, late in summer, I was taking off honey, and, after giving them a few puffs of smoke, I raised the lid, and I think two-thirds of the swarm struck me at once, settling on my veil until it was weighted down to my shoulders. I had enough stings to kill a man who was not used to it. That some beginner might not have such an experience as mine, I will say that I resorted to the old way of robbing bees by setting them over a pan of sulphur. It is a pity that such pretty bees should be such fighters. The Italians are good enough for me.
Fresno, Cal. R. E. ZIMMERMAN.

FEEDING FOR WINTER STORES; SOME DATA TO SHOW THE SHRINKAGE WHEN SYRUP IS FED.

In the Dec. 1st issue the editor asks for reports of experiments made in feeding for winter stores. Here are two extracts from my notebooks that may interest you. The syrup fed was made of equal parts of sugar and water.

Sept. 6, 1906, I put a super with six empty frames and queen-excluder on hive No. 43; weight, with feeder, 81 lbs.

Sept. 6, 7 P.M., fed 6 lbs. syrup	weight 87 lbs.
Sept. 7, 7 A.M.	weight 86 lbs.
Sept 7, 7 P M	weight 84½ "
Sept. 7, 7 P.M., fed 6 lbs. syrup	weight 90⅞ "
Sept. 8, 7 A M	weight 90 lbs.
Sept. 8, 7 P.M	weight 88 lbs.
Sept 8, 7 P M., fed 6 lbs. syrup	weight 94 lbs.
Sept. 10, 7:30 A.M.	weight 90 lbs.
Sept. 10, 7 P.M.	weight 89 lbs.
Sept. 10, 7 P.M., fed 6 lbs. syrup	weight 95 lbs.
Sept. 13, 7:30 A.M.	weight 92 lbs.
Sept. 13, 7 P.M.	weight 92 lbs.
Sept. 13, 7 P M., fed 6 lbs. syrup	weight 98 lbs.
Sept. 14, 7:30 A.M.	weight 97 lbs.
Sept. 15, 6 P.M.	weight 95 lbs.
Sept. 15. 6 P.M., fed 6 lbs. syrup	weight 101 lbs.
Sept. 17, 7 A M	weight 97 lbs.
Sept. 17 7 P.M., fed 6 lbs. syrup	weight 102½ lbs.
Sept. 19. 7 A.M.	weight 100 lbs.

This is a net gain of 19 lbs. for 42 lbs. of syrup fed.

Oct. 4, 1907, I fed the same colony 21 lbs. of syrup; weight, after feeding, 83 lbs.; on the evening of Oct. 5 it weighed 79 lbs.; Oct. 6, 76 lbs.; Oct. 7, 72 lbs., thus showing a loss of 11 lbs. in three days.

U. H. BOWEN.
Niagara Falls, Ont., Dec. 2, 1907.

[This is a very interesting series of figures. In this case, at least, there was a loss of only 2 lbs. of sugar out of 21 lbs. fed. At the time of year indicated there would be little or no brood-rearing At other times, when they were rearing broo , the loss would be considerably greater; but it would be a case of where sugar was converted into bees. From that standpoint the trade would be a good one.—ED.]

A GOOD YIELD OF HONEY FROM A COLONY IN AN ATTIC.

I have had what seems to be, in our county at least, a phenomenal yield of honey from one colony. By way of introduction I might say that I am General Secretary of the Sunbury R. R. Y. M. C. A., and, of course, live right here in the town. The only hive of bees I have is kept in the attic of my home, the bees going out and in at the east window. I have been telling some of the bee-men of our county, as I see them on market here, that from my one colony I have taken 134 1-lb. boxes, and they look as though they were not quite ready to believe me. But it is, nevertheless, true. My wife and I have kept accurate account of the boxes as we took them off at different times The only thing I did with the bees was to give them plenty of room. In this way I kept them from swarming. Most of the time I had 96 boxes or four full supers on top of the hive. My bees are quite dark in color, and, in my judgment, pretty cross, although my experience is limited to three or four years. W. D. HEVNER.
Sunbury, Pa.

THE LONG-IDEA HIVE.

Being an amateur bee-keeper I like to read the experiences of others. I should like to see more writings of schemes of those who keep only a few hives for a hobby. I have one plan that has worked so well with me that I should like to see others try it. It is this: A 16-frame hive, the frames running just opposite the regular way. This is the way I manage it: I keep two frames always with starters next to the entrance. This, with the wide entrance, does away to a certain extent with the desire to swarm. Back of these two frames are the brood-combs and then a division-board. As the bees need more room to enlarge their homes I just move the division-board back to make room for the extra frames. In this way the queen has plenty of room for her work, the bees room to store their surplus honey, and the large entrance gives plenty of room for air and the multitude of bees going and coming. The honey is in nice large sheets. I then cut squares as large as will go into a 1-lb. jar nicely; strain the odds and ends, and fill the jars. In this way my honey sells very readily. FRED AMES.
Rockland, Mass.

[The hive that you describe is the same thing as was known as the "Long Idea" hive of thirty years ago. The bee-journals were full of the discussion of it at that time; but in later years it has been deemed more practicable to tier up a brood-nest of moderate capacity by piling one on top of the other.—ED.]

INDIANY.

Once I had a friend, a Hoosier,
Who kept bees the modern way,
Usin' all the newest fixin's,
And he surely made it pay.

But he caught the western fever—
Went out there to strike it rich,
Where he landed plump alongside
Of an irrigatin' ditch.

He had lots of skill and knowledge,
And alfalfa yielded well:
For he got his tons of honey;
But when that he came to sell,

There was no one there to buy it,
So he had to ship away;
And when dividends were counted
He found it didn't pay.

Price was low, the rates were high,
Check was mighty small;
And the extra cost of livin'
Gave his hopes an awful fall.

But I'll let him tell his story—
It will not detain you long:
Oft it has been told you—
This same old mournful song.

I was born in Indiany,
An' I'm pinin' to get back
From prairie winds that howl and moan
'Rround my little shack—

From this dreary endless wildness,
Stretchin fur as yer can see,
An' my heart is nigh to breakin'
Fur the sight o' an old oak-tree.

I was raised in Indiany,
An, I'm wishin' I was back
Where the shiftin' shinin' Wabash
Cuts its twistin' trailin' track—

Plowin' through the rustlin' cornfields,
Loafin' under hangin' boughs,
Where there's pools to hide the fishes,
An' there's shade to cool the cows.

Indiany was my old home,
An' I'm heartsick to get back;
Where th' creeks an' woods have a song
That these lonesome prairies lack;

Fur there's nothin' here but silence
'Cept the never endin' cry
O' winds that mourn until yer think
That yer just about to die.

An' ye hain't no use fur livin',
An' the dearest thing yer crave
Is to die an' have it over—
If they'll only make yer grave

Back there in Indiany,
Where the Wabash twirls and turns—
Where the sun has trees to shine on,
An' the autumn color burns—

Where the sycamore's gnarled branches
Show the way the river goes,
An' across the yaller cornfields
Yer can hear the cry o' crows—

While the leaves are droppin' softly—
Nature's tears fur days that's dead,
An' amongst the hick'ry's tremblin' boughs
Where th' gray squir'l peeks its head—

Where oak an' maple colors
Make the woods aglow with tint
O' the land yer lookin' fur at last,
An' ye seem to catch a glint

O' the glory streamin' down'ards
Through a break in heaven's wall,
An' in the whisperin' silence
Yer can hear the angels call.

Indiany's purt nigh heaven,
An' I'm wishin' I was home;
If there's them that's thinkin' diff'rent,
They've a license fur to roam.

Indiana and high heaven
Are just two things which I lack—
I'm a good way off from both now,
An' a prayin' to get back.

We'll leave him out there for a while, but he'll get back, like the proverbial cat. They never say die or give up. Those who have never been "homesick" hardly know what life is. Those who have been, never can describe the disease. There's only one cure for it ever been found. It's an old remedy, but has never failed. Like the prodigal son, go back home. Many poor creatures fix themselves so they are unable to get back. Many a poor woman has spent weary days of a homesick life in the western country where all the shade was the north side of a barbed-wire fence, longing for the dear old home. It was a Hoosier, I believe, who said he was "glad to see a dog from Indiany," and I'll bet he told the truth that time, anyhow. So, sons and daughters of Indiany, if

you are homesick, don't despair. Go back, it's no disgrace, but shows a heart and affections. The real Hoosier is born, not made How they do love to brag on Indiana! Last spring, after the earthquake in San Francisco, hundreds of the people came east. They were on all the trains. One day a man and wife sat in front of me for a 100 mile ride. They attracted my attention by their actions. They eagerly scanned the landscape like children. I spoke to them and learned they were "quake" victims who escaped with their lives and were going back to the old homestead left 30 years ago. He tried to tell me how good it was to see an oak-tree once more. Tears filled his eyes, but he was not ashamed, nor I of him.

Three men met one day down along the bank of the Grand Trunk Railway, and were talking about the land of their births and were telling where they would rather have been born if they had not been born where they were born. The Englishman said he would rather have been born in France if he had not been born in England. The German said he would have preferred Italy. The Irishman said, "Be gorra, ave oi hadn't bane bawrn in Indiany oi'd bae ashamed ave mesilf."

So, kindly allow a Buckeye to present these few remarks as a token of esteem for my fellow bee-keepers in "Indiany."

FRANK MCGLADE.

TRADE NOTES
BY E. R. ROOT.

A NEW QUEEN-EXCLUDER.

Something that will not Impede the Passage of the Bees, and that has no Burr Edges.

In punching holes out of metal there is almost sure to be a very slight burr edge. While this can be reduced, by having sharp dies and puches, to almost a minimum, still there will necessarily be a slight edge. True, it can be burnished off, yet in case of perforated zinc the very process of removing it would have a tendency to turn it in, thus reducing the size of the perforation, and, instead of eliminating, it would actually aggravate the very difficulty we seek to overcome.

Within the last year or so, certain bee-keepers have complained that they thought bees did not go through perforated metal without some hesitation; and some went so far as to claim there would be less honey produced above it. But as to this last point, we believe that reports from bee-keepers generally go to show that, from comparative tests that have been made, the use of the metal does not reduce the amount of honey stored. Then the question arises, "Does the slight burr edge shorten the actual working life of the bees by wearing their wings?" We must say we do not know; but some six months or more ago Mr. F. H. Marbach, a practical machinist, and a die-sinker as well,

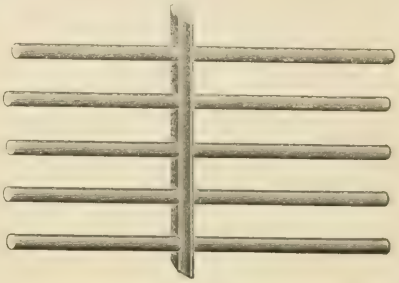


FIG. 1.—ACTUAL SIZE.

conceived the idea of spacing straight wires the correct distance apart. He argued in his own mind that these round bars or wires would have perfectly smooth edges, and provide an easier means of passage than the narrow slots punched out of metal having more or less of a burr edge.

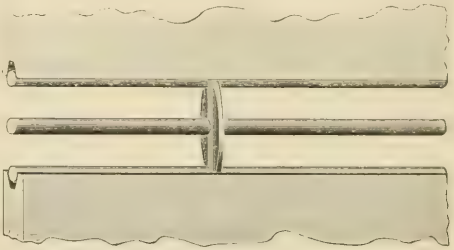


FIG. 2.—ACTUAL SIZE.

First he took some strips of metal and bored holes in them the right distance apart. In these he inserted wires of the same caliber as the holes. He then had what might be called a metal fence with a distance between the bars of $\frac{163}{1000}$. When he first showed this

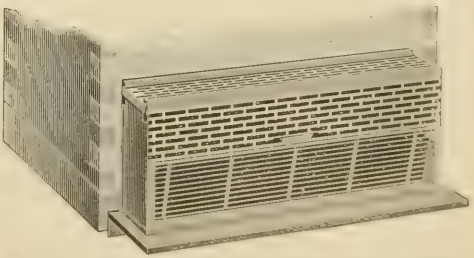


FIG. 3.—THE MARBACH IMPROVED ALLEY TRAP.

idea to us we felt somewhat skeptical, because we felt that the distance between the holes might vary. But he quickly corrected us by saying they could be punched so as to be exactly right. Then we interposed the objection that it would be difficult to feed these wires through [illegible] holes, and that the

cost of the device would put it beyond the reach of bee-keepers.

He went back to the shop, and a few days afterward he came back showing that it was not necessary to punch or bore the holes in the posts. He laid the series of straightened wires in a grooved form, then poured melted type metal into transverse grooves, making a product like that shown in Fig. 1, which is actual size. This was so neat and pretty,

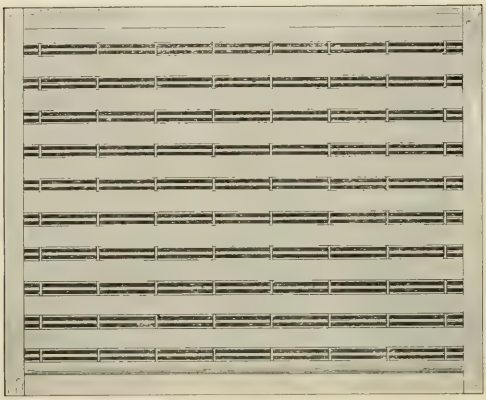


FIG. 4.—MARBACH QUEEN-EXCLUDING HONEY-BOARD.

and so exact, that all our doubts and misgivings were removed—especially so when he told us that the new excluder could be made for but little more than the perforated metal. He further demonstrated to our satisfaction that a wire excluder is much more exact in the width of slot than the perforated metal, and that with a heavy power press cutting 120 holes at a stroke, the dies were subject to wear, and consequently required frequent sharpening. Then, again, the punches would wear enough so that there would be a variation in the size of the holes of perhaps the one-thousandth of an inch. While this is not fatal to the use of perforated zinc, it has a tendency to reduce the size of the holes, and, to a certain extent, impede the passage of the bees.

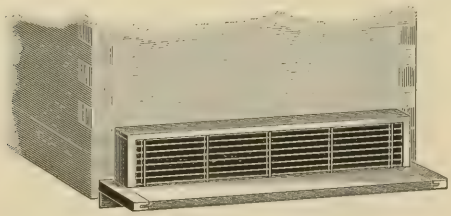


FIG. 5.—MARBACH'S DRONE-EXCLUDER.

In the new excluder the position of the wires or bars will always be exactly the same. These wires are placed in longitudinal grooves in a sort of metal book. At certain distances, and transversely, are other and deeper grooves. A set of wires is placed on one side of the book, when the other leaf is folded over. Then hot type metal is poured into the transverse grooves, when the book is opened up. This leaves a very neat post at regular intervals, as shown in Fig. 1. If the grooves holding the longitudinal wires are correctly spaced (and they must necessarily be made so), the hot metal poured around the wires, when cool, will hold them at the precise distance that they should lie in the form.

The chief advantage of this new excluder will be found in the use of the Alley trap and entrance-guards; and after a careful test in our yards it was plain to be seen that the workers could pass through this excluder much easier than through the old style of perforated metal.

In Figs. 2 and 4 it will be seen that the same principle is applied to the slatted honey-board; and while such boards will cost more than the plain perforated metal, yet, as they will last a lifetime, the relative difference in cost will probably make them cheaper to use in the long run. In the improved Alley trap as now constructed, perforated metal is used in the upstairs portion, while the new excluder is used in the lower part, through which the bees are constantly passing and repassing.

The reader should see the new excluder in order to appreciate its merits; and when he gives it to the bees to test he will find they are equally ready to show their appreciation for it.

Fig. 6 shows a new spring-steel nickel-plated hive-tool which is both a scraper and a pry. The end which is turned down at right angles, or the hoe end, fits nicely up

FIG. 6.—A NEW HIVE-TOOL.

into the palm of the hand when the tool is used as a pry or even a scraper. The other end may be used as a pry or scraper also, but is handy for reaching down into the corners of bottom-boards to clean out bee-glue and dirt.

This tool, made of spring steel, will stand any strain that one can place on it in ordinary bee-hive work; and the fact of its being nickel-plated enables one to see it if it should happen to get lost in the grass.

We have tested a good many shapes and patterns, but have found that this seems to suit the large majority of those to whom it has been submitted.

PAPER FOR WINTER CASES.

A CORRESPONDENT sends us a sample of paraffine building-paper. It is black in color, very flexible, water-proof, and evidently would make a good wrapping around the hive. We are not advised as to the cost, but doubtless it can be obtained of the roofers. For a thin water-proof paper it is the best of any thing we have yet seen for the purpose. We do not know how durable it may be.

OUR HOMES

by A. I. ROOT

And if any man will sue thee at the law, and take away thy coat, let him have thy cloak also. And whosoever shall compel thee to go a mile, go with him twain.—MATT. 5:40, 41.

And Jesus said unto him, The foxes have holes, and the birds of the air have nests; but the Son of man hath not where to lay his head.—MATT. 8:20.

Despised and rejected of men.—ISA. 53:3.

DEMANDING "OUR RIGHTS."

In order to be sure to have, on my travels, a place to sleep, I usually order a berth ahead. It is true one can usually get an upper berth, and on some accounts I prefer the upper (better ventilation, for instance); but as I grow older it is not so easy to climb into the "loft," and so I wired ahead and received a telegram telling me what berth was assigned to me between Cincinnati and Jacksonville — price $5.50. When I handed in my telegram at Cincinnati, however, the clerk said he could give me a berth only to Nashville, where I changed sleepers, and I could pay there the other $3.50 from there on. I accepted, and never considered, until just before starting, that I had nothing to show to hold my berth, already engaged when I got to Nashville. I then hurried back to the ticket-office and explained. The agent humbly begged pardon, saying he did not read my telegram clear through; but he said that if I would give back the $2.00 ticket he would give me one right through for the $3 50 balance. "Now," said I to myself, "you are all right, *sure*."

When I changed cars at Nashville, however, I found "Lower 3" occupied by a lady with a baby, and a colored maid to take care of the baby. If I claimed "my own," and "my *rights*," the rollicking baby and (more so still) maid must "get out;" but there was not an empty seat in the whole four Pullman sleepers. I decided not to complain, thinking the woman or some one else would probably get off soon; but, on the contrary, more got on instead, at every station, until about every "upper" was also engaged.

Why didn't I go to the porter? I did finally, but he only grunted, and said I would have to see the Pullman conductor.

"Where can I find him?"

"I don't know. I haven't seen him at all to-day," and it was already in the afternoon. Another porter once told me the above official drew all the pay and did nothing, while he (the porter) did all the work and got nothing. I hunted up the conductor, and he was a good deal puzzled; but when I explained about paying the $2.00 first and the $3.50 afterward, he said the Cincinnati agent took my money and forgot or neglected to reserve my berth.

"Mr. Root, we are in a bad fix; but if you will just sit down in 'any old place' until we get to Atlanta (these women get off at that place) you can have your seat that you engaged ahead and paid for."

As the train was due there at 7:30 P.M. I said "all right," and commenced, or, rather, *continued*, "boarding round," for I had been doing it all day.

Now, please don't stop reading *here*, dear friend, and do not imagine from the foregoing that I am making a "kick" at the railroads and their management. If you will be patient I think you will find I have some glorious news to tell before I finish. Let me digress a little first, however.

On that trip through the Black Hills of South Dakota last fall a man had just settled himself in his berth across the aisle from me when a new comer ordered him out. He said he ordered that berth by wire two days ahead. They quarreled over it a good part of the afternoon. Both declared they would have that seat, and *no other*, even if it cost a farm. While they were both at supper (still arguing) man *No. 3* came aboard, piled their traps somewhere else, and took possession. I told him what was going on, and that he would find trouble ahead. When the two got back there was such a row that not only two conductors but the passengers had to interfere. Finally when I and others offered to give up our "lowers" and go up in the loft, for the sake of peace, all three got to laughing, fixed it up, and finally they shook hands all round. The event was a lesson to me, for it brings out by wonderful contrast the spirit and teachings of the gospel of Christ Jesus.

My trials were not over, but I was getting glimpses of the glory beyond. A good kind man to whom I explained the matter said he was going into the smoking-car and that I could have his seat; and I think that he, out of real gentility of heart, stayed somewhere nearly all day. When I left this seat for dinner, however, the big lusty colored porter plumped himself into it, went to sleep, leaning and sitting on my overcoat, and slept there nearly all the afternoon. Should I wake him and tell him it was my seat? But it wouldn't be *true*, and he knew it. Should I explain that the owner told me I could have it, etc.? I could not, and claim to be a follower of him who, while in this world, had not "where to lay his head." Satan kept busy, of course. He said, "That ungainly fellow will surely make your overcoat smell badly. You *know* Mrs. Root would protest if she knew it. What a hideous sight he is, any way, with his great thick lips and wide-open mouth, while he breathes like a crocodile!"* I felt guilty, and turned to look some other way, when my eye fell on the colored

* In regard to the heavy breathing, if we white people could sleep and breathe like that it might save us from many ills, and it is very likely true that even A. I. Root is not *particularly* good-looking when he is sleeping soundly after hard work. A porter's duties keep him up nights; and to "hold out" he must steal rest day times.

maid. Satan commenced again: "That black *girl* with the baby is mussing up the seat you 'bought and paid for,' and *it* will *smell* too. Even if they are porter and maid, they should not be allowed to occupy the seats designed for white people—" Here I abruptly shut off Satan again; but he had got agoing, and then he started off on another tack. "They always pick at *you* and snub you. In the buffet car they filled orders for other people, given long after yours was handed in; and, after all this waiting, your hash was almost cold, and no butter with your bread."

I had been standing all this time, but finally ventured to sit down by a man who had been uncivil in the morning (or at least I *imagined* he was). When I quietly asked permission to occupy a part of his seat he said something I could not hear, and moved his coat-tails so little that I could scarcely avoid sitting on them.

Yes, dear reader, it *is* true that your old friend A. I. Root, whom many of you have learned to love, felt for a few hours that day that not only did no one want to *talk* to him, but no one seemed to want to give him a seat when he was weary of standing.

Perhaps I should mention that, in the morning, when some one said he lived in Georgia I suggested that his State was the center of discussion just then He replied:

"Do you mean in regard to prohibition? It is the biggest blunder that any State ever made, and there isn't a business man in Atlanta who voted for it."

I said no more, for I decided that the average Pullman car is hardly the place to find friends of temperance, or, as a rule, friends of Christianity, and this may account for my uncivil seatmate. Had I demanded *my rights* I could have had a seat at any time, but I am glad I did not. When I remembered that the dear Savior at one time did not have "where to lay his head" I began to feel happy. The porter, after his refreshing sleep, began to dust off the car; and when he saw I was preparing to take my "after-dinner nap" he brought me a nice clean pillow; and when I thanked him, and he smiled, I decided he was a real good-looking young colored man. I could honestly admire his strength and skill as he made up the berths with such dexterity. Then I looked at the colored maid, and she *too* had changed. She was a bright *pretty girl*, even if she was black. Had all the people in our car changed suddenly? or was the change in my own heart after I said, "Get thee behind me, Satan"? May God forgive me, and I will ask our colored friends to forgive me for the unkind thoughts I permitted to creep into my heart. There wasn't the least *trace* of a smell on my overcoat, even if the young man did sleep with his face on it for over an hour. Our porters are, as a rule, a bright clean set of men; and I believe the colored people generally, *if they take pains*, may be as sweet-smelling as white people In a recent editorial the *Sunday School Times* said the man who is always demanding and insisting on his rights is any thing but a *happy* man.* I believe this is largely the class who commit suicide. The person who goes through the world giving up his rights for the good of his fellow-men finds so much happiness in so doing that he not only will never think of self-destruction but will never be impatient in awaiting God's call.

It may be true, and it probably is true, that there are people who do not appreciate or understand the spirit of self-sacrifice when they see it. Such people take advantage of it, and the patient Christian may be tempted to think he is only "casting pearls before swine;" but let him be patient, and remember who said, "Blessed are the meek, for they shall inherit the earth;" and "Whosoever shall lose his life for my sake and the gospel's, the same shall find it."

RUNNING AWAY FROM FRIENDS.

In Our Homes for Nov. 15 I mentioned the case of a young man who left suddenly without giving anybody any reason for his sudden disappearance. I lament that this thing seems to be getting to be a fashion nowdays. Not long ago a young man left his home without even saying good-by to his mother or anybody else. He took pains to cover up his exit so perfectly that nobody ever discovered *how* he got away, let alone his reason for going. Nobody knows the anguish that that mother suffered until she heard, a year afterward, that he was away off in another part of the world. There was no apparent reason for his doing this. He had said nothing about being dissatisfied. He left his book open where he had been reading, and said he expected to be back in a few minutes. Since then not only boys but *girls*, *men*, and *women* have been suddenly missing. Perhaps some excuse might be offered in the case of a young person, for thinking it a fine thing to stir up a whole neighborhood or set community in general hunting all over the country to find a trace of the missing one; but if any one who reads these pages feels any temptation in a similar line I beg him to consider a little before undertaking it. What would you think of a boy who would deliberately pick up a club and hit his mother a cruel blow when there was no excitement or reason whatever for so doing? Yet no blow can be so cruel and torturing as the one I have mentioned. We have no *right* to do things of this kind any more than we have to inflict pain, or to steal money belonging to somebody else. God forbid that this fashion should be on the increase.

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* Here is the item from the *Sunday School Times:*

Nothing hurts a man more than a continual effort to get his rights. "That man always manages to get a seat, no matter how crowded the car," one man was heard to say of another who apparently had just demonstrated his ability. The man thus described may have called it good managing; those who know his practice would call it bad. If there is no stronger reason for insisting on our rights than merely the fact that they *are* our rights, we had better let them go.

"GARDENING IN THE WOODS," ETC., IN THE MONTH OF NOVEMBER, IN SOUTHERN FLORIDA.

Our "woods" comprises just one acre, and it is just across the street from E. B. Rood's place (see his strawberry article, June 15), and one mile from Braidentown. I reached here Nov. 8; and the next morning, with the help of "Charlie" (a colored boy of 24), I broke ground for a garden. The first thing was to grub out the roots of the scrub palmetto; and as they are about as big as a man's leg, and anywhere from 2 to 10 feet long, pretty well clinched in a horizontal position in old Mother Earth, it is quite a job. By night, however, we had a bed 6 feet wide and about 40 feet long, and, I thought, ready for seeds. Mr. Rood, however, declared I would get no "*high-pressure*" gardening until the ground had been worked over and "sweetened" for about a year. Up in Michigan new ground is *the thing;* but not so in Florida. Where the palmetto has been grubbed out it is "sour," and full of tannic acid, etc. I told Mr. Rood I *must* have something growing on *my* ground, and by his advice (although he shook his head somewhat) I put on about a pailful of high-priced fertilizer, then went out through the woods with a wheelbarrow and gathered a barrelful of "cow-chips." This barrel was then set up on a board just as we leach ashes up north, and we were all ready for water. Now, please don't find fault if I *do* tell about the good things where God happens to drop me, and say little of the bad things.

One thing that greatly rejoices my heart is the ease with which we get beautiful soft water almost all over Florida. My well close by the garden cost less than $5.00 (pump and all), and it was driven down so we could pump water in about *20 minutes.* The water is so soft, Mrs Rood says there is little or no difference between it and rain water. Charlie talks very little unless he is spoken to. He said the bucket of fertilizer was all right, and the cow chips were all right for the garden, but when he saw me pouring water in the top of that barrel he rubbed his woolly head and looked troubled. Finally he ventured:

"Mr. Root, don't you think the water you are pouring on that manure will take all the 'goodness' out of it?"

"You are just right about it, Charlie; it is this same '*goodness*' we are after;" and when he saw me push a pail under the dark liquid that began to run from the base-board he looked relieved. Well, I bought a great big sprinkling-can and drenched my garden daily; and now (Nov. 21) I have radishes, lettuce, beets, and onions up, and looking pretty well in spite of the newness and tannic acid. Although we have had no rain for a month or more I have worked my pump until I was tired, and the stream holds out full. The lower end of the strainer is down only about 8 feet. The water has a slight sulphur taste, it is true; but as the men at work on our house say it is tiptop for drinking, I shall have to conclude it agrees with people generally. I have been so long accustomed to rain water that, even when boiled or exposed to the air, it rather upset my digestion; and as we had been having several days of very warm weather I was a little out of sorts and longing for something, I hardly knew what, to take the bad taste out of my mouth, when Mr. Rood's team came along with a few strawberries—the very first of the season.

Well, friends, I never in my life invested a little money in *medicine*, food, or any thing *else*, that gave me so much satisfaction as a box of those Excelsior strawberries. I kept some of them all day; and to say they "hit the spot" every time doesn't half tell it. So far as I know, Mr. Rood has the first strawberries put on the market in Florida. He sells them all in his home market, and starts them at only 35 cts. a quart. I have sampled strawberries in Bermuda, Cuba, California, and all over the North, but I certainly never saw any handsomer and more luscious than his Excelsior. They are of fine shape, good size, beautifully colored up, and, although pretty tart for most people without sugar, they suit me to a dot. The perfume and the flavor are very much like those of the very best wild strawberry. I say *perfume*, for the perfume of a box, even out in the open air, is the best advertisement of the fruit that can well be invented. Now, you need not all come down here to raise strawberries, for only a few of you *could* raise them as he does if you tried, and perhaps only a part of the few would be willing to take the pains he does, and pay for the fertilizers.

I am going to wind up my story by telling you of something—I came near saying "something better than even the soft water and the strawberries." Listen. Mr. Rood's house is very close to a well-traveled road, yet his doors are never locked, and in very warm weather they are often left open all night. His White Leghorn chickens roost in an open shed quite near the highway, on low-down roosts, and have done so for *eight years*, and yet one-third of the population are *colored people;* but he has not lost a chicken nor even a *strawberry*, so far as he knows, by theft. Just contrast this with many localities—in fact, *most* localities in the North, especially rural districts near the great cities. What does it mean? It means there is not a saloon, *and never has been*, in this (Manatee) county. The significance of this fact is just now ringing throughout every State in our nation—from Maine to Oklahoma, and from Florida to—to *Georgia*. May God be praised that the prayers of the Anti-saloon League have finally been *heard* and *answered*.

The California *Voice* says that President Roosevelt said, in a recent address to the people (mostly *colored*) of Bayou, Miss., "I am glad you have not permitted a saloon in the city limits."

SWEET CLOVER; IS THERE ANY POSSIBILITY THAT IT MAY, UNDER SOME CIRCUMSTANCES, BE JUSTLY CALLED BY THE FARMER A NOXIOUS WEED?

The following, clipped from the *Ohio Farmer*, from C. B. Wing, a great authority on alfalfa in Ohio, is quite important. First, he tells us that sweet clover is valuable for pasture when it happens to come up with alfalfa or any other clover, and it will improve its value for seed; and if the seed should accidentally get into alfalfa seed it will be a benefit to the alfalfa rather than a detriment. As sweet-clover seed is constantly coming up in value, it very soon will be, if it is not now, worth as much as alfalfa seed; and as it excels alfalfa as a gatherer of nitrogen, the alfalfa will do still better with sweet clover mixed in with it.

In buying Western alfalfa seed one is pretty apt to get a small proportion of sweet clover along with it (*Melilotus alba*). It had not occurred to the writer to mention the presence of sweet clover in alfalfa seed; but as he now recalls it he can not remember an alfalfa-field established upon Woodland Farm within recent years where sweet clover did not appear in greater or less amounts the first year. Some of it will even show the second year, but after that it is seen no more. Sweet clover is a biennial, and can not endure mowing off. If not allowed to mature seed it is soon extinct. It is hardly right to classify sweet clover with weeds, since it is a splendid soil-enricher, one of the most energetic nitrogen-gatherers known, and it carries the same nitrifying bacteria that alfalfa does, and is thus a direct benefit to a young alfalfa field, since it pioneers the way and makes the alfalfa that succeeds it thrive all the better. However, one should mow it off at least two or three times in a year, and that will prevent its seeding and becoming too plentiful.

Sweet clover in the South is much used as a sheep and pig pasture. It is greedily eaten there when it comes up first in the spring. It makes a hay too coarse and woody to be relished by most animals, and has also an odor that seems too strong for Northern stock. It is a splendid bee pasture, however.

I mention these peculiarities about sweet clover so that men getting a little of it in alfalfa seed may not be frightened. They should go on as though they had none of it. Their alfalfa meadows, in order to succeed, will need to be cut at least three times a year, and that will vanquish every bit of the sweet clover. CHARLES B. WING.

Champaign Co., Ohio.

SWEET CLOVER IN OHIO.

The following, from the *Rural New-Yorker*, is of value, not only because it shows us how to teach stock to eat sweet clover, but because the author is one of the great agricultural writers and teachers of our State:

The following is suggested by reading Mr. Legg's article, "Sweet Clover and Alfalfa." There are some wrong impressions regarding the plant. Here it grows very rank on the roadsides and in some fields. I used to think, like Mr. Legg, that stock would not eat it, for I often took care to notice when driving along a road on the sides of which it grew as high as a horse's back, whether the droves of stock, cattle principally, fed on it, and never did I see that a plant had been nipped. Later, in a field where a lot of big steers were pasturing, the sweet clover grew in great abundance, and the cattle, by feeding on it, had cut it down to about knee high. It had made a large growth before they began to feed on it; and, below the height mentioned, it was too coarse and hard to be palatable. Seldom now do we see it in pasture-fields; but on the roadsides adjoining these fields it grows in abundance, and would undoubtedly grow in the fields if the stock let it alone. When driving lambs along the highway I have noticed that they eat it as readily as the grasses that grow with it — blue grass, etc. Men owning horses in my nearest village I have known to cut it from the roadsides and haul it to their stables and feed it to their horses. At first they refused it, but soon learned to relish it. I know of a timothy meadow being cut this year that had growing with it an equal bulk of sweet clover. This was stored in sheds, and will be fed out to cattle this winter. In the same field in which this timothy grew last year, after wheat, there came on five or six acres a very rank growth of sweet clover. This year there grew a very excellent crop of corn on the same land. Alfalfa grows on all the land about here without soil inoculation. But unless the land is well drained, naturally or artificially, it will winter-kill. As regards sweet clover, I would gladly have more of it grow on my farm than the stock and cultivation will allow to grow. JOHN M. JAMISON.

Ross Co., O.

POISONOUS PLANTS.

About a year ago a sister of mine, Mrs. E. J. Gray, was afflicted with something the doctors first called erysipelas; but after being treated for that malady, without getting any relief, she called another physician who called it eczema. But still she kept getting worse, until it finally prevented her from using her eyes, to such an extent that she had to give up reading. If I am correct she consulted a third physician, and he said *both* doctors were wrong. He said the trouble was something else. Just about that time I noticed one day that she had a beautiful specimen of a house-plant that I had given her some months before. It was what florists call *Primula obconica*. I began to remark about its wonderful luxuriance and the quantity of bloom that was all the while peeping out from under the bright-green foliage. She replied that, as she could not read, she had spent a good deal of her time with that plant, picking off the faded flowers, etc. All at once it occurred to me that I had seen in the florists' books and magazines statements to the effect that this plant is *poisonous* to some people, and by my advice the plant was put out of the room, and she never went near it again. The erysipelas, eczema, or whatever it was, disappeared almost immediately. Her last doctor claimed it was *his* skill and his medicine that performed the cure. Now, I do not know how we can prove conclusively whether he was right or wrong in the matter; but I find in a recent number of the *Florists' Review* a discussion in regard to primula poison and the remedy; but, to be honest about it, I have no more faith in the remedies for poisonous plants than I have for those for bee-stings. Get busy at something else, forget all about your stings, and nature will perform the cure; and when you get poisoned, banish the poisonous plant as my sister did, or keep away from it, and nature will

perform the cure at once. An application of cold water is, of course, always in order. No wonder the doctors were puzzled, and failed to give relief when she was getting poisoned more and more every day of her life in admiring and handling her beautiful plant. This poisonous primula is a near relative of what is commonly called Chinese primrose. It is a little singular that it should be so poisonous to some people and yet have no effect on others. I have handled the plant for years in the greenhouse, but I have never suffered at all, although I have been repeatedly cautioned that I *might* get poisoned by touching the blossoms and foliage. Its poisonous properties seem to be so well recognized that the Department of Agriculture has suggested sugar of lead as an antidote.

MENTAL MALADIES; WILL THEY YIELD TO OUTDOOR EXERCISE, PURE WATER, AND NATURE'S REMEDIES?

If Mr. A. I. Root can give us an account of the cure of a case of insanity by natural means, equal to the consumptive and cancer cases cited, the world may feel that there is no such thing as an incurable disease. I firmly believe that with nature (God) all things are possible. JENNIE P. WELLS.
Roseland, N. C., Oct. 14.

My good friend, this has often been talked about, and I have known at least one successful experiment A man whom I knew quite well in my boyhood gradually settled into a melancholy, and seemed to have, at least to a considerable extent, lost his mind. As I knew him when he was a boy he was remarkably bright, vivacious, and cheerful, and I could not understand how it was that he had lost hope, given up all occupation, and, with his friends, he seemed to consider himself past remedy. It was during the time I was greatly interested in celery culture, growing plants for sale, etc. He consented to try working in the garden; and with a little showing he transplanted the little plants from the seed-bed into a larger bed quite successfully. About this time I was greatly taken up with some chickens of which somebody had made me a present. I think they were called American Wonders. Well, these chickens were *also* greatly interested in the work with the celery-plants. I told the boys if they would just drive them away and give them a big "shooing" so as to scare them sufficiently they would stay away; but that rich mellow soil, with plenty of old well-rotted manure incorporated in it, proved to be too strong a temptation for the biddies. Again and again they came up behind John's back; and the way they made the plants and dirt fly was a caution I said, "Why, John, I am sure you can remember to look up occasionally and see those chickens before they get into the plant-beds." He looked up at the chickens, and at the wreck and ruin they had wrought in his work, and said he thought he could remember to keep an eye on them. Pretty soon we had the same thing over again, and I began to scold. My conscience troubled me somewhat, however, when I reflected that I had been talking pretty severely to an old friend and neighbor who was physically unfortunate, and perhaps unable to assume even this little bit of responsibility. Please excuse my dwelling at such length, friends, on details that may seem unimportant. But there is a valuable lesson right here. John looked up at me, and, instead of feeling hurt, as he had a right to, I thought I saw a comical look on his face; and then he gave me one of my "happy surprises" by saying, "Mr. Root, you will have to put some bells on those chickens so a fellow can have some notice when they come around behind his back."

The boys and everybody present burst into a loud laugh, and then I thanked God for the success of my experiment. It was the first time that my friend John had, perhaps, so much as smiled in years, much less perpetrated a joke. I once heard somewhere that when you can get an insane man to laughing the spell is broken. Come to think of it, I think I have seen, a hundred times since then, bad feelings dispelled by a little bit of innocent pleasantry. I am glad to tell you that this friend gradually recovered from his malady, whatever it was; and although he has held aloof to a considerable extent from his fellow-men, yet he is a useful member of society, and nobody would ever suspect there had ever been any thing wrong with his mental powers. It is not only outdoor employment that we want, but the patient must be busily employed in something that will occupy his time and attention, and, if possible, enlist his interest and sympathy. At the great asylum for the insane near Traverse City, Mich., every possible means is employed to get the inmates interested in outdoor work. All sorts of crops are grown, and even fruits and flowers and ornamental plants; and I am told they are meeting with much success year after year.

PEANUTS VS. BEEFSTEAK.

The following is from the Lowell, Mass., *Sun:*

Prof. F. E. Jaffa, who is making bulletins for the United States Department of Agriculture, has made an announcement that, if found correct, should revolutionize the peanut business and pull away down the price of porterhouse steaks. This professor, who hails from th University of California, not Java, says that ten cents' worth of peanuts contains more than twice the protein and more than six times the energy stored in a porterhouse steak. This is a startling announcement, and, if it were entirely true, we doubt not that the average epicure would still stick to his porterhouse steak. Nevertheless, it will cause an increased consumption of peanuts. It would be interesting to know whether the professor would accept a diet of peanuts instead of a good juicy well-flavored steak.

My impression is, this is an exaggeration of the real truth. It may be, however, an encouragement to those who are beginning to adopt nuts as a diet in place of using so much meat.

OUR EXPRESS COMPANIES AND THEIR HOSTILITY TOWARD PARCELS POST, ETC.

The *American Cultivator* in a recent issue trenchantly expresses the situation as follows:

It is hard to understand why, with all the popular opposition to railroads, there is not more sentiment against the exactions of the express companies. The behavior of the railroads is mild compared with the hidden monopoly of the concerns which dominate express transportation. Combined in an informal trust which controls the whole system, they are accountable to nobody for the rates and service rendered, and in many cases do not, apparently, care particularly for the interests or opinions of their patrons who pay enormous prices for their services. By ownership of one another's stock, and arrangement as to roads and territory, it matters little to them whether business is transferred from one express company to another. Their insolence to the Interstate Commerce Commission is a matter of record. It looks as if the Commission, backed by the new law, would finally get the upper hand, but it is certainly a slow process with the first skirmishes in favor of the express companies, who have actually succeeded in raising the already exorbitant rates in several localities, concealing their actions in various ways through change in classification, regulations as to weight, etc.

Temperance.

"THE CHARACTER OF THE ENEMY WE ARE FIGHTING," ONCE MORE.

Our readers have doubtless seen the statement that Mr. Joseph Zeitlin, of Brooklyn, N. Y., who is 102 years old, has used whisky and tobacco all his life; and lately they are declaring he also smokes cigarettes, and that he smoked twenty of them to celebrate the day he was 101 years old. I knew when I saw the statement going through the papers (and papers, too, that ought to be ashamed to publish a thing of this kind) that it was a fake item, yet I had no means to prove it. The *American Issue* has however (see the issue for Nov. 1), chased the thing down and hunted up the truth in the matter. Like the outrageous canards told by the Duffy whisky people, it transpires that Mr. Zeitlin *is* probably 102 years old; but he is a foreigner, *and does not speak our language*. The facts could be obtained only from his granddaughter All the whisky he has ever taken was a small glass before his noonday meal, and that was taken medicinally. It is true he uses tobacco, but not at all to excess; and the whole story about his using twenty cigarettes in a day, or cigarettes at all, was probably manufactured by the venders of cigarettes. Now think of it, friends—the idea of putting before the youth of our land, and then having it copied world-wide by the editors of newspapers, a statement to the effect that cigarettes, whisky, and tobacco are not so *very* bad after all; and the statement in some of the papers might induce many an American boy to think that these things actually *contribute* to health and longevity; and yet our courts tell us, and the Department at Washington tells us, that we have no laws to punish a man for such malicious lying. They base their falsehoods on the fact that Mr. Zeitlin is actually living at 136 Lexington Avenue, Brooklyn, N. Y. The worst thing about these false statements is that many of the editors put on a heading to suit themselves, and this heading (or something additional in the way of a footnote) many times seems to cast a slur or ridicule on the good men who are battling against intoxicants and cigarettes among our children.

COLLIER'S WEEKLY AND THE PATENT-MEDICINE BUSINESS.

I suppose thousands of good people rejoice to notice the bold and fearless way in which *Collier's Weekly* has held up and exposed patent medicines that depend on whisky, morphine, etc., for their pretended help to the sick and suffering; but, like a good many others, while I rejoice to see these things held up to the full light of day it gave me a big jolt to notice cigarettes advertised in the very same issue where they exposed and held up the sins of other periodicals, especially our religious journals. If my opinion were asked I think I should say that cigarettes are doing more damage, especially to the youth of our land, than any fake medicine extant. Another thing, there is certainly much exaggeration in their severe criticisms of our Christian papers. The *Christian Endeavor World* has replied in a very kind and Christianlike manner. I wish to clip just one paragraph written by the publisher of the journal just mentioned:

I believe, Mr. Editor, if you will go back over your own files for the same period that Mr. Adams covers in examining our issues, you will find in your own columns not only patent medicine but also whisky, beer, and cigarette advertising.

Truly it behooves those who live in "glass houses" to be a little careful how they "throw stones" indiscriminately.

The religious periodicals, however, ought not to be greatly troubled, especially when they are not guilty. My dear old pastor, Rev. A. T. Reed, used to say in his morning prayer, before he had preached his sermon, "O Lord, we thank thee for our enemies, for they tell us of our faults when our friends would not dare to do it." While we forgive the exaggeration, let us carefully examine the charge and see if at least a *part* of it is not true.

A SUGGESTION TO CONTRIBUTORS.

WE wish to offer a suggestion. When you desire to describe a process, method, or device, be sure that you make a clear, clean-cut description, describing the process, method, or device, leaving all other explanatory matter to be stated later. A short time ago we read over a description of a process in which the author interjected explanatory matter at each step of the operation. When we had finished reading the whole we had to go over it a second and third time before we could clearly separate the explanations from the actual thing that was being described. First describe the thing itself briefly, then repeat, putting in the explanations. By so doing the reader has a birdseye view at the start, and when he comes to the explanations they serve to elucidate and not confuse.

4% DISCOUNT

ON CASH ORDERS TO JANUARY 1

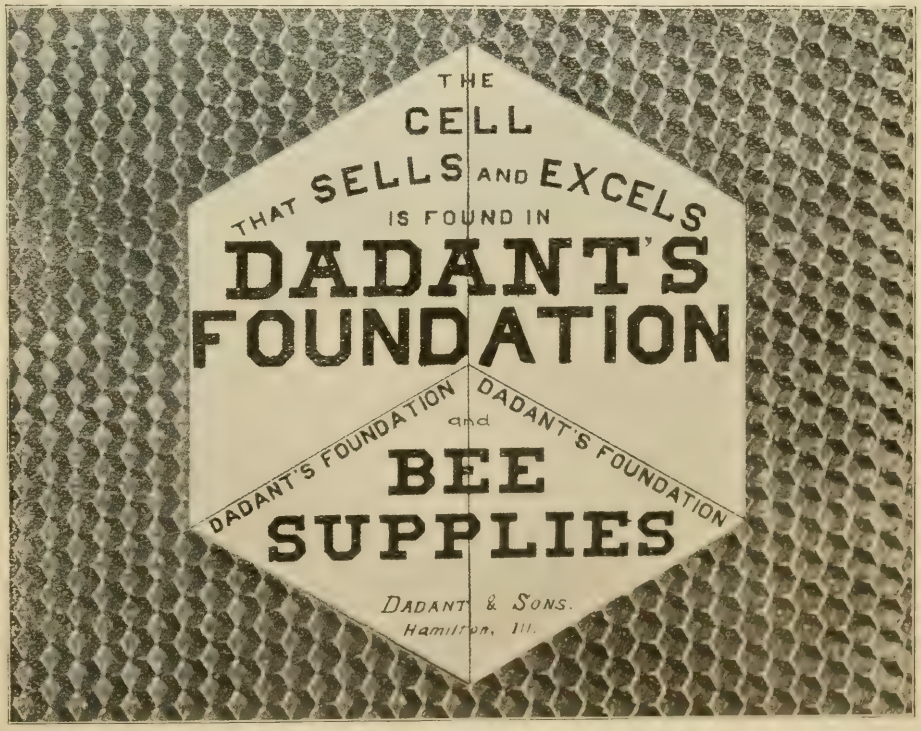
Do you know what that means?
Think a minute.

It means 10 per cent per annum on your investment.
It means that your goods will be there when you want them.
It means that you will have an opportunity to get the material that you buy in the flat all ready for the bees during the winter months.
It means when you send your order to us that you will get ROOT'S GOODS. "Root Quality" always means interest on your money.

WE ARE GLAD TO TELL YOU NET PRICES
ON YOUR ORDER FOR NEXT SEASON'S GOODS

M. H. HUNT & SON

REDFORD, ... MICHIGAN



TEXAS ANNOUNCEMENTS

New Contract. It was with a great deal of pleasure that we announced in Nov 15th issue of GLEANINGS that we were again able to offer Root's Goods to our Texas bee-keeping friends by reason of a new and favorable contract we had lately concluded with the manufacturers of this well-known line.

Quality of Goods. Our experience covering the sale of bee-keepers' supplies, covering the past ten years, and the use of these goods in our own apiaries, have convinced us that it is more profitable and satisfactory, all things considered, to use a high-grade standard line, like the Root stock, than to attempt a little saving by local-made and other inferior lines. The testimony of Mr. Bamberger, an Illinois bee-keeper who accidentally came across some of these goods, is interesting. See what he says:

ELIAS BAMBERGER,

MANUFACTURER OF

SASH, DOORS, BLINDS,

CONTRACTORS AND BUILDERS' SUPPLIES.
INCLUDING ALL KINDS OF WINDOW GLASS.

[illegible]

Freeport, Ill., June 11, 1907.

The A. I. Root Co., Medina, Ohio.

Gentlemen:-I received five of your AE52S-10 hives yesterday, and find that I can not make my own hives and supplies as cheap as yours and use the same quality of lumber. You can see by the head of this letter that if any one can make hives cheaper than your prices I ought to be able to do it, but, using the same quality of lumber, I can not.

Yours very truly, John H. Bamberger.

On June 19th permission was asked to use his letter, and the following was his reply:

Gentlemen:- Freeport, Ill., June 20, 1907.

Your favor of the 19th inst. at hand, and note what you say about using my statement about your bee-hives as to the quality of material and the workmanship and the price. In reply will say that you may use it, as it was certainly voluntary, and, as I have had no dealings with you before, you would not have received that order if I had not seen your goods at the I. C. freight-house in this city. We have had inquiries in the past for bee-hives, and always said, why not buy from the large manufacturers? The reply was, we can get them cheaper.

And they get #1 common lumber and have us cut it up for them, and very seldom are the hives the same size as some one else wants. The cost may be less, but what a bunch of knots!

The bee-keepers differ in opinion of quality and cost of bee-supplies in about the same way that the whole population differ as to cheap clothing, good material and factory-made, and good material and custom-made clothing. Any thing goes with some people, just so it is cheap; others want good goods, and know that it is cheaper in the long run. I aim to be one of the latter kind. Yours, John H. Bamberger.

Prices. The prices at which we can furnish these goods at present remain practically the same as during the past year, and present orders may be sent from the past season's catalog. There are likely to be a few advances, and it is important that your orders come in early. Write us for prices on large quantities or for detailed estimates on any order you may be about to place.

Weed-process Foundation. We call your attention to the facilities we offer for working up your wax into comb foundation of any grade, as we have renewed our contract for the outfit of Weed-process machinery for another term of years, and shall be in better condition than ever before to quote you favorable prices on this product; or for working up your wax, if you prefer to have it handled that way.

Agents Wanted. We want to secure a live hustling representative in every county in Texas where we are not now represented. We prefer a bee-keeper centrally located, and one able to pay cash down for the goods he will order and carry in stock. To those who mean business we offer good inducements.

Beeswax Advanced. We are in the market for beeswax at all times. We are now paying 25c cash, or 28c in trade, for pure average beeswax delivered at San Antonio.

Udo & Max Toepperwein

1322 South Flores St. San Antonio, Texas

What's the Matter With Hilton?

WHY, HE HAS A LOT OF SUPPLIES HE WANTS TO LET YOU HAVE WITHIN THE NEXT SIXTY DAYS AT A DISCOUNT, TO MAKE ROOM FOR THE NEXT SEASON'S GOODS. JUST SEND A LIST OF WHAT YOU WANT AND GET ESTIMATE. IF YOU HAVEN'T HIS FORTY-PAGE ILLUSTRATED CATALOG, SEND FOR IT AT ONCE.

CASH OR SUPPLIES FOR BEESWAX AT ALL TIMES

GEORGE E. HILTON
FREMONT, :: :: MICHIGAN

TO THE

BEE-KEEPERS OF CANADA.

WE are pleased to say that we are able to offer, in Canada, goods manufactured by The A. I. Root Co. While we do not offer every thing listed in their catalog, we have selected such articles as we believe will best meet the wants of the Canadian bee-keepers.

The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

E. GRAINGER & COMPANY,
Deer Park,
Toronto, Ontario, Canada.

CANADIAN AGENTS FOR
THE A. I. ROOT CO., MEDINA, OHIO, U. S. A.

BINGHAM BEE-SMOKER AND KNIFE.

What catalogs say:

The A. I. Root Co., Medina, Ohio: "The cone fits inside the cap so the liquid creosote runs down inside of the smoker."

Chas. Dadant & Son, Hamilton, Ill.: "This is the smoker we recommend above all others, and it has given universal satisfaction."

G.B.Lewis Co., Watertown, Wis.: "We have sold these for a good many years, and never a complaint. They include all improvements."

Marshfield Mfg. Co., Marshfield, Wis.: "The original direct-draft Bingham Smoker is the best smoker made."

The Bingham Smokers and Honey-knives have been the standard in America and every European country 29 yrs. There is no *smoker* so *old*, so *new*, so *perfect*. Accept thanks for 30 yrs. liberal patronage.

BINGHAM SMOKERS. Name.	Size of barrel.	Price of 1	Price of 3	Postage.
Smoke Engine	4-inch	$1 25	$3 45	25
Doctor	3½ "	85	2 40	25
Conqueror	3 "	75	1 95	25
Large	2½ "	65	1 65	25
Little Wonder	2 "	50	1 35	15

Three larger sizes in heavy copper at 50c ea. extra.

Bingham Uncapping-knife, 70c; postage 10c.

T. F. BINGHAM, FARWELL, MICH.

Northeastern and New England

BEE-KEEPERS

Order goods now. Don't delay. Have them ready when you need them. We keep a full line in stock at Medina prices. Save both time and freight by ordering of us. Beeswax wanted. Bees and queens furnished in season.

J. B. Mason, Mechanic Falls, Maine
MANAGER OF THE A. I. ROOT CO.'S N. E. AGENCY

1884 **1907**

Root's Goods always in stock

FOR YOU

Twenty-two successful years manufacturing bee-supplies and raising Italian bees and queens. . . . . Root's Goods in Stock.

J. M. Jenkins
Wetumpka, : : Alabama

JOBBERS FOR
Central Pennsylvania
. . . for . . .

ROOT'S GOODS

TRY THE DANZ.
COMB-HONEY HIVE

The Danzenbaker hives I got last season have given splendid satisfaction; in fact, I have kept my bees outside this winter, which is seldom attempted in Manitoba, and up to date they have come through in splendid shape. I think the hive did it.
Yours truly, LAURENCE C. CLARKE.
Morden, Man., March 5, 1907.

Send for catalog. Best shipping facilities in the State.

Frank W. Prothero
Dubois, : : : Pennsylvania

Northwestern Bee-keepers!

We are headquarters for the ROOT supplies for the States of Montana, Minnesota, the Dakotas, and Western Wisconsin.

You can save freight by ordering from this branch. A complete line of bee-keepers' supplies always in stock.

Secure a catalog at once.

BEES and QUEENS.—Your orders will be attended to.

The A. I. Root Company
H. G. ACKLIN, MANAGER
1024 Mississippi Street, St. Paul, Minn.

At St. Louis

On a Line

to all points in the South and Middle West.

Send for our free illustrated catalog of

Root's Bee-supplies

We sell at factory prices.
Send us a trial order.

Beeswax Wanted.

Blanke & Hauk Supply Co.
DEPT. B,
1009-11-13 Lucas Ave. **St. Louis, Mo.**

Manufacturers and Jobbers of Dairy, Creamery, Ice-cream, and Poultry Supplies.

North Texas . .

. . Bee-keepers

will find Dallas the best point from which to purchase supplies. We have a carload of **ROOT'S GOODS IN STOCK,** and sell them at the Factory Prices. Don't forget that we can furnish any thing in the way of Field or Garden Seeds, Plants, and Poultry Supplies. Our large illustrated catalog for 1907 free on application. Mention GLEANINGS when you write. . . . . .

Texas Seed and : Floral : Company
Dallas, : : : : : Texas

PROMPT SHIPMENTS!

IF you are needing supplies at present, send us your orders. We have a large stock of **Root Company's Supplies** on hand to meet your requirements. We allow the customary cash discounts for early orders.

Send for forty-page catalog.

John Nebel & Son Sup. Co., High Hill, Mont. Co., Mo.

ORDER NOW—PRICES MAY GO HIGHER

LUMBER IS DEARER, AND LABOR HAS NEVER BEEN SO HIGH

WE offer you PRICE INSURANCE on BEE-SUPPLIES. Our plan does not cost you a cent; it may save you dollars. On all orders received before January 1, 1908, we will guarantee present prices (or less) to you, notwithstanding a contemplated advance in prices all along the line of bee-supplies. Shipments may be delayed until you want the goods. You can not lose. Write to-day. We make and keep in stock—Dovetailed Hives, Sections, Section-holders, Separators, Brood-frames, Foundations. Everything for the Bees.

YOUR MONEY BACK if not PERFECTLY SATISFIED.

Largest distributing center for raw materials, and best shipping facilities. Write for catalog.

MINNESOTA BEE-KEEPERS' SUPPLY COMPANY

21 NICOLLET ISLAND. (JOHN DOLL & SON, Props.) MINNEAPOLIS, MINN.

Honey! Honey!

WE have just received several carloads of water-white sage honey, in 60-lb. cans, two to a case; also have white clover and alfalfa comb honey. Write us, if in the market, stating quantity desired.

Beeswax Wanted

We will pay highest market price for good pure wax in exchange for supplies. We mean **ROOT'S GOODS,** of course. It will pay you to secure your goods now for next season's use. Liberal discounts on goods slightly damaged by fire. Send us list of goods you will need and we will quote you prices and save you money in freight from **Toledo.**

Catalog Free

The Griggs Bros. & Nichols Co.

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De Espana, Portugal y Colonies.

Pidan catalogos de las colmenas, extractores, prenzas para cera, ahumadores, zinc perforado, escape de abejas, velos, cuchillos, maquinas para hacer base de panales, y todos otros articulos utiles en apicultura manufacturado por la celeberrima casa de

A. I. Root Company,

la fabrica la mas importante del mundo. Precios muy modicos a los subagentes por mercancias puestas en nuestros talleres.

EMILE BONDONNEAU,

Agente Générale

POR TODA EUROPA Y COLONIAS,

142 Faubourg SAINT DENIS, PARIS. 10me.

SEND FOR OUR FREE STOVE BOOK

If you want a stove or range of any kind for any purpose, let us send

"A Kalamazoo Direct to You"

TRADE-MARK REGISTERED

at actual factory prices. You save from $5 to $40, because you keep in your pocket all the dealers' jobbers' and middlemen's profits. You run no risk, because we pay the freight and sell you on

360 Days Approval You not only save money but you get a stove or range of exceptionally high quality. Made of the best pig iron and steel of the highest grade, by the most skilled workmen, in one of the most modern and best equipped stove factories in the world. Every Kalamazoo is carefully inspected and we **know** it is right. If not, you get your money back without a quibble. You cannot get a better, no matter how much extra you pay. Why not save all the dealers' profits! Is it not reasonable to suppose that you can save money by buying direct from our factory!

Send Postal For Catalogue No. 416. Compare Kalamazoo Quality and Kalamazoo Prices with others—and save your money. Our line is complete, embracing stoves and ranges of all kinds for all domestic purposes,—for the home, school, church, halls, lodge rooms, etc. Hotel ranges for restaurants, boarding houses, clubs and camps, Gas stoves and ranges for cooking and heating

ALL SOLD AT ACTUAL FACTORY PRICES.

Kalamazoo Stove Company, Manufacturers,
Kalamazoo, Mich.

All Kalamazoo cook stoves and ranges are equipped with patent oven thermometer which saves fuel and makes baking and roasting easy.

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6 HARDY BLIZZARD BELT EVERGREENS FREE

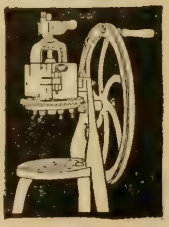
To prove that our EVERGREENS are HEALTHY, HARDY and Vigorous, we offer to send SIX fine two-year-old trees, entirely FREE OF CHARGE, to every property owner who will answer this advertisement. Mailing expense 5 cts., which send or not, as you please. A postal will bring them and our catalogue which contains many COLORED PLATES of our BLIZZARD BELT FRUITS; SPECIAL BARGAINS and a mine of valuable information for fruit growers. We want to become acquainted with you, and it will pay you to get into touch with our HARDY "BLIZZARD BELT" stock and our liberal manner of doing business. THIRTY-EIGHT years' experience in growing HARDY "BLIZZARD BELT" trees. Write to-day.

THE GARDNER NURSERY COMPANY,

Drawer 26. **Osage, Iowa.**

You Can Get More Eggs

And Save Feed Bills.



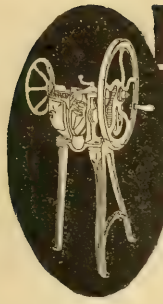
GREEN BONE fed raw gives fowls the food they need to take the place of bugs and worms. It has more than **four times** the egg making value of grain: is rich in protein and other elements that make **more eggs**, fertile eggs, livelier chicks, earlier broilers, heavier fowls. Cut it with

MANN'S Latest Model Bone Cutter

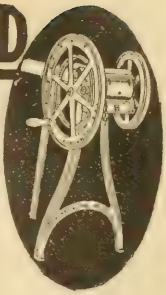
Turns easily; cuts rapidly; never clogs: automatically adjusts itself to any one's strength. Cuts all bone with all adhering meat and gristle.

Ten Days Free Trial We ask no money until you try the machine. If not satisfied, return at our expense. Write for catalogue.

F. W. MANN CO., Box 37, Milford, Mass.



MORE EGGS-LESS FEED



By feeding green bone you can save enough money to buy a

Humphrey Green Bone and Vegetable **Cutter**

besides **doubling** your egg yield. It's the only open hopper bone-cutter; simplest made; only three working parts; nothing to get out of order; no springs to adjust. Sold on a positive guarantee to cut more bone, in less time, with less labor and in better shape than any other bone cutter, **or your money back.**

Free Trial if you want it. Send to-day for handsome poultry book. Address,

HUMPHREY, Mine St., Factory, JOLIET, ILL.

The HUMPHREY RAPID CLOVER CUTTER cuts more rapidly, more easily and finer than any other. Ask about it.

$7.50

Complete 50-egg all metal Hatching & Brooding plant for only $7.50. The only machine made that does the work in the **natural** way. Once filling the lamp hatches the eggs and broods the chicks

METAL MOTHERS

Our new system $1.00 Brooder works to perfection. No danger of fire, overheating or chilling the chickens. Let us tell you about our new way of keeping poultry to get the largest profits. Catalogue free.

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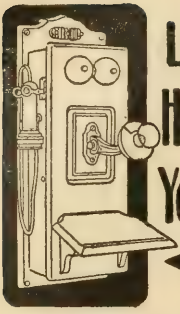

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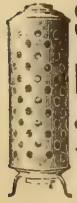

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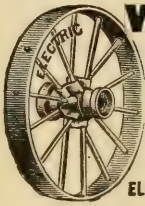

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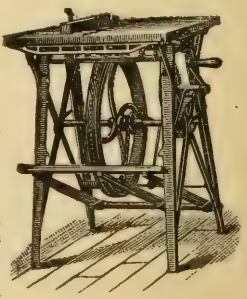

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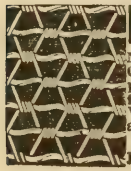

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4 | Stepping Heavenward**..... 18

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This book is a companion to Greenhouse Construction. It is clear up to the times, contains 400 pages and a great lot of beautiful half-tone engravings. A large part of it is devoted to growing vegetables under glass, especially Grand Rapids lettuce, as well as fruits and flowers. The publisher's price is $1.50; but as we bought quite a lot of them we can make a special price as above.

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5 | Gregory on Squashes, paper*..... 20

5 | Gregory on Onions, paper*..... 20
The above three books, by our friend Gregory, are all valuable. The book on squashes especially is good reading for almost anybody, whether they raise squashes or not. It strikes at the very foundation of success in almost any kind of business.

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By Joseph Harris. Written conversational style, which makes it very interesting reading. It covers the subject very completely; contains numerous analyses of manures and comparative tables. The use of technical language is avoided, which makes the book of greatest value to the practical farmer. A book of 366 pages, nicely bound in cloth.

5 | The New Rhubarb Culture**..... 40
Whenever apples are worth a dollar a bushel or more, winter-grown rhubarb should pay big. It does not require an expensive house nor costly appliances. Any sort of cellar where it will not freeze is all right for it; and the small amount of heat necessary to force the rhubarb costs very little. The book is nicely bound in cloth, full of illustrations, mostly photos from real work, 130 pages. Every market-gardener should have this book, for the lessons taught indirectly, in regard to forcing other crops besides rhubarb. Publisher's price 50c.

2 | Treatise on the Horse and his Diseases..... 5
5 | Tile Drainage, by W. I. Chamberlain..... 35
Fully illustrated, containing every thing of importance clear up to the present date.
The single chapter on digging ditches, with the illustrations given by Prof. Chamberlain, should alone make the book worth what it costs, to every one who has occasion to lay ten rods or more of tile. There is as much science in digging as in doing almost any thing else; and by following the plan directed in the book, one man will often do as much as two men without this knowledge.

5 | Tomato Culture 35
In three parts. Part first.—By J. W. Day, of Crystal Springs, Miss., treats of tomato culture in the South, with some remarks by A. I. Root, adapting it to the North. Part second.—By D. Cummins, of Conneaut, O., treats of tomato culture especially for canning-factories. Part third.—By A. I. Root, treats of plant-growing for market, and high-pressure gardening in general.

3 | Vegetables under Glass, by H. A. Dreer**..... 20
3 | Vegetables in the Open Air*..... 20
This is a sort of companion book to the one above. Both books are most fully illustrated, and are exceedingly valuable, especially at the very low price at which they are sold. The author, H. A. Dreer, has a greenhouse of his own that covers one solid acre, and he is pretty well conversant with all the arrangements and plans for protecting stuff from the weather, and afterward handling to the best advantage when the weather will permit out of doors.

3 | Winter Care of Horses and Cattle..... 25
This is friend Terry's second book in regard to farm matters; but it is so intimately connected with his potato-book that it reads almost like a sequel to it. If you have only a horse or a cow, I think it will pay you to invest in a book. It has 44 pages and 4 cuts.

3 | Wood's Common Objects for the Microscope**.. 47
8 | What to Do, and How to be Happy while Doing It..... 65
The above book, by A. I. Root, is a compilation of papers published in *Gleanings in Bee Culture*, in 1886, '7, and '8. It is intended to solve the problem of finding occupation for those scattered over our land out of employment. The suggestions are principally about finding employment about your own homes. The book is mainly upon market-gardening, fruit-culture, poultry-raising, etc. Illustrated, 188 pages, cloth.
8 | Same, paper covers..... 40

FREE LEAFLETS AND PAMPHLETS, IF YOU SEND POSTAGE STAMP.

Celery Growing by Sub-irrigation.
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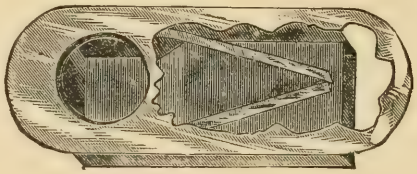
Crimson or Scarlet Clover.
Dwarf Essex Rape.
Lettuce Under Glass; full directions especially for growing Grand Rapids Lettuce.
Soy (or Soja) Bean; all about it.
Sweet Clover, and what it is good for.
Basswood Trees, growing for honey, lumber, etc.
Method of Treating Disease without Medicine.
Sanitary Drainage.

THE A. I. ROOT CO., Medina, Ohio.



PORTER BEE-ESCAPES

HIVE ESCAPE

When taking off surplus this is the greatest saving device. It does away with the shaking of the heavy supers, the cruelty of excessive smoking which causes the bees to uncap their honey and start robbing. Just tip the super to the angle of 45 degrees and insert the board. In a few hours it is free of bees; then take off your super. You can as well afford to be without a smoker as without the Porter Bee-escape.

PRICES

Each, 20 cts.; dozen, $2.25; postpaid. With board, 35 cts. each; $3.25 per 10; by express or freight.

TESTIMONIALS

They are perfect in action.—British Bee Journal.

No bee-keeper can afford to be without them.—Prof. Cook in American Bee Journal.

Worthy of highest commendation.—Eugene Secor, judge on awards, World's Fair, Chicago.

I would not do without them even if they cost five five dollars apiece.—W. Muth-Rasmussen, Independence, Cal.

They are absolutely perfect. I can not tolerate my own make since using them.—John S. Reese, Winchester, Ky.

They are one of the best things ever brought into any apiary, and should be used in every bee-yard in the whole world.—Wm. McEvoy, Foul-brood Inspector, Ontario, Canada.

There is no robbing or fighting or disturbance in the apiary when the surplus honey is taken off with them. They are simply perfect.—W. Woodley in British Bee Journal.

HOUSE ESCAPE

To be used over the doors and windows in the extracting-house, or any place you wish to clear of bees. The most persistent robber can not return. Some bee-keepers make a practice of taking off the filled supers and stacking seven or eight in a pile. The Porter Honey-house mounted on a board makes the best kind of escape. Don't wait till to-morrow before you get a supply. You can not afford to be without them longer.

PRICES

Each, 25c; dozen, $2.75; postpaid.

TESTIMONIALS

The Porter bee-escape clears the supers of bees so perfectly and quickly and easily that it makes the taking off of honey a pleasure instead of a dread as in former years.—G. M. Doolittle, Borodino, N. Y.

The removal of full honey-boxes has become an amusement since we began using the Porter bee-escape.—Ed. Bertrand, Editor Revue Internationale d'Apiculture, Nyon, Switzerland.

This number of the Review contains more unqualified praise of the Porter bee-escape than any other issue has ever contained of any other implement; but so long as it is deserved, who cares?—Bee-keepers' Review.

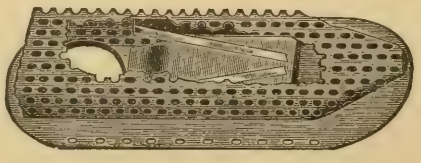
They are the greatest thing on earth for expelling bees from supers.—G. J. Flansburg, South Bethlehem, N. Y.

I would not be without them for four times what they cost.—Dr. W. A. Tufts, Musson, La.

Undoubtedly the best bee-escape is the one invented by R. & E. C. Porter.—W. S. Pouder, Indianapolis, Ind.

Bee-men are certainly behind the times if they can afford to use them and do not.—M. H. Mendleson, Ventura, Cal.

For Sale by Dealers Everywhere!



R. & E. C. Porter, Patentees

Send Orders to Your Dealer

Classified Advertisements.

Notices will be inserted in these classified columns at 20 cents per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

Wanted, Situations.

WANTED.—Position as apiarist for the season of 1908. Over 30 years' experience.
M. W. SHEPHERD, Wakeman, O.

WANTED.—Position with some bee-keeper in southern California. I am a young man of good habits; five years' experience with bees; handy with tools; good board and wages expected. Those interested may write at once. Give full particulars in first letter.
L. F. LUEDTKE, Rt 21, Burlington, Wis.

For Sale.

FOR SALE.—Series telephones, $1.50; receivers, 45c; generators, $1. E. PRESSLER, 141 Armi. Av, Chicago, Ill.

FOR SALE.—Opaline honey-jars, all kinds; send for price list. HAROLD E. SHORE, Germantown, Pa.

FOR SALE.—Homestead farm crops in their season, consisting of honey, grapes, pears, apples, etc.
C. J. BALDRIDGE, Kendaia, Seneca County, N. Y.

FOR SALE.—Special sale of half a million of best Wisconsin sections; thousands of shipping-cases; big discounts on all supplies till February 1. Seeds of honey-plants. Write at once. H S. DUBY, St. Anne, Ill.

FOR SALE.—100 ten-frame extracting supers painted; Hoffman frames; full sheets wired foundation, used two years; price $1.00 each, in lots of five or more.
GEO. A. HUMMER, Prairie Point, Miss.

FOR SALE.—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1907 send your name and address to FRANK S. STEPHENS,
(Root's Goods.) Paden City, W. Va.

FOR SALE OR TRADE.—One Blair camera, 6½x8½, with tripod, carrying-case, plate-holders, lens, and shutters, complete. All enquiries answered.
F. C. WOOD, Dola, Ohio.

Bees and Queens.

FOR SALE.—My apiary at Cauto, Cuba. Over 300 colonies in good paying condition. Write at once.
R. M. MCMURDO, Charlottesville, Va.

FOR SALE.—All who intend to buy bees, queens, and hives, should write postal for Charles W. Zweily's 1908 catalog. CHARLES W. ZWEILY, Fremont, Ohio.

FOR SALE.—A full line of bee-keepers' supplies; also Italian bees and queens, and honey a specialty. Write for catalog and particulars. Choice melilotus (white sweet clover) seed for sale at eight cents per pound.
W. P. SMITH, Penn, Miss.

Poultry Offers.

FOR SALE.—Buff Leghorns, Cockerels, each $2, and M. B. turkeys, toms, each $4. JUL. BUEGELER,
R. F. D. 1, New Ulm, Texas.

FOR SALE.—Indian Runner ducks. Choice stock. Write me your wants. KENT JENNINGS, Mt. Gilead, O.

FOR SALE.—L. B. Barred P. Rocks, White Wyandotte cockerels, each $1. H. S. DUBY, St. Anne, Ill.

FOR SALE.—Fine White Wyandottes, S. C. White Leghorn and S. C. Rhode Island Red Cockerels, $1.00 to $2.00 each. L. A. JUNOD, Greenville, Ill.

Post Cards.

FOR SALE.—Post-cards; set of four fine embossed cards, 10c.; 10 for 20c., postpaid; retail at 5c. Send coin. GREAT EASTERN POST-CARD CO., Pentz, Pa.

POST CARDS.—Sample package of 6 beautiful new Christmas and New Year cards, with descriptive circular, postpaid, 15c; 12 for 25c. Special prices on larger quantities. M. T. WRIGHT, Medina, Ohio.

Send us your picture and we will copy it on one dozen post cards, and return the same with picture for 50 cts. postpaid. ACME POST CARD CO.,
603 South Broadway, Medina, O.

Real Estate for Bee-keepers.

FOR SALE.—40-acre farm in northwest Missouri; house, two lots, and five acres choice improved land; 200 colonies bees and fixtures; fox hounds that hunt all kinds of game; heavily furred buffalo-robe, and old Stradivarius violin. ELIAS FOX, Hillsboro, Wis.

FOR SALE.—A good Ohio home is offered cheap; 22 acres of land all cleared and tiled; a good two-story house and barn, and all other buildings as good as new; 125 fruit-trees; all kinds of fruit, all in good bearing condition; 20 colonies of bees, and a lot of bee-supplies, and a good extractor—a good chance for a bee-man. Write for price and description.
C. R. HAGEMAN, Homerville, O.

Wants and Exchange.

WANTED.—A good foot-power saw.
R. S. BECKTELL, Grand Valley, Colo.

WANTED.—500 colonies of bees in Texas, Arizona, or California. N. E. MILLER, Box 373, Logan, Utah.

FOR EXCHANGE.—Cypher's incubator.
W. H. KERR, Crawfordsville, Ind.

FOR EXCHANGE.—One new Americanized Encyclopaedia Britannica of 15 vols., which cost $48.50, for bees or supplies of like value; books are like new. Address CHAS. HURST, 384 Walden Ave., Buffalo, N. Y.

WANTED.—To buy, rent, or work on shares, 200 colonies of bees in standard hives.
EARL RULISON, R. F. D. No. 1, Amsterdam, N. Y.

WANTED.—To lease, with the option of purchase, an apiary in the West or Southwest. Cash rental. Please send all particulars to
W. K. MORRISON, 528 Friendship St., Medina, O.

WANTED.—Refuse from the wax-extractor, or slumgum. State quantity and price.
OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

WANTED.—Names of parties having bees to sell in South. Give price. Would like to correspond with bee-keepers on or near the Ohio, Cumberland, and Tennessee rivers. W W. CRIM, Pekin, Ind.

Honey and Wax For Sale.

FOR SALE.—Buckwheat and amber extracted honey in 50-lb. pails and 200-lb. kegs. W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—Fancy orange-blossom honey, 60-lb. cans, 9¾c; water-white sage, 60-lb. cans, 9½c; light amber, 60-lb. cans, 8¾c; dark amber, 60-lb. cans, 8¼. Special prices in quantities.
E. R. PAHL & CO., Milwaukee, Wis.

FOR SALE —Fine quality clover and basswood extracted honey in 60-lb. cans. MRS. C. L. PARKER, Sta. A, R. F. D., Syracuse, N. Y.

FOR SALE.—Choice table honey, heavy body, fine flavor, aster-buckwheat blend; 60-lb. cans, $5.00 each. Inquire H. M. WEST, N. Kingsville, Ashta. Co., O.

FOR SALE.—Choice buckwheat and clover honey, in 60-lb. jacketed cans, at 9 cts. for clover and 7 for buckwheat. G. H. ADAMS, Schenectady, N, Y.

FOR SALE.—One ton amber and buckwheat comb honey at $3.00 per case, 24 sections, in glass-front case; 18 light-weight cases at $2 50 per case; also dozen cases extracted. QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

FOR SALE.—9000 lbs. California white-sage honey at 6 cts.; 1000 lbs. light-amber at 5¾. In case lots (120 lbs.) white 6½; light-amber, 6¼. F. O. B. shipping-points. Samples 10 cts. each. All the above honey is guaranteed pure and well ripened. Address
R. M. SPENCER, Nordhoff, Cal

FOR SALE.—Fancy white comb honey; also extracted basswood, white clover, alfalfa, and amber honey in barrels or 60-lb. cans.
ROBT. A. HOLEKAMP & SON, 4263 Virginia Avenue, St. Louis, Mo.

FOR SALE.—5000 lbs of white-clover and basswood extracted honey in new 60-lb. cans at 10 cts per lb. by the case or for the entire crop. Two cans in a case. Cash must accompany order. This honey was left on the hives all summer and is of finest quality.
LEONARD S. GRIGGS, 711 Avon St. Flint, Mich.

Honey and Wax Wanted.

FOR SALE. 30 60-lb. cans ripe, heavy, alf clover, ⅛ cl‹ ome, *natural* blend. Strictly choice. Case, $10.80; can, $5 69. Samples. MOREY, Lagrange, Ill.

WANTED.—Western and Southern white and light amber extracted honey. D. E LHOMMEDIEU, Colo, Story Co., Iowa.

WANTED.—White ripe extracted honey; will pay cash. GEO. RAUCH, No. 5343 Hudson Boulevard, North Bergen, N. J.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.
R. A. BURNETT, 199 S. Water St., Chicago, Ill.

WANTED.—To buy basswood, clover, and amber extracted honey for cash. Best prices paid. Send sample, and quote price delivered in Preston
M. V. FACEY, Preston, Fillmore Co., Minn.

WANTED.—No. 1 and fancy comb honey; 4x5x1⅜ section preferred. Also light extracted. Must be guaranteed pure. Write, stating grade and how put up, and lowest cash price.
C. M. CHURCH, Arnold, Pa.

Bee-keepers' Directory.

QUEENS.—Clover stock. Experience and methods count. Write me. H. G. LARUE, LaRue, Ohio.

ITALIAN queens bred for honey, untested, 75c each. GEO. H. PLACE, 816 No. 49th St., Omaha, Neb.

Extra honey queens and choice mountain honey. Francis J. Colahan, Bernardo, San Diego Co., Cal.

QUEENS.—Pure Gold, Red-clover, Caucasian, Banat. ROSE LAWN APIARIES, College View, Lincoln, Neb.

ITALIAN QUEENS.—Golden and leather, 60c each; worth $1.00. G. W. BARNES, Box 340, Norwalk, O.

Bee-keepers' supplies, Italian queens. Send for a free catalog. ARTHUR RATTRAY, Almont, Mich.

ITALIANS, CARNIOLANS. No disease. Two-comb nucleus with queen, $3.00. A. L. AMOS, Comstock, Neb.

ITALIAN BEES and queens—Red-clover strain imp'd mothers. A. W. YATES, 3 Chapman St., Hartford, Ct.

ITALIAN BEES, queens, and Root's bee supplies.
E. SCOGGIN, Carlsbad, N. M.

I club a high-grade Italian queen with GLEANINGS, new or renewal. W. T. CRAWFORD, Hineston, La.

ITALIAN BEES and queens—red-clover and golden strains. E. A. SIMMONS, Greenville, Ala.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York City.

ITALIAN bees and queens bred for honey; price list free. B. F. YANCEY & SON, Angleton, Tex.

FINEST Golden and red-clover queens, Caucasian and Carniolan. DANIEL WURTH & GRANT, Pitkin, Ark.

ITALIAN AND CAUCASIAN bees and queens of best quality; price list free. A. E. TITOFF, Ioamosa, Cal.

FOR SALE.—Golden and red-clover Italian queens. WM. A. SHUFF, 4426 Osage Ave., Philadelphia, Pa.

GOLDEN yellow Italian queens—my specialty. Price list free. E. E. LAWRENCE, Doniphan, Mo.

ITALIAN BEES, queens, honey, and ROOT'S bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

FOR SALE.—Root's bee-supplies, wholesale and retail; factory prices; catalog free. Beeswax wanted.
W. E. TRIBBETT, Staunton, Va.

IMPROVED ITALIAN QUEENS now ready; nuclei and colonies about May 10, Danzenbaker or L. frames; 20 years a queen-breeder; 500 colonies to draw from. Circular and testimonials free.
QUIRIN-THE-QUEEN-BREEDER, Bellevue, Ohio.

ANGEL'S GOLDEN BEAUTIES and his bright three-banded Italian Queens have but few equals and no superiors. A fine large queen of either strain for $1.00; an extra select breeder for $2.50. I have had 12 years' experience at queen-breeding. Address
SAMUEL M. ANGEL, Route 1, Evansville, Ind.

Our records show that something like 2000 copies of the new edition of the A B C of Bee Culture were sold before it was off the press. We are making delivery as fast as possible, and hope that all of our friends will be supplied before this issue reaches them.

SUNDAY SCHOOL TIMES.

There is no weekly home paper for the moral and religious nourishment of the family that will equal the *Sunday School Times*. It is especially helpful to Sunday-school teachers and others interested in Bible study. We can supply it clubbed with GLEANINGS at $1.75 for the two, the regular price of each being $1.00.

ADVANCE IN PRICE OF BUSHEL BOXES.

Because of increased cost of lumber we are obliged to mark up the price on bushel crates and boxes. Until further notice the price of all-slatted bushel boxes, 14 to crate, is $2.10 per crate; 12 to crate, $1.90; galvanized bound, 12 to crate, $2.50. A corresponding advance is made in wholesale and jobbing prices.

WHITE-SWEET-CLOVER SEED.

We have secured a pretty good stock of unhulled white-sweet-clover seed. We find in several instances a large local demand for the seed at better prices than we have been selling at, and that, in order to make it an object for those able to gather the seed to do so, we shall have to pay better prices than we have been doing in former years. Our stock of seed secured for the coming season is little more than half what we had a year ago. We are obliged, therefore, to raise our selling prices to 25 cts. per lb., postpaid; 15 cts. where shipped with other goods; $1 30 for 10 lbs.; $11 00 per 100 lbs.; hulled seed at 8 cts. per lb. extra.

YELLOW-SWEET-CLOVER SEED.

We have finally secured a choice lot of yellow-sweet-clover seed which is now on the way to us from Oregon. The sample we received is hulled, and we suppose the bulk lot will be the same. We can offer this at 25 cts. per lb.; 10 lbs. $2 30; 100 lbs., $21 00. By mail, 8 cts. per lb. extra. The chief advantages of the yellow over the white is in the fact that it blooms at least two weeks earlier. From some reports received it is not so hardy or so luxuriant in growth as the white.

STEEL HIVE-TOOL NICKEL-PLATED.

After much experimenting we have adopted a hive-tool, about eight inches long as shown above. It is made of tempered spring steel, about 1⅛ inches wide at each end, sharpened and one end bent over at right angles for a scraper or a rest for the hand when inserting the opposite end to separate parts of hives. It is nickel-plated and polished. Price 40 cts.; by mail, 46 cts.

WAX MOLDS FOR OUNCE CAKES.

There is a very large demand for little cakes of beeswax for various household purposes. You will find that nearly every druggist keeps wax, not only for compounding but for sale. Since the enactment of the national pure-food law there has been a stimulus to the demand for cakes of pure beeswax where, before, a mixture was often used. We have calls for molds for making these small cakes. We have not heretofore had them to furnish. We found something of compact form, and just the right size to hold one or two ounces of wax. They are pressed tin retinned. Price of one-ounce size, 35 cts. per dozen; by mail, 40 cts.; of the two-ounce size, 40 cts. per dozen; by mail, 50 cts. For our trade we put up each ounce cake in a carton, and 32 cakes, or 2 lbs., in a large carton, which sells to the dealer for $1.00. The price of these cartons depends on the quantity you require and the printing on them. Prices quoted to those interested, on application. For limited local need you can doubtless work up a trade without the cartons.

GERMAN EDITION OF THE A B C OF BEE CULTURE.

We find when we get all our figures together that the production of the A B C in German is a bigger expense than we anticipated, and that $2.00 each for the paper-bound edition does not cover first cost to us, even if we could sell every copy for cash at the full retail price. Compared with other works of like size and nature of contents the price ought to be $5.00 per volume; but we know very well that very few would buy at that price. To make the price reasonable, and at the same time bring us somewhere near first cost, we will ask $2.50 postpaid for the cloth-bound edition and $2.00 for the paper-bound. When shipped with other goods by freight or express, 20 cents may be deducted. If any of our readers know of German friends who do not read English readily, and would like to read the A B C in their native tongue secure their order for the book at the above prices, and for 50 cts. additional we will send GLEANINGS one year to your address or any other to which you may prefer to have it sent.

PERFORATED ZINC FOR QUEEN-EXCLUDERS REDUCED.

During the past few months the market price of spelter and sheet zinc has declined sharply, so that zinc is now selling as low as it did in June, 1905, although it lacks more than one cent a pound of being as low as it was in June, 1904. Because of the reduced cost of zinc, we revise prices on perforated metal, taking effect from this date.

Sheets, 32x96 inches, will be $1.50 each.

PRICE LIST OF ZINC HONEY-BOARDS.

No.	NAME AND SIZE.	Price of 10.	Weight of 10.
1	10-frame unbound zinc, 14×19⅛.....	$1 50	7 lbs.
2	10-fr. large unbound zinc, 16×20.....	1 70	8 "
11	8-frame unbound zinc, 12×19⅛.....	1 30	6 "
9	8-frame wood-zinc, 13⅞×20.....	2 10	13 "
10	10-frame wood-zinc, 16×20.....	2 40	14 "
12	10-frame wood-bound zinc, 16×20.....	2 00	11 "
13	8-frame wood-bound zinc, 13⅞×20....	1 80	10 "

WIRE QUEEN-EXCLUDERS. PATENTED OCT. 8, 1907.

On another page of this issue we show something new in queen-excluders, which we believe will be a great gain in saving wear and tear on the bees' wings passing through it when contrasted with perforated zinc.

Alley traps and entrance-guards with wire instead of zinc in entrance will be 5 cts. each more than the old style—namely,

Wire Alley trap, 8 or 10 frame, 50c each; $4.50 for 10.
Wire entrance-guard 8 or 10 fr., 18c each; $1 50 for 10.
No. 7 wire and wood honey-board, 16x20, $3.50 for 10.
No. 8 wire and wood honey-board, 13⅞x20, $3 00 for 10.
Wire entrances, pieces for either Alley trap or entrance-guard, 10 cts. each.
Wire strips for honey-boards, $2 20 per 100.

NEW HONEY-JAR.

We have found a new honey-jar which is not only neat in appearance, and seals tight, but is lower in price than any of the jars listed in catalog. We shall have it in ½-lb. and 1-lb. size. The mold for the 1-lb. size is not yet ready, and we shall not have the jars in stock for some weeks. We have a few of the ½-lb. size. We can mail a sample for 15 cts. to pay packing and postage.

REMITTANCES FOR ORDERS AND ACCOUNT.

We are under the necessity of asking our friends and patrons when making remittances not to send checks on local banks, but to send, instead, either a bank draft on New York or Chicago, or a postoffice or express money order. The tight money market through which numerous sections are passing is making it difficult for us to get credit at the banks for local checks, and in some cases we may be obliged to return them and ask instead for a remittance in one of the forms mentioned above. Where we make payments we almost invariably do so by New York draft. Where you can not remit by any of the methods mentioned, then send money by registered mail. The most approved methods, however, are by bank draft, postoffice or express money order.

SECOND-HAND FOUNDATION-MILLS.

We have to offer the following second-hand foundation-mills in good condition. We shall be pleased to hear from any one interested. To such we can send a small sample of comb foundation representing the kind of work produced by the particular machine you enquire about.

No. 078.—6x2½-inch hex. cell thin super mill, in very good condition. Price $12 00.

No. 079.—6x2½-inch hex. cell thin-super mill, in very good condition. Price $12.00.

No. 088.—6x2½-inch hex. cell thin-super mill, in good condition. Price $12.00.

No. 086.—6x2½-inch hex. cell extra-thin-super mill, in good condition. Price $12.00.

No. 088.—12x2½-inch round-cell heavy-brood mill, in fair condition Price $12.00.

No. 082.—10x2½-inch round-cell medium-brood mill, in very good condition. Price $15.00.

No. 090.—10x2-inch round-cell medium-brood mill, in fine condition. Price $15.00.

No. 091. —10x2-inch hex. cell, medium or light brood mill, in good condition. Price $15.00.

DR. MILLER SPLINTS.

We have often had calls for wood splints for use with foundation in brood-frames to prevent sagging, as used and recommended by Dr. C. C. Miller. We have usually made them by sawing them out, and wasted more than three-fourths of the wood in sawdust. We have hit upon a plan of slicing them, thereby saving all the wood, and cheapening the process as well. We can furnish them 8⅝ inches long for L. frames at 50 cts. per 1000 by mail; 40 cts. shipped with other goods. Small lots at 10 cts. per 100 postpaid. Other lengths can be furnished as well. If shorter, same price in 1000 lots. If longer, add fifty per cent up to 12 inches long.

CARTAGE CHARGE ON ORDERS FILLED BY OUR CITY BRANCH OFFICES.

The expense of doing business in our large cities is so great that we can not continue furnishing goods at regular prices free on board cars from our city branch offices. It is a great accommodation to many customers, especially in the busy season, to be able to secure goods promptly and at lower freight rates from these distributing centers, and I am sure they will be willing to share with us the heavy expenses necessary to make this accommodation possible. Hereafter on all orders from Chicago, New York, Philadelphia, and Washington offices, shipped by freight, a cartage charge of 25 cts. will be made on orders of $3.00 or less; 35 cts. on orders of $3.00 to $5.00; 50 cts. on orders of $5.00 to $10.00; over $10 00 in value, 5 per cent of the bill, or 20 cts. per 100 lbs., if that figures less than the 5-per-cent plan.

These charges do not cover the cost to us, but represent a fair division of the cost.

EARLY-ORDER CASH DISCOUNT.

We have been obliged to cut down the early-order cash discount below that offered in former years; but it is still sufficiently liberal to pay transportation charges quite a distance, or to pay liberal interest on the money invested in supplies early, and should attract those forehanded people who know pretty well what they want for the coming season.

The following is the schedule of discounts for early cash orders for bee-keepers' supplies, subject to the conditions below:

For cash sent in	December,	deduct	4 per cent.
" " "	January,	"	3½ "
" " "	February,	"	3 "
" " "	March.	"	2½ "
" " "	April,	"	2 "

The discount is only for cash sent before the expiration of the months named, and is intended to apply to hives, sections, frames, foundation, extractors, smokers, shipping-cases, cartons, and other miscellaneous bee-keepers' supplies. It will not apply on the following articles exclusively; but where these form no more than about one-tenth of the whole order the early-order discount may be taken from the entire bill: Tinned wire, paint, Bingham smokers, Porter bee-escapes, glass and tin honey-packages, scales, bees and queens, bee-books and papers, labels, and other printed matter, bushel boxes, seeds, and other specialties not listed in our general catalog.

PRICE LIST OF HAND SECTIONAL HIVE AND PARTS.

We have had numerous calls for sectional hives just as Mr. Hand uses them. We will not list them in our catalog for the coming season, but will make them up to supply on special order, to those who desire to try them, at prices in table below. The outside dimensions being nearly the same as the regular Dovetailed hive, the regular covers and bottoms can be used.

Each section is 19⅛ in long, 5⅛ in. deep outside; upper portion of side removable with clamps to hold it in place. Sections used are 4¼x4¼x1⅛ plain, split three sides. Furnished in both eight and ten frame size	Designating or Short Name	Nailed and Painted Each	In Flat: Each	In Flat: Five	In Flat: Weight of 5
Hand brood or extracting section, including the frames, springs, clamps, and nails; no foundation	Hand 8-8	$ 65	$ 50	$ 2 25	35
	Hand 8 10	70	55	2 50	40
Hand brood or extracting section, including the frames, springs, clamps, and 1-inch foundation starters	Hand 9-8	75	60	2 50	35
	Hand 9-10	80	65	2 75	40
Hand brood or extracting section, including the frames, springs, clamps, and full sheets comb foundation	Hand 0-8	1 30	85	4 00	38
	Hand 0-10	1 40	95	4 50	43
Hand comb-honey section, including section-frames, and fences; no sections or foundation starters	Hand 2-8	75	60	2 75	30
	Hand 2-10	80	65	3 00	35
Hand comb-honey section, including section-frames, fences, sections, and full sheets foundation	Hand 1-8	1 45	1 00	4 75	35
	Hand 1-10	1 55	1 10	5 25	40
Hand four-section hive including two brood and two comb-honey sections; no sections or foundation starters	HandCE8822-8	3 50	2 65	12 00	180
	HandCE8822-10	3 75	2 90	13 25	190
Hand four-section hive including two brood and two comb honey sections with sections and full sheets foundation	HandCE0011-8	6 30	4 25	20 00	200
	HandCE0011-10	6 75	4 70	22 25	210
Hand sectional super, no inside fixtures, including clamps nails, and flat tins	Hand Super-8	40	30	1 25	22
	Hand Super-10	43	32	1 35	24

Hand brood-frames, 4⅞x17⅝x1⅜; ends, 1⅜x⅞; top, ⅛x⅜; bottom, ½x¼ ....$2 00 per 100 in flat; $18.00 per 1000
Hand section-frames, 4⅞x17⅝x1⅛; ends and top, 1½x¼; bottom, 1⅛x⅜..... 2.50 " " 22.00 "
Hand fences, 4⅞x17⅝, P style ..... 1.75 " " 16.00 "

Orders for these hives can be filled only from Medina, as they are not in stock at branches and agencies, and will not be carried in stock unless the demand for them warrants it. Orders placed early, giving time for delivery, can often be forwarded in cars to nearest distributing point if so requested.

ALFALFA HONEY, COMB AND EXTRACTED.

We have received in the last few weeks a car each of comb and extracted alfalfa honey. The extracted comes from Utah, and the comb from western Colorado. We are selling the extracted in 60-lb. cans at 10 cts. in single-can lots; 9½ cts. by the case of two cans; five cases or more at 9 cts. per lb.

The comb honey, 24 sections to the case, sells at $4.00 per case; per crate of 8 cases or more, $3.80 per case; 25 cases or over, write for prices. No. 2 honey at 30 cts. per case less. We also have some New York and Pennsylvania white comb honey at 18 to 20 cts. per lb., according to quality or grades. We are in the market to buy clover extracted honey. If any of our readers have any to offer, mail sample and write us, stating how much you have, how packed, and what you ask for it.

CATALOG FOR 1908.

The work of revision on our catalog for 1908 is nearly completed, and we hope to have some ready for distribution by Jan. 1. We are revising descriptive and price tables on hives. The price list of Hand hives in this department shows the style in which all hives except the chaff will be priced in the new catalog. Several new items will be included in the new catalog, and the changes in price of some items as noted in this department will be included. We insert prices only for small lots or single articles this year. The price of larger quantities will vary according to location and conditions, as the catalog is used by the dealers and agents who pay freight from here to them, which freight varies according to distance. Larger quantity prices will be quoted on application.

THE NEW EDITION OF THE A B C OF BEE CULTURE NOW READY FOR DISTRIBUTION.

The new edition of the A B C of Bee Culture has finally, after a great deal of labor, been completed. So far from being merely a work for beginners, or the A B C, it is also an X Y Z of the business, and hence equally valuable to the veterans, for it gives all the latest processes and methods of the most advanced bee-keepers, as well as those that may be used by the novice.

It very often occurs that an experienced bee-keeper has, within a year or so back, read such and such a method for producing comb honey or some one else's plan for the prevention of swarming. He has not kept a file of the journals. He can not remember in what issues those methods appear. On reading them at the time, he determined to give them a further test when the season opened up; but where, oh! where, can he find those journals containing just the articles that describe these methods? Well, the new work has given in brief some of the most important; and all he has to do is to turn to the index and find what he wants boiled down in clear language.

Then, again, it often happens that the bee-keeper hears about the Heddon method of transferring, or reads something about Alexander's method of strengthening weak colonies in the spring. Again, he sees something about the Doolittle or the J. E. Hand scheme for producing comb honey in connection with the divisible-brood-chamber hive. He is all at sea; but the new volume will tell him all about these and more.

But in a scientific way the A B C and X Y Z is far ahead of what it has ever been before. The botanical list of honey-plants has been almost entirely re-written by W. K. Morrison; the chemistry of honey, of glucose, and of nectar are all covered by the same writer.

Mechanically the new edition has been improved by the use of an almost entirely new set of engravings, the old ones being reëngraved, and the use of enameled book paper, the most expensive paper of the kind procurable. This brings out not only the letter-press but the engravings as well to a point of brilliancy and clearness that is pleasing.

But it would take quite a little volume to tell about the new features of this magnificent work, and the reader will have to see it in order to appreciate its merits. While it is nearly 100 pages larger, and all told 300 pages of new matter, the price has been increased only slightly — from $1.20 by mail to $1.50, or $1.25 if sent with other goods. Or in half morocco, $2 00, postpaid, or $1.75 with other goods. Full leather, $2.50, postpaid, or $2 25 with other goods.

Convention Notices.

The annual convention of the Tri-state Bee-keepers' Association will be held at Wheeling, W. Va., on December 18th, at the hall of the Knights of the Golden Eagle, corner of 38th and Jacob Streets Mr. L. C. Seabright, of Blaine, Belmont Co., Ohio, and Col. Henry Lewedag, of 38th Street, Wheeling, have made arrangements for an up-to-date entertainment, and a good time is expected. Visitors will be welcome.

NEW YORK STATE BEE-KEEPERS' CONVENTIONS.

A series of bee-keepers' meetings will be held in this State as follows: Mt. Morris, Dec. 9; Canandaigua, Dec. 10. 11; Auburn, Dec. 12; Syracuse, Dec. 13; Fulton, Dec. 14; Watertown, Dec 16, 17; Amsterdam, 18. 19; Albany, Dec. 20; Glenns Falls, Dec. 21. Mr. C. Stewart, of Sammonsville, N. Y., has been designated as conductor, and he will be present at all of the meetings. The annual meeting of the New York State Association of Bee-keepers' Societies will be held at Amsterdam, Dec. 18. 19. All interested in bee-keeping are invited to attend these meetings.

Romulus, N. Y. C. B. HOWARD, Sec.

The Michigan Bee-keepers' Association will hold its annual meeting at Saginaw, the first session being on Wednesday evening, Dec. 18, and the last one on Friday afternoon, the 20th. Headquarters will be at the Sherman House, at which the special rate of $1.50 per day has been secured. Among the speakers will be R. F. Holtermann, of Brantford, Ont.; L. A. Aspinwall, Jackson, Mich.; E. D. Townsend, Remus Mich.; W. J. Manley, Sandusky, Mich., and W. Z. Hutchinson, Flint, Mich.

An exhibit of honey and wax will be made, and premiums are as follows:

Best single section of comb honey, one Advance bee-veil by The A G. Woodman Co., Grand Rapids.

Best six sections of comb honey, 500 sections by The A. G Woodman Co.

Best 5 lbs. of beeswax, one Hilton hive by Geo. E, Hilton, Fremont, Mich.

Best 5 lbs. of extracted honey, choice of one year to *Bee-keepers' Review* or one copy of Advadced Bee Culture by W. Z Hutchinson, Flint, Mich.

Best suggestion or plan offered to increase membership of the association, the same to be in writing, and not more than 150 words, one copy of *de luxe* edition of the new A B C of Bee Culture, M. H. Hunt & Son, Redford, Mich. For further information write to ELMORE M. HUNT, Redford, Mich.

ELECTION RETURNS FOR THE NATIONAL.

Pres'dent.—George E. Hilton	556
L. A. Aspinwall	262
Vice-president.—G. W. York	324
W. L. Coggshall	166
W. Z. Hutchinson	150
Secretary.—W. Z. Hutchinson	363
G. W. York	222
J. A. Green	157
O. L. Hershiser	89
General Manager.—N. E. France	839
Dr. C. C. Miller	1
E. R. Root	1
J A Green	1
Total vote	843
Tree Directors.—Wm. McEvoy	500
E. W. Alexander	496
R. C. Aikin	372
W. H. Laws	324
L. A. Aspinwall	231
P. H. Elwood	177

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This is to notify you that Norris & Anspach, Kenton, Ohio, are no longer our agents and we can not be responsible for any orders sent them. If you wish any of our goods, kindly send your orders to our agents, Cleaver & Green, Troy, Penna.

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The new methods of queen-rearing have been carefully reviewed, and the main points incorporated in the new edition, so that the practical bee-keeper who possesses a copy will have the best ideas of the subject constantly by his side for reference.

The new methods of wax-production are treated in an exhaustive fashion; and as this subject is now of more importance than formerly, more space has been devoted to it.

The new power-driven automatic extractors are amply illustrated and described. The subject of diseases has received entirely new treatment to keep pace with the new discoveries of the last few years. The laws relating to bees have for the first time received full treatment. No other bee-book treats of this very important subject. Honey, sugar, nectar, and glucose are carefully defined in accordance with the demands of our new pure-food laws.

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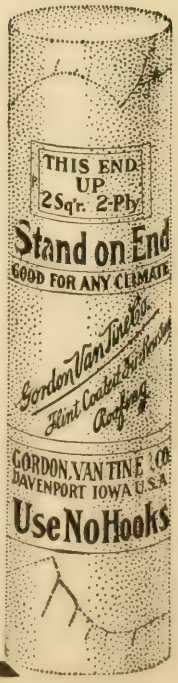

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